

Educational Perspectives

Journal of the College of Education/University of Hawai'i at Mānoa



ONLINE LEARNING

Volume 35 ■ Number 1, 2002

Educational Perspectives

Journal of the College of Education/University of Hawai'i at Mānoa

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Online Learning
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editorial

JAISHREE ODIN AND HUNTER MCEWAN

New technologies have brought about a second communication revolution with greater life transforming power than the printing revolution. The Internet has become a network of communication and a vast archive of knowledge. It has also become a working space for distance independent communities of learning. Schools, universities and colleges, nationally and globally, are exploring the potential of new technologies to improve instruction in the classroom and to increase access for students. Many inter-university and intra-university alliances are emerging as participating institutions share their resources to reach ever-greater numbers of students. These online partnerships involving university systems and university-school partnerships are making institutional walls more permeable as students click their way with ease from one campus to another and register for courses through shared portals.

Online education is of special importance in the state of Hawai'i. The island topography makes it difficult, if not impossible, for many students to participate in higher education, especially in areas isolated from population centers and on neighbor islands. In addition, the University has evolved as a system of commuter campuses, and, as result, the continuing-education course offering is very limited. Such barriers exclude a vast number of potential students and working professionals who, because of work commitments, cannot access campus-based courses. Online distance learning in Hawai'i has the promise to solve many of these problems of access, by making courses and programs available to a diverse student population located anywhere in the state, and even outside the state. Thus, the ten campuses of the University of Hawai'i (UH) system as well as Hawai'i Department of Education (DOE) have moved aggressively to extend their reach and offer new options to students that the old system failed to reach.

In this issue of *Educational Perspectives*, we provide a Landsat-like overview that offers details of the many online projects that are now underway in the state, with a particular focus on work now being undertaken at UH and in the DOE. The contributors describe their

experiences, offer accounts of their successes and note some of the challenges they have had to overcome in developing and implementing online distance learning programs for students and professional technology training programs for teachers.

Deane Neubauer, UH-Mānoa's Interim Vice President for Academic Affairs, helps set the scene by describing the global context and the challenges that the university faces as its involvement in distance education projects increases. Neubauer offers three useful principles that will act as guide to action in proceeding with these developments. **Victor Kobayashi**, the former dean of Outreach College, discusses the state of online distance learning in the nation and describes how these "tradition-shattering changes" are affecting the tradition-bound practices of colleges and universities. Kobayashi's article provides a useful road map of the distance education terrain as well as offering a lucid explanation of the various terms and distinctions that have developed in the field.

Jaishree Odin's essay describes the Asynchronous Learning Project at UH. This project, funded by the Sloan Foundation, was instrumental in creating a number of online programs at UH Mānoa and UH Hilo. Her article highlights some of the important issues and developments involved in creating sustainable and scalable online distance learning programs at the University of Hawai'i. **Rebecca Lee** presents an insider's view of the challenges facing faculty at West O'ahu, in their efforts to create a new online degree and new certificate programs. The perseverance of the faculty and the support of the West O'ahu administration have been central to their success. The institutional commitment has been considerable and faculty members receive three credits of release time, or the equivalent in overload pay, when they develop an online course for the first time. In addition, West O'ahu's collaborative faculty development model has resulted in an environment where faculty share their experiences with one another in special workshops on various pedagogical aspects of online learning. **Marilyn Walsh's** piece on community colleges shows

how all seven UH community colleges are effectively working together to create a joint Associate of Arts program to be delivered through distance technologies. Most of the courses are being offered online. The success of this collaboration is reflected in increasing enrollments in online courses offered by the community colleges.

Paul McKimmy, Director for Outreach and Technology for the College of Education, highlights the efforts of the College to create hybrid models of distance learning to train DOE teachers throughout the state of Hawai'i. At the same time that these online initiatives are coming to fruition at various campuses, the Hawai'i Department of Education is also making rapid strides in making online learning accessible to students and technology training available to teachers.

Hawai'i DOE's Advanced Technology Research Branch, through a series of grants obtained over last several years, has been able to create a Magnet E-Academy, Oracle Internet Academy for students, as well as creating professional development programs for teachers and administrators. Since technology support and faculty development is an integral part of creating a sustainable and scalable distance learning system, **Hae Okimoto** describes the various initiatives of the UH's Information Technology Services to train the faculty in technology as well as pedagogy so they are better prepared to use technology effectively in both bricks and clicks classrooms. The final article, by **Haruo Nishinosono**, looks beyond the developments in Hawai'i and represents some of the important and related work underway at Bukkyo University in Kyoto, Japan.

Cover Photo: A montage of photographs featuring students engaged in online learning designed by **Mike Tamaru**, publications manager in the Office of External Affairs and University Relations, UH Mānoa.



Jaishree K. Odin is an associate professor in the Liberal Studies Program of the University of Hawai'i at Mānoa. She has served as the interim assistant dean of UHM Outreach College. In 1996, she received a grant for \$30,000 from the Sloan Foundation to create the University of Hawai'i's first online course using a course management system *Learning Space (Lotus Notes)*. She is currently the co-investigator and project director of the UH *Asynchronous Learning Network Project*, which was made possible through a second grant for \$405,000 from the Sloan Foundation in 1999. Her research focuses on various aspects of online education and related pedagogical issues.

Hunter McEwan is professor of education in the Department of Educational Foundations, UH Mānoa. He is the editor of *Educational Perspectives* and currently serves as the coordinator of the Master of Education in Teaching Program at UH.

Three Principles of Distance Education

DEANE NEUBAUER

In one of my academic homes at the University of Hawai'i, the *Globalization Research Center*, we are trying to gain a better understanding of the ways in which new technologies and ways of organizing learning across the globe have been transformed in the last five to eight years and, more importantly, we are seeking to get a sense of how they will be transforming in the next five to eight years. We are deeply concerned about the implications of the digital divide that creates social and economic inequities between those who have access to these technologies and those who do not. These issues and concerns provide a context for thinking about distance education and its role within the University of Hawai'i as I have come to think about it. Clearly we have much to gain by using distance education as a way of maximizing the potential of the University of Hawai'i. To say the obvious, we are a university system of three different levels, ten different campuses spread across an archipelago. We are separated by distance in ways that other universities are not, and it is absolutely crucial that we work together through distance education.

We want distance education to assist us in responding to changes in technology, to changes in the marketplace and, more importantly, to assist us in creating opportunities and fulfilling the increasing demands of our students for different kinds of services from the university.

I would like to suggest three principles that have arisen during our conversations about distance education at the University of Hawai'i. The first is the principle of multiple modalities. By modalities I mean not only the techniques but also the aesthetics and qualifying practices of distance education. We need to make use of the university in terms of its many distance education capacities in both synchronous learning and asynchronous learning, and promote the whole range of opportunities in wired and wireless communications.

Secondly, we want to ensure that distance education is neither independent nor in competition with traditional, campus-based classroom pedagogical techniques and orientations. Rather, new technologies offer new ways to be active in the world, to be in communi-

cation with each other, and to be engaged in instructional activities. They complement and enhance those kinds of classroom activities that we have engaged in rather than replacing them.

Thirdly, we want to seek ways to create virtual communities of distance learners and tie them to those non-virtual communities that constitute the core of the University. We want to use technology to make education more convenient and to enhance the quality of the educational experience. The essential component in achieving convenience and quality education for students and for the rest of us will be to integrate it and link it to a newly designed and implemented student information system. This system will link students and support services in a cooperative and convenient way throughout the system.

Although the definition of distance learning is "technologically mediated instruction offered at a distance," we must remember that the distances we are referring to could be across the globe or across the street; distances that can be spanned in real-time or asynchronously. It might even be a combination of real-time and asynchronous instruction. Once again, I want to emphasize the fact that in a highly complex university such as ours, we need to make use of all of the modalities of distance education and seek to use them cooperatively.

I think it is clearly the case that the new technologies that are under development will continue to bring us new opportunities. It is the University of Hawai'i's opportunity and obligation to utilize these technologies to leap across boundaries and borders—to find ourselves in new pedagogical relationships with prospective students and other educational partners. The University of Hawai'i, as we all know, is an institution with a core commitment to developing its role as an international university, and particularly to expanding its links to Asia and the Pacific. It is obviously the case that new technologies will help grow new relationships with our partners already in the Pacific and partners yet to be identified. As with all complex endeavors, it is inevitable that there will be differences in ideas about where we need to go and how to get there. It is important, therefore, that our

efforts be cooperative. By working together, our goals will be achieved with greater efficiency and our differences will produce a stronger and more effective set of solutions. Our aim should be to seek a more complete articulation of what our common vision is in distance education.

At the *Globalization Research Center*, we often speak of distance education as a rapidly moving target, and I think that is the same for us institutionally. I hope that our continued efforts will lead us to a vision for distance education that works for the University of Hawai'i as a whole.

Since July of 2001 to May 2002, I have had the opportunity to move around the University in a dual capacity as Interim Chancellor and Interim Vice President for Academic Affairs. I have been absolutely astonished at the range of capabilities of my colleagues at the University in a variety of disciplines and modes. Distance education, as it is currently evolving, has a certain quality of entrepreneurialism and individual initiative attached to it that is exciting. It also offers exciting opportunities for collaboration that will foster a greater appreciation of the work of our colleagues, both in terms of the range and quality of their expertise. Occasions for collaboration will become a locus for new synergies to develop. Part of our challenge, then, will be to find ways to inform and instruct each other about the sorts of projects that we are developing and to seek ways to collaborate.

I hope that we can develop a greater clarity about the processes that can be used to bring the multiple modalities and technologies and people together to focus on the task of furthering distance education. We do not always work together successfully as a group of administrative units, nor as a bureaucracy. We should therefore seek to create efficient administrative routines for engaging in these efforts that are transparent to our students and allow us to work together cooperatively and collectively.

I hope that through these efforts we can gain a greater appreciation of the difficulty and complexity of the work that lies ahead; not to stand as barriers to the achievements that we seek, but to allow us to be realistic about the level of our endeavors and the commitments that we will have to make to fulfill them.

Clearly we need to work with the entire faculty to support funding initiatives and to help coordinate efforts at Mānoa and system wide. We also need to

work together to redefine the qualifications and incentives that support individuals and programs that seek to use these technologies to enhance teaching and learning. We hope to be able to provide support in identifying the students who need these technologies to complete their coursework in a timely and effective manner at the University of Hawai'i.

Remember that this is a collective endeavor that will require everyone's cooperation and participation over the next several years. I pledge my commitment to create opportunities for productive conversations that will allow us to see the full potential of distance education and to gain those realizations among ourselves. This issue of *Educational Perspectives* offers one such forum for what we hope will become an evolving conversation on the subject of distance education.



Deane Neubauer is currently serving as Interim Vice President for Academic Affairs for the University of Hawai'i (UH). In this capacity, he oversees Distance Learning for the UH system.

During the 2001-2002 academic year, he served as Interim Chancellor of University of Hawai'i at Mānoa (UHM) and as Director of the Globalization Research Center. He is also a professor in the department of political science and former dean of social sciences. His research, teaching and publications focus on globalization and social and health care issues.

Transformations in Higher Education: Online Distance Learning

VICTOR KOBAYASHI

Higher education is undergoing radical shifts that are part of the larger wave of changes taking place in our society. The transformation affects all sectors of higher education, especially distance learning and how it relates to the University's regular offerings. I begin with clarifying the terms commonly associated with distance learning and elaborate on two main instructional models of online distance learning. Locating the developments in distance learning within the broader transformations in higher education, I explore how the tradition-shattering changes brought about by the potential of new technologies are impacting the tradition-bound activities of bricks and mortar campuses as they give rise to new organizational structures and new management styles in higher education.

DISTANCE LEARNING AND DISTRIBUTED LEARNING

Distance learning involves increasing access to education through transcending the barriers of geography that separate the teacher from the learner. Distance learning is sometimes considered a subset of "distributed learning"—a generic term that encompasses technology-mediated learning in which a combination of modalities may be used depending on the nature of the curriculum as well as the students. "Distributed learning" is an open model, and therefore encompasses much of what is done in "traditional education." As a result, the concept has been useful to many educators in referring to the fundamental changes that are part of the Internet revolution. Although the American Council on Education and Educause have made a case that the two terms, "distributed education" and "distance education," are almost interchangeable (Oblinger, et. al., 2001), it is nevertheless important to note that they address distinctly different concerns, depending on the context. Distance learning, then, is primarily about access, rather than about the modalities that can be used in providing the appropriate learning experiences for students. "Distance learning" can be a subset within the constraints of a particular system of "distributed education." However, as access becomes the focus, "distributed educa-

tion" becomes a subset of "distance learning," since certain modalities may hinder access.

We learn more directly about the revolution in education if we consider the following possibilities inherent in the use of the Internet in distance learning, since these possibilities can also be incorporated into non-distance learning modalities:

- Students can now participate in the same class even if they live thousands of miles away from each other in different time zones. This was ordinarily not possible in the past, except through "correspondence education," using assignments mailed to the students, a practice that had many other limitations.
- The increasingly easy access to the Internet and thus learning networks almost anywhere in the world provides the opportunity for students and faculty to be "nomadic"—an opportunity not readily available in the past. Students and faculty can be anywhere, and can be temporarily away from their principal places of residence.
- Students and faculty can be in touch with each other at any time of the day, seven days a week, regardless of time zones, when the Internet access to discussions and course material is available asynchronously.

Increasingly, research on the outcomes of asynchronous forms of networked learning indicates that students do as well as or even better than those in traditional classrooms. In fact, in her concluding statements to the Fourth Pew Learning and Technology Symposium, Carol Twigg raised the possibility that better results may be achieved by opening up new avenues for learning:

The new providers who participated... are creating a new higher education paradigm, which includes new boundaries for behavior, new guides to action, and new rules for

success. As we continue to develop online courses and programs, let's follow their lead, building on the strengths of the Internet to create new learning environments that surpass traditional modes of instruction. (Twig, 2001, 18).

TWO MODELS IN ONLINE DISTANCE LEARNING

On surveying online distance learning as it is practiced across the nation, two basic models emerge: the broadcast model and the asynchronous learning network model. The broadcast model is based on the assumption that the instruction involves transmission of knowledge from the teacher to the students whereas the asynchronous learning network model is based on constructivist theories of learning where students are seen as actively involved in constructing knowledge.

Broadcast Distance Learning

A typical format for a traditional college class primarily involves the faculty member lecturing to students. Reading assignments, group discussions, films, quizzes, etc., often accompany the centerpiece lectures. The lecture with other accompanying activities where the focus is on the transmission of knowledge is an example of "broadcast" teaching. The broadcasting of information can easily be done over the Internet. Extended "bandwidth" websites can provide live lectures in video and audio format along with lecture text (for hearing impaired students). Posted syllabi and lectures can now be made readily available to students both on-campus and in remote locations, where they can be downloaded and printed even before the class officially begins. More complex, interactive, pre-scripted programs can also be made available in the asynchronous "broadcast" mode, such as individualized instruction packages, self-assessment tools for the students (including quiz databanks), etc. Indeed many corporate training programs utilize this form of broadcast distance learning, allowing employees to receive training modules without leaving the home or workplace.

The broadcast approach is attractive to many administrators since it offers opportunities to drastically reduce the costs of education by increasing class size and by providing more "canned" education for students. Some traditional institutions also employ the

broadcast model of teaching online courses by videotaping lectures and making them available in a streaming media format on the Internet. In some cases, the broadcast model of presentation is accompanied by both chats as well as asynchronous online discussions.

Asynchronous Learning Network

In asynchronous learning network courses, the focus shifts from preparing elaborate web-based materials to the more valuable elements of the college experience: the development of a community of learners by fostering student-to-student and student-to-teacher interactions. Employing this model, instructors are free to use the same materials that they assign for on-campus courses, though they are required to change their instructional strategies to realize more fully the potential of new communication technologies. By shifting the focus away from the lecture, greater possibilities are realized for making teaching/learning more dialogic. The teacher becomes a mentor, a moderator, and a facilitator, rather than a conveyor of information. A major aspect of the "distance revolution" in pedagogy, therefore, is the shift in focus from "broadcasting" to interactive learning in networked communities. The shift in emphasis from teacher "inputs" to learner "outcomes" is one reason why proponents prefer the term "distance learning," to "distance education."

Thus, the most promising and interesting form of online distance learning is one that emphasizes the teacher and students working in small learning networks involving asynchronous interactivity. "Asynchronous Learning Networks" (ALN) is the term coined by Dr. A. Frank Mayadas, of the Alfred P. Sloan Foundation, a major philanthropic organization and pioneer in working with universities to support innovative online distance learning projects. Although it sponsors some projects that include "broadcasting", their primary purpose is to encourage projects that explore the potential of active interaction amongst students and faculty in small groups: the mode of instruction practiced in traditional, "synchronous" settings by the best teachers.

Courses based on an asynchronous learning network philosophy encourage students to become actively involved in the learning process—a role that promotes self-study at the same time as participation

in online activities with other course participants. Furthermore, because asynchronous discussions are primarily in written form, students are more likely to complete reading assignments before they respond to fellow students in a “threaded discussion.” Students also tend to be more reflective because the discussions are generally archived. The contributions of the students are thus available to everyone and can be reread by the students; such an opportunity to refer to past discussions is not usually available so readily in a live class. Dialogue can now move more readily into a stage of “metalogue” whereby a “conversation about some problematic subject” is such “...that not only do the participants discuss the problem but the structure of the conversation as a whole is also relevant to the same subject.” (Bateson, 2000, p. 1)

Pedagogy rises to the forefront in courses based on the ALN model, since the focus is on how the teacher manages and facilitates active learning in the course through the skillful use of assignments and discussions. At times it may be best for the teacher not to intervene in discussions and allow the students to resolve issues or the problem that they are engaged in resolving. At other times it may be necessary to insert a comment or question to steer discussions away from matters that are irrelevant to the topic. Skill in moderating and facilitating becomes more important than direct transmission of expert knowledge—the “broadcast” function.

BROADER TRANSFORMATIONS IN HIGHER EDUCATION

The new developments in distance learning occur at a time when institutions of higher education, especially traditional state institutions, are facing a new crisis brought about by the rising costs of higher education, the rise of for-profit universities, and the corporatization of the university. These challenges to the traditional university have become part of the discourse on online distance learning and have contributed to transformations in how distance learning is conceived.

The Rising Costs of Higher Education

Expenses at universities have been increasing at a rate higher than inflation while state support has been decreasing. An important cause of the rising costs is technology. More and more universities are adopting

increasingly sophisticated technology (including the costs for upgrades and maintenance) in order to provide the best resources for its researchers, faculty, and students. To help meet mounting expenses, both state and private universities have increased tuition at alarming rates over the last twenty years. At the same time, the willingness of state governments to provide funds to keep tuition low at state universities has diminished, creating the challenge of how to meet the need for broad access to higher education. Tuition rates now exceed what many students from economically disadvantaged backgrounds can afford. The democratic ideal of providing equal opportunity to all qualified students is greatly eroded as tuition goes up in all categories of institutions.

The Rise of For-Profit Universities

Another major shift in higher education that has taken place over the last two decades has had an important impact on the development of online distance learning. The rise of for-profit universities, some of which are regionally accredited multi-campus institutions, primarily target the vocational and career needs of older students in higher education. The DeVry Institute of Technology has 19 campuses that emphasize areas of study related to the digitalization of the world economy.

The phenomenal growth of the University of Phoenix has been amply documented in the press and elsewhere (see especially Ruch, 2001). Phoenix considers itself the largest university in the United States with over 116,300 students on 116 campuses in 22 states. Institutions such as the University of Phoenix have joined the distance learning bandwagon by providing online distance learning courses that cross state lines and offer courses and programs. They offer a more consumer-oriented package at times that are convenient to their major target population. Traditional geographic boundaries that defined the turf of universities and colleges are rapidly disappearing as online distance learning opportunities develop. The University of Phoenix Online has about 45,200 students in degree programs in every state of the union, and in several foreign countries. The curriculum is designed by a small group of well-paid faculty. Classes are small, typically consisting of 12 to 14 students, and taught by faculty paid at much lower rates than faculty at research universities.

These for-profit institutions are known for their efficiency in serving students as well as their faculty, and for reducing costs by eliminating the usual accoutrements of traditional universities. They see their mission as serving adult learners and offering programs in areas that the market demands. They pose a special threat to land grant universities, since they can provide many continuing education and extension programs that are in great market demand. Revenues from programs are often used to support other extension programs to the community at land grant universities. This has led to a reconsideration of the practice among land grant institutions of supporting extension services at no cost or at modest cost. It has also encouraged them to explore the potential of online distance learning as a way of keeping up with their more cost-conscious, for-profit competitors.

Corporatization of the University

In order to cope with the rising costs of education and decreasing state support, public universities, especially those that are large, have responded by adopting a corporate style of management with the aim of making the institution organizationally more efficient. Some universities have even created for-profit centers in which the university becomes the major beneficiary. The growing corporate quality of higher education has also created stresses and strains in the ivory tower. Faculty fear the loss of the leisurely pace of campus life so important to the contemplative rhythm of scholarly production and teaching. They bemoan the rapid disappearance of the very features that attracted faculty in the first place to their profession.

The increasing corporatization of universities is also evident in the manner in which scarce resources are allocated. For example, questions are raised as to whether funds should go to improve undergraduate education or to more costly graduate and research programs and facilities. Should scarce resources go to serve the smaller proportion of graduate students whose existence is so vital to a first class research university? Or should funds go to meet the needs of undergraduates? The high demand for greater access to higher education has been addressed by diverting more and more students to junior colleges and non-research, four-year colleges. These institutions are less costly to operate, and the redirection of resources has added to the financial crises felt by large state research

universities. In addition, as students pay higher tuition, they increasingly demand more services and "return for their money," as they shift their own relationship to the institution as "consumers" and "customers."

ONLINE LEARNING AND NEW ORGANIZATIONAL MODELS

Traditional Colleges and Universities

The rise of interest in online distance learning occurs at a time of increasing concern for the rising cost of university instruction. How can universities improve access to higher education while meeting these challenges? Online distance learning is certainly not inexpensive. Nevertheless, at least four economic advantages can be discerned.

- Less "bricks" with more "clicks." Online options reduce the need for investing in new capitol improvement such as classrooms, dormitories, campus centers, and athletic facilities.
- Much (but not all) of the required minimal and appropriate technology is already available to an increasing number of students. Access to the Internet has become an integral part of life, including in the work place and in the schools.
- Universities already invest in portals, courseware management systems, and the necessary hardware and software to run a 21st century university. These investments are also needed for on-campus residential students, and so incur minimal additional expenses for distance learning. They are part of the infrastructure of up-to-date "distributed learning" modalities as well as the essentials of "distance learning."
- Much of the technological innovations in administrative and student services that are necessary for online distance learning also result in the efficiency of services of on-campus enterprises. "Legacy systems" of distance learning that are expensive to maintain can be phased out or retained in a minimal form that reduces unnecessary costs.

The corporate approach to education, of treating the educational enterprise as a business, has several advantages. Services such as registration, cashiering, and course management become more automated, integrated and student-friendly. The cost per student declines as the number of students increases. Economies of scale benefit the centrally coordinated support functions of the university, leaving the major costs to be experienced in the instructional arena, which is where the basic education takes place.

The disadvantages of using a corporate model in running an educational enterprise can be avoided by using it in a limited way, such that the most “personal and individualized” aspects of teaching and learning are preserved, as the infrastructure of administration and support services is streamlined and made more cost-effective. The broadcast functions of teaching and learning can also be relegated to a more organized or “corporate” process in order to free faculty for more active interaction with students. Outsourcing these duties to commercial vendors, as is done with the publication of textbooks, is already occurring. This means that as costs go down due to increased scale and streamlining of academic and administrative bureaucracies, more money becomes available to enhance the teaching/learning part of campus life, as well as that of the “virtual campus”—the campus that serves distance-learning students. In addition, these economies also improve the lot of students on campus who have access to some of the distance learning services as well as to some of the courses, or portions of the courses of online academic programs. The idea is to combine the best of “big corporate mega businesses” with the intimacy and individualized relationships of the “mom-and-pop store” for both non-distance and distance education.

Online distance learning is also transforming the landscape of higher education in new ways that are still unfolding, perhaps in disturbing ways. An example is Western Governors University (WGU), originally founded by the governors of 19 states (including Hawai‘i) and Guam. In its present form, WGU offers degrees and certificates to its students by integrating courses offered by different educational and corporate partners. Colleges do not offer degrees to WGU students, but become “providers” of educational experiences that assist WGU students to earn a competency-based WGU diploma that is not based on credits accumulated. Another example is E-Army

Access Online, managed by Price Waterhouse Coopers, which has gained a huge multi-million dollar contract to coordinate higher education opportunities for the U.S. Army. E-Army Access Online is partnering with traditional universities and various technology companies to serve as course and program providers and offer support services. The rise of these “integrators,” as they have been called, poses a distinct threat to the autonomy of traditional universities. In effect, they demote colleges to the status of mere “providers” or even “vendors” of courses and thus erode their ability to integrate educational experiences of their students into their own distinct and coherent degree programs.

CONCLUSION

As more and more institutions, both for-profit and non-profit, offer online distance-learning programs and courses across state boundaries, the circulation of money from tuition and fees within individual states may increase or decrease. Some institutions will benefit; others will not. For example, the more out-of-state students enroll in online courses offered by a university located in a state, the greater the revenues that enter into the state economy, and vice versa. The success of online stores (like Amazon.com) may be an indication of what may occur to online education providers. For Hawai‘i, this means that as more Hawai‘i residents pay tuition to outside online providers, more money flows out of the Hawai‘i economy. If Hawai‘i institutions provide more programs and courses to attract students living outside Hawai‘i, more tuition moneys flow into the state. The corollary of this principle is that when the Internet economy is applied to education, all Hawai‘i-based institutions, both public and private, now become allies in supporting the Hawai‘i economy. The net gain or loss of tuition dollars across state lines may be negligible at the moment. However, distance learning across state borders could easily increase to a magnitude that would make it a significant factor in the health of Hawai‘i’s economy. Some futurists are predicting that this will happen.

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[Much of the material in this paper derives from conferences in which heads of such institutions made live presentations: University of Phoenix Online (Anthony F. Digiovanni); DeVry (Dennis Keller); Franklin University (Paul Otte). I am grateful to the organizers of these conferences: University Continuing Education Association, the Sloan Consortium, College Board. Dr. A. Frank Mayadas (Sloan Foundation) and Dr. Jaishree Odin (UH) are among my colleagues who have also been helpful in my learning of online distance learning.]



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Implementing the UH Asynchronous Learning Network: Practices, Issues and Challenges

JAISHREE K. ODIN

In spite of ten campuses spread over four islands, access to higher education at the University of Hawai'i (UH) is unevenly distributed across the state. Both Maui and Kaua'i have no access locally to upper division college courses; thus, students are dependent on distance courses to complete their Bachelor's or Master's degrees with only a limited number of degree options. The islands of Lana'i and Moloka'i have no local access to higher education at all and are completely dependent on interactive television and cable TV to meet demand for courses. In an effort to address these needs, the University has moved aggressively into online distance learning. All seven UH community colleges are now working together to create a completely online Associate of Arts degree. UH West O'ahu is in the process of developing several online degree and certificate programs that will reach prospective students on the neighbor islands. In yet another effort to address the problem of access, the Alfred P. Sloan Foundation has funded the University of Hawai'i to develop online courses and programs.

The first *Asynchronous Learning Network (ALN)* project, funded in 1996 by the Alfred P. Sloan Foundation, involved the development of a completely online course that was offered to neighbor island students in Fall 1997. Using the online course as a case study, the project was designed to study the effectiveness and feasibility of using online distance learning for UH's outreach students. The results demonstrated the efficacy as well as feasibility of asynchronous course delivery to address the pressing issue of access on the neighbor islands and the equally important issue of integrated faculty development.

Based on the success of the pilot project, the University of Hawai'i received a second grant from the Sloan Foundation in 1999 for developing and delivering 32 ALN courses contributing to three-degree programs and one certificate program: an M.S. and a B.A. in Information and Computer Sciences (ICS), a B.A. degree in Liberal Studies at UH Mānoa, and a certificate in Database Management at UH Hilo. In a desire to share resources and courses, the project that had started as a two-campus collaboration was turned into a system-wide collaboration as UH West O'ahu

and UH Community Colleges were invited to participate and develop some of the courses included in the project. The first Sloan project was directed by Jaishree Odin. The second Sloan project, which is ongoing, is a team effort involving Jaishree Odin, Victor Kobayashi of Outreach College and Daniel Suthers of the Department of the Information and Computer Sciences.

Work on these projects has helped us to understand that online teaching means different things to different people. To some faculty, it implies putting all course materials online; to others it means creating a pre-packaged CD-Rom or DVD of the course materials. Some faculty view the creation of an online course as a matter of adding an e-mail discussion component to the traditional mode of distance delivery. What does make a *bona fide* asynchronous online or ALN course? Our work has focused on constructing a pedagogical model for ALN course design that is introduced to faculty to support them in the process of course development.

Pedagogical Model in ALN Course Design

Charles Moore (1993) identifies three types of interaction that usually take place in traditional classroom learning situations: the students' interaction with the content, the students' interaction with peers, and the students' interaction with the instructor. Due to advances in asynchronous learning technologies, it is now possible to replicate these three types of interaction in the online learning environment. Different kinds of instructional strategies, however, need to be employed, along with creative approaches to knowledge representation, in order to make the online classroom function effectively and efficiently.

As the philosopher John Dewey (1944) pointed out, learning involves a continual reorganization, reconstruction and transformation of experience. L. S. Vygotsky (1978) has also been influential in developing an understanding of the importance of social interactions in learning. Central to this sociolinguistic view is the critical role of the teacher as a coach and a facilitator. Furthermore, research in cognitive science has demonstrated that memory and cognition involve

active construction and reconstruction of the building blocks of experience (Edelman, 82; Varela, 96). The meaning-making process, therefore, is an individual endeavor, which must be taken into account while designing an effective learning environment.

Current research on learning effectiveness in the online classroom has demonstrated that new technologies allow us to create an interactive learning environment where course participants communicate genuinely, listening as well as responding to others in a mutually collaborative fashion (Bednar et al, 1992; Gold 2001). Students thus acquire knowledge in a social context where they are given opportunities to articulate what they have learned as they study their assignments and attempt to create meaning. Roxanne Hiltz (1990) points out that

collaborative learning means that both teachers and learners are active participants in the learning process; knowledge is not something that is 'delivered' to students in this process, but something that emerges from active dialogue among those who seek to understand and apply concepts and techniques. (pp. 45).

The validation of new knowledge by the peers and the instructor leads to the transformation of learners' mental maps. Linda Harasim (1990) writes that collaborative learning among peers is important because it allows learners to process information through reflection, and this in turn encourages "formulating arguments or reorganizing material to introduce new (previously unrecognized) relationships, thereby advancing the knowledge of the participants" (p. 135).

Thus, for training purposes, a specific conceptual model is needed from which faculty can approach their teaching using the collaborative potential of asynchronous learning. The challenges faced in designing and teaching online courses center around the following questions:

- *What kind of activities and interactions are important in promoting peer interactions, and increasing learner involvement with the course content?*
- *In the absence of face-to-face interactions, is it possible to motivate students so that they feel a genuine desire to learn?*
- *What is the role of the instructor in holding the community of online learners together*

so that the peer interaction facilitates the learning of the content as well as application of knowledge?

- *What kind of course design contributes toward efficient management of the course?*
- *What kinds of formative and summative assessments are appropriate for online teaching?*

A number of recent studies have focused on the role of teaching activities in online environments. Some have focused on the role of the online teacher as a facilitator (Salmon, 2000; Palloff et al, 2001; Collison et al, 2000). The exclusive focus of these studies on the role of the teacher as a facilitator, however, has led to the misconception that all online teaching is merely a matter of facilitation. Anderson et al (2001) provide a more developed conception of online teaching, by viewing the online instructor not just as a facilitator, but also as a "teaching presence" who creates an appropriate course design, organizes online activities, guides discourse (including lecture notes and teaching commentaries) and leads students to a critical exploration of the content. Diverse multi-modal teaching activities with corresponding learning activities are a prerequisite for teaching a successful online course; multi-modal teaching acts, both direct and indirect, promote self-motivation and self-directedness among students and raise the quality of collaborative learning activities (Odin 2002).

Drawing on this research, a faculty tutorial *ALN 102 Effective Online Teaching* was developed that includes collaborative strategies and multi-modal instruction for course design and online pedagogy. The tutorial approaches online course design from the perspective of developing a set of direct and indirect teaching activities as well as individual and collaborative learning activities with three pedagogical objectives in mind:

Mastery of Content: Effective online courses incorporate activities that encourage students, on a regular basis, to become actively involved in reading and comprehending the assigned materials. Weekly overviews or lecture notes, discussion questions, and teaching commentaries help to cultivate the teaching "presence" of the instructor and encourage active learning in students. Weekly quizzes, self-assessment exercises, creative content-based assignments,

discussion postings and work with simulations allow the instructor to evaluate, on a weekly basis, whether students are in fact mastering the content of the course. The purpose of content-based activities is to ensure that desired learning outcomes are being achieved. When they are not, the instructor can intervene in a timely fashion to correct the situation. These strategies benefit all the students and allow them to learn from each other and encourage the production of quality work.

Construction and Application of Knowledge:

Whereas content-based activities are focused exercises used to evaluate students' understanding of the content, class discussion and group work serve as a platform for the construction as well as the application of knowledge. The open-ended nature of discussion activities gives students the freedom to explore issues and formulate responses. By learning a range of different perspectives, students learn to evaluate and revise their own viewpoints. An environment of active learning fosters responsibility among more advanced students who begin to help those who are having difficulties with the assigned readings or with performing assigned problem-solving tasks. The instructor's time can then be redirected to interaction with students at a higher level.

Learning Outcomes: One way to increase learner effectiveness is to integrate assessment strategies into the course design from the very beginning. This allows the instructor, on a weekly basis, to check if learning goals are being achieved. Course-specific assessment techniques are more helpful in improving learning outcomes than centrally imposed one-size-fits-all tests. In an asynchronous learning environment where all exchanges are in writing, it is easy to incorporate formative assessments into the course design from the beginning. Student learning can be assessed on the basis of individual assignments as well as on individual student's contributions to various discussion-related activities. In addition, online courses may include student projects that encourage dialogue with the community groups, members of various organizations and

specialists in the field. Such projects demonstrate student success in transferring knowledge acquired through class activities to real-life tasks. Gradable assessments, such as quizzes, essays, mid-term or final examinations are only one aspect of ALN courses where the focus shifts to the continuous monitoring of learning effectiveness.

ALN Course Development

The most important change that faculty experience when they start teaching online courses is the need to shift from traditional, teacher-centered instruction to learner-centered instruction. This change in instructional approach places new demands on the teacher. It becomes essential to rethink how the course is taught. New opportunities arise in online environments for empowering students to become more active participants in the learning process, rather than passive receivers of knowledge. Training sessions in pedagogy, therefore, must underscore how to manage an online course based on a more learner-centered model than a traditional, teacher-centered one.

Faculty who develop online courses are discouraged from using scarce resources to videotape lectures and make them available on the Internet through RealMedia. Such strategies merely replicate the interactive television or "broadcast" model of pedagogy in an electronic environment, though some use of video-clips in some courses might serve the purpose of illustration and explanation. Electronic media should encourage the use of non-linear presentation of material, which can be accessed in multiple ways by students. The unique property of electronic media renders the traditional linear lecture format presentation unnecessary and inefficient. Faculty are, therefore, trained in designing lecture notes or course overviews as well as multi-modal direct and indirect teaching activities that encourage active student involvement in learning.

Instructors use the same materials in online courses that they use in regular classes, such as books, journal articles, online materials, and CD-ROMs. If the subject matter can be presented more effectively through images, diagrams, video-clips and so on, then faculty are encouraged to create such materials. Collaborative learning is organized through asynchronous electronic conferencing and through individual and team

assignments that promote student interactions with a variety of resources, their peers and the instructor.

Faculty can make use of one of two course management systems available at UH: WebCT or Blackboard. The Information Technology Services (ITS) department provides training in WebCT; Outreach College offers training in the use of Blackboard. In addition, one-on-one consultation sessions in ALN pedagogy are provided for participating faculty. Before the individual consultation session, faculty members are asked to go through the self-paced faculty tutorial *ALN 102 Effective Online Teaching*. Training faculty in new approaches to pedagogy is absolutely essential in order for them to create and teach pedagogically effective online courses.

Course development for online programs included in the *Asynchronous Learning Network Project* started in Spring 2000. In the first year, course development was confined to Mānoa and Hilo. In the second year, UH West O'ahu and UH Community Colleges joined the partnership by agreeing to develop one course each. The first ALN course was offered in Summer 2000 and thereafter, ten more online courses were offered in Fall 2000. Course development in the second year has proceeded more or less according to schedule, as far as number of project related courses is concerned. In addition, a number of other online courses have been developed at UH Mānoa. In Spring 2001, Mānoa faculty offered a total of sixteen online courses. Twelve more were offered in Summer 2001 and twenty-one courses in Fall 2001. UH Hilo has so far developed three courses, UH West O'ahu one course and UH Community Colleges one course contributing to the *UH Asynchronous Learning Network Project*. Various UH campuses have their own online programs; for example, the community colleges have the joint hybrid Associate of Arts degree program with most of the courses offered via the Internet. UH West O'ahu also has several online degree and certificate programs under development.

Online Student Support

Outreach College has been central in developing the support infrastructure for online students at UH Mānoa. The ALN project staff in close cooperation with Outreach College developed the *University of Hawai'i Online* website (<http://www.aln.hawaii.edu>). The website serves the function of an electronic course

catalogue that includes course and program descriptions. Each ALN course has its own web page with information about the course and the instructor. Students can directly register for ALN courses from the course web page. The website also serves as a student support center, offering direct information as well as links to relevant student services such as graduate and undergraduate admissions, information technology services, library services, arts and sciences advising, financial aid services, and the bookstore.

A student tutorial, *ALN 101 A Student Tutorial on Online Learning*, is also available to students in WebCT and in Blackboard. Students who have never taken an online course before, and those who are first-time users of WebCT or Blackboard, are encouraged to go through the tutorial before they start their online course. Through the tutorial, students learn creative strategies of becoming successful learners in the online classroom.

Issues and Challenges

The ALN Project has not only provided a model for creating online distance learning programs based on effective faculty and course development, it has also helped identify some important issues that must be resolved at both the system and campus-level, in order to promote scalable and sustainable distance learning programs throughout the UH system. Some of the major challenges that the University faces in becoming a distance learning center are: coherent academic planning and resource allocation as well as marketing of distance learning; increasing awareness amongst the faculty regarding technology issues; creation of an integrated faculty support system; creation of an efficient student support system; and intercampus coordination of distance learning offerings. How we deal with these challenges as we move forward and seek greater faculty and departmental participation on all campuses will be critical in determining the future of online distance learning at UH.

Academic Program Planning and Policies

The object of the current Sloan grant is to help academic units integrate online distance learning into their regular program offerings. Integration, however, is not a simple matter. Online courses offered at the whim of the faculty in a particular department do not necessarily fulfill the needs of distance students.

Coherent academic planning is necessary for creating scalable and sustainable online distance learning programs. Program courses need to be offered in a logical fashion so that off-campus students enrolled in such programs can finish within a reasonable amount of time. Though on-campus students can benefit from online offerings, the needs of off-campus students have to be kept in mind. Hence, a great deal of initiative and commitment is required on the part of academic units, which need to take into consideration such issues as market demand, projected increase in enrollment, and available faculty resources as they plan their distance learning programs. A marketing system also needs to be in place, either as part of the broader marketing efforts at UH or created specifically for distance learning needs. Such a system would work directly with participating academic units on various campuses as they are planning their distance learning programs, assist in conducting market analysis and, once the programs are ready to be offered, manage the marketing and recruitment of all online distance-learning students locally, nationally and internationally.

It has been relatively easy at some UH campuses, UH West O'ahu and UH Community Colleges, to involve faculty in teaching online. Mānoa however, has remained a challenge because, as a research campus, it does not reward its faculty for innovative teaching using technology. Online course development is time-consuming. Faculty need to rethink their traditional teaching practices completely, which often means developing course presentation materials to fit in with activities that are appropriate for the online classroom. Financial incentives in the form of course development awards, made possible through the Sloan grant, have to some extent helped in generating interest in teaching online. Individual faculty in different departments have shown an interest in teaching occasionally online; the challenge is to get buy-in from the whole department to offer a few courses online on a regular basis. It is possible that offering incentives, such as tuition returns for online courses, to academic units can go some way towards generating interest at the departmental level. It is also necessary to develop policies that encourage technology-mediated teaching as an integral component of individual faculty workload. Recognition of faculty contributions to the development of online coursework in tenure and promotion applications

(especially at Mānoa) should help. If faculty are to be recognized for innovative online teaching, an assessment system also needs to be in place to collect, document, and evaluate data on teaching effectiveness in an online environment. Although the UH ALN project has created course evaluation instruments, assessment criteria still need to be formulated at the program level and a system of documenting and evaluating faculty participation needs to be developed.

Technology Issues

Technology involves a huge investment for the 21st century University. The faculty are important stakeholders and, at a time of change, need to be actively involved in the change process, especially as it relates to the introduction of a new Student Information System, licensing of new applications and course management systems. A faculty senate subcommittee of the Committee of Academic Program and Policies (CAP) needs to be created to deal specifically with keeping up with the University's investment in new technology and communicate these developments to its constituencies. This subcommittee should be constituted of people who are familiar with policy developments as well as issues dealing with technology. The discipline-specific concerns of different departments with respect to technology could be addressed through this subcommittee. The subcommittee could collect information on these issues and present it to the senate so there is a greater awareness amongst the faculty about the issues involved in integrating technology efficiently into the UH system.

In order to develop an effective faculty development system, new and creative technology training programs need to be initiated to supplement what is already in place through the Information Technology Services. Student training programs, for example, can be developed where each department/campus nominates one or two graduate or undergraduate students per semester for instructional technology training. These students can in turn be used to train the faculty. A great deal of work yet remains to be done to improve communication within Mānoa and across the UH system amongst faculty who are involved in teaching with technology. In order to create a culture of sharing, current faculty development efforts need to become more inclusive through seminars and symposia led by faculty who have already made creative use



of technology in their teaching. Such seminars will provide a forum in technology-mediated instruction that will encourage faculty to share innovative practices.

Student Support Issues

In order to attract new students and retain current students in online distance learning programs, it is essential to create high quality student support services that distance students can access easily—anywhere, anytime. Though we are moving towards the creation of such services that are available to all students online, both regular and distance students, it must be kept in mind that distance students have specific needs that arise from their reliance on online methods of communication. The new SCT Banner: Student Information System (SIS), in the process of being designed and implemented, should allow students to apply directly for admission via the web to any campus as well as register for courses originating from any UH campus. Distance students also have other needs: testing, library access, obtaining an ID card, and advising at the college and departmental levels. Regular support services have established routines that are geared towards on-campus students

and are not responsive to specific needs of distance students.

Creating an online student support center for distance students is a complex undertaking as support services are spread over many different units and were not created originally with the needs of online students in mind. How does a student living in New York or Japan and enrolled in an online program obtain an ID for access to online library resources? We are still working to solve this issue at Mānoa. Another important issue concerns the matter of requesting health forms and VISA paperwork from online international students who do not intend to enter the country. The problem arises because there is no way of identifying the online status of such students, so such students are processed like any other foreign students who intend to physically attend UH. This can be corrected by simply adding an item to the application form requesting this information, but that still remains to be done. Current admission policies and procedures system-wide have to be adapted to address the specific needs of online students who have no physical access to the campus. New policies and procedures need to be developed and old policies revised for students who are completely online.

We need some coherent system in place for providing pre-admission advising to online distance learning students in general and mainland/international students in particular. This has not been a problem so far with UHCCs and UH West O'ahu offerings which are aimed at Hawai'i students, but it becomes very important once these programs are made available to students outside Hawai'i. Outreach College has been responsible, so far, for answering queries from prospective students, in excess of twenty inquiries per week, who seek further information regarding programs and courses listed on the UH ALN website. The three most frequently asked questions are: How long will the program take to finish; how much will it cost; and how will transfer work be evaluated. We have no system in place to provide services for evaluating transfer credits of students who have not yet applied. As a result, e-mails from prospective students have been forwarded from one unit to another without resolution. Potential applicants, therefore, quickly lose interest in our programs and go somewhere else where their questions and concerns are addressed to their satisfaction. A great deal remains to be done to improve academic advising to online distance students. Improved coordination amongst support offices and better planning at the departmental level are essential to make online advising effective.

Working as a System

The University of Hawai'i ALN project has made it clear that if the University hopes to attract and retain students from within and outside Hawai'i, the online distance learning programs need to be presented as a complete online package to be offered in a coherent sequence so students can finish the program within a reasonable amount of time. This is especially true in the case of bachelor's degree programs, which are currently partially online. One of the ways to resolve this problem is for Mānoa, West O'ahu, and Hilo to work closely with UHCCs' E-Learn program. For example, Mānoa's online BA programs and UH West O'ahu's online BA programs that are currently under development could be directly linked to UHCCs' E-Learn AA program.

In order to present online programs outside Hawai'i in a coherent fashion and allow students a sufficiently wide range of choices, the University needs to create a single UH portal that will serve as the University's online catalogue for all distance learning courses and

programs in the UH system, as has been done by the University of Illinois Online, SUNY Learning Network, and Penn State World Campus among others. A system portal will provide timely information about online offerings, programs, courses, costs and related policies and requirements for system-wide offerings. It will include general information about admission and registration. Some components of this portal will be linked to the new Student Information System. The SIS will also enable more efficient sharing of courses as distance students enrolled at one campus will be able to register more easily for a distance learning courses offered at different UH campuses. Thus, online applicants will have a pool of distance courses available to choose from and transcripts will be automatically transferred to the student's home campus.

If we are to work together as a system, issues related to advising need to be effectively coordinated so that students know exactly what to expect from different campuses. The University is currently developing an online advising module that will interface with the SIS and thus automate some parts of the advising process for all students. However, all students have advising needs that are specific to their own situation, so human interaction, either through e-mail or the phone, is indispensable to providing quality advising services to online distance students.

Some attention must also be given to the issue of tuition differentials amongst the three BA granting UH campuses in order for these three campuses to work together more smoothly. Currently, UH Mānoa, except for special programs, charges resident tuition along with a minimal technology fee for all ALN courses, irrespective of the students' status, as is done in the case of Mānoa Summer Sessions courses. Whether such a tuition policy should be adopted across the system to attract more out-of-state students needs to be discussed.

In conclusion, the UH ALN project has demonstrated that in order to create an efficient, high quality, and cost-effective online distance learning system at the University of Hawai'i different UH campuses must work together to share technology and faculty resources. There must be academic, not just technocratic and administrative leadership involved in rethinking distance learning. The success of online distance learning depends very much on how the academic leadership, both at the system and campus levels, views the matter and how online programs are seen to

fit the general mission of the University and the specific mission of individual campuses. If the academic leadership considers it important that the University, as a system, develops a successful approach to distance-learning, then it will be reflected in the incentives given to the participating academic units and faculty as well as integrated into the policies that impact faculty who actively engage in online teaching. Finally, since faculty are very central to the creation of a sustainable and scalable online distance learning system, the commitment and active involvement of regular, full-time faculty is essential to long-term success of distance programs at UH; otherwise these programs will remain outside UH's academic mainstream and limit its capacity to compete in an expanding global educational market.

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Interactive Online Distance Learning at the University of Hawai'i-West O'ahu

REBECCA LEE

From its beginnings 25 years ago, the University of Hawai'i-West O'ahu (UH-West O'ahu) has strived to provide its students, mostly working adults with an average age of 32 years, with easy access to classes and advising by maintaining flexible class schedules and office hours. When UH-West O'ahu initiated a distance education program in 1981, the first courses were delivered in person to students on Maui and Kaua'i, with faculty traveling to those islands on weekends. The result was a program that encouraged collaborative student work and allowed students extensive contact with faculty. As distance learning classes were converted to a format for interactive television in the late 1990's, care was taken to ensure that the program continued to provide students with the same level of access to UH-West O'ahu faculty, who made frequent trips to the neighbor islands to meet personally with students. When an online program was introduced in academic year 1999-2000, UH-West O'ahu held fast to the same standards of academic excellence, personalized instruction and commitment to student participation. The institutional model that has emerged as a result of the collaborative efforts of the campus community assures UH-West O'ahu's continued commitment to these values.

Interactive Online Distance Learning Model

UH-West O'ahu's signature online instructional model is a multi-media approach delivered through WebCT, a course management system. The model was first used at UH-West O'ahu by Dr. Susan Pelowski, Associate Professor of Psychology, who was searching for an online vehicle that would allow her to teach using her own voice, graphics and images. She also wanted technological tools that would facilitate student responses to the material. The resultant model, modified through collaboration with UH-West O'ahu faculty from other disciplines, includes streaming media for lecture presentations, as well as chat sessions and asynchronous discussions for class interaction.

Streaming Media/Power Point/ Narrated Lecture Presentations

Weekly lectures are converted into Power Point presentations—bulleted text often accompanied by graphics, pictures or video clips. Presentations are narrated by the instructor and published using RealMedia. Streaming media presentations are then posted on specific dates on the WebCT calendar. When students click on the hypertext of a particular date, the RealAudio plays the narrated lectures for that week. Students value being able to hear the voice of the lecturer. These RealMedia presentations maintain the personalized approach that has been a distinguishing feature of UH-West O'ahu's distance education programs. The model also permits maximum flexibility, and although the presentations are posted only on certain dates, students have the option of accessing the lessons at any time or day. Indeed, they may return to the RealOne presentations whenever they wish. In addition, instructors may post the lectures in text form so students have easy access to the information. Students highly value these conveniences.

Online Chats and Asynchronous Discussion

To encourage communication among students, many of the instructors of online courses at UH-West O'ahu require students to attend periodic chat sessions to discuss lectures and readings. Some faculty believe it is important to arrange weekly chat sessions; others believe that online courses, as much as possible, should be neither space-bound nor time-bound and that two chat sessions per week does not offer enough flexibility for students. Faculty, nevertheless, agree that chat sessions are effective in promoting participatory learning, and they offer such sessions several times during the semester to fit the schedules of the students. For example, instructors often require students to attend one of several chat sessions scheduled during any given week. This approach usually means that the sessions are smaller and more manageable than they would be with a full class, allowing for greater level of participation by chat room members.

These varied uses of chat sessions allow the faculty to deliver online courses that are highly interactive and to foster what one student describes as “a spirit of community among the students.” Another student comments: “Even though this was an Internet class, I truly believe I was closer to my peers and my instructor than in a regular classroom.”

Weekly lecture presentations are also augmented with class discussions—facilitated through asynchronous bulletin board discussions and private e-mail. Instructors use the discussion board to conduct full class discussions and smaller, private group discussions. In the latter case, students are divided into small groups and asked to read, edit, and revise drafts of each other’s papers, much as they would conduct peer-editing sessions in a face-to-face class. Group work of this kind is especially employed in writing courses and writing-intensive classes at UH-West O’ahu.

Small group on-line discussions are also used for writing assignments in which students work together on a research project and present it to the rest of the class. Students in online public administration courses, for example, are assigned to private groups that must research topics related to the course readings and then prepare reports to be presented in chat sessions. In the online section of *Humanities 310, Writing Skills*, a course required of all incoming UH-West O’ahu students who have not successfully completed the Writing Assessment Examination, the culminating assignment is a collaborative research paper. Groups of four to six students, selected because they share a similar academic discipline, are asked to collaborate on a paper. In preparing these papers, group members participate in numerous asynchronous discussions to determine the topic of their paper, prepare a thesis and outline, share sources of information, revise and edit each other’s contributions, piece the paper together, and proofread the final draft. They are free to engage in chat sessions whenever they wish.

In another online class, a writing-intensive literature course, students are assigned to small groups to discuss a particular topic and write a paragraph on it. One group may be asked to focus on the alliterative patterns in a certain poem; another group, to explain the significance of a particular symbol; yet another, to determine the main theme of the poem.

Members of the group begin by discussing their

topic. One member, designated as writer/facilitator, then takes the group’s discussion notes to draft a paragraph. Others in the group revise and edit the paragraph and post it, at the end of the week, on the main, public discussion forum for everyone in the class to read. The following week, students are assigned to new groups, and new group facilitators/writers are designated. Using this process over an entire semester, gives everyone about three chances to act as a facilitator/writer. This method also allows students to collaborate with everyone else in the class. Asynchronous, ongoing group discussions offer time for reflection and yield valuable literary insights. Furthermore, in working towards the end product—a well crafted, unified, cohesive, and well-developed paragraph—students gain essential skills in writing about literature.

All instruction in written communication at UH-West O’ahu is supported by the Writing Center. Faculty who teach courses using WebCT create a link to the UH-West O’ahu Writing Center at <http://homepages.uhwo.hawaii.edu/~writing/>. The Center provides students with access to online tutoring in writing, economics, and statistics. Thus by visiting the Writing Center online students have at their fingertips a convenient means of seeking additional help with their writing. Students trained as writing assistants are also assigned to specific online classes, such as writing skills classes, writing-intensive classes, and a course entitled “Methods and Techniques in Social Science Research” that requires a good deal of student writing. Writing assistants, experienced in providing online help, support the instructors by taking part in peer group work and by offering suggestions and comments on drafts of papers. Tutors in economics and statistics are also available to help out with online class discussions and group work.

Faculty Involvement

The sense of collaboration fostered in UH-West O’ahu’s online courses is also a central component in the development of the institution’s distance education program. Almost all 23 full-time instructional faculty have been involved in the distance education program at some level. To date, 20 faculty members (87%), have participated in the distance-learning program; by Fall 2003, that number should rise to 22 (97%). As of Spring 2002, 13 of the full-time instruc-

tional faculty (57%) will have taught or will be teaching online courses; by Fall 2003, 15 full-time, instructional faculty (65%) are expected to have developed and taught online courses.

Faculty members do not design their courses in isolation. For example, after Dr. Pelowski created her first online course in Fall 1999, she advised two other faculty members who were developing online courses. The result is a collaborative loop that includes faculty members from UH-West O'ahu's three academic divisions—Humanities, Professional Studies, and Social Sciences. As additional faculty began developing online courses for the BA degree in Social Sciences (BASS), they displayed a similar eagerness to share pedagogical techniques and learn about the potential inherent in online teaching.

One outcome of this collaboration is that UH-West O'ahu has started a series of online workshops for faculty, administrators, staff, and students. In Fall 2001, faculty and support staff presented three workshops. In Spring 2002, faculty from all three academic divisions combined to deliver six workshops on such topics as managing an effective online discussion, running an effective chat session, using the quiz and grade functions of WebCT, and teaching writing-intensive classes online.

Another example of fruitful collaborative efforts is the creation of a UH-West O'ahu Orientation to WebCT Online Courses. This Orientation consists of various modules designed to acquaint students and other interested parties in the components of a typical UH-West O'ahu online course. The effort was a joint project of faculty and support staff. Instructions on how to take the Orientation are listed in the syllabi and on the web pages of all faculty teaching online courses. Before accessing the Orientation, students are requested to consult a handbook—"Creating My WebCT Account," located at <http://www2.hawaii.edu/%7Euhwolab/webct.html>.

The Orientation begins with a 17-minute narrated streaming media presentation that lists the computer requirements necessary for taking an online course. It also explains various functions of a typical WebCT course and gives the first part of an extended assignment in which students are asked to explore different functions of the Orientation home page. The Orientation ends with a short, multiple-choice quiz, which students must successfully complete before they are allowed to take their first WebCT online course. A

broad representation of interested parties attended a demonstration of the Orientation on the UH-West O'ahu campus, and suggested ways to improve it.

Institutional Support and Commitment

The institutional commitment to develop an integrated and innovative online program is especially noteworthy given the lack of human resources available. First of all, UH-West O'ahu does not employ any full-time technical support person for faculty developing and teaching online courses. Furthermore, the institution is not even certain if any part-time assistance will be available after Spring 2002. The position of Coordinator of Distributed Learning, established in Spring 2002, is also part-time, with a full-time faculty member receiving one-course reduction to fulfill the duties of the position. UH-West O'ahu also does not have sufficient faculty to represent a broad higher education curriculum while, at the same time, developing an online program.

The adverse effect the online program is having on other academic programs is already evident. For instance, the number of writing-intensive courses offered to the student body at the Pearl City campus has dwindled because faculty who would have been teaching writing-intensive courses to students from O'ahu are now delivering them online to students who mostly reside on the neighbor islands. If this trend continues, the institution will not be able to offer enough required writing-intensive courses to meet student demand. Without more faculty and support staff, the online program will also be compromised. In recognition of these problems, the UH-West O'ahu administration has requested funds for full-time positions for its online program. The administration has also been conscientious in providing the necessary financial support from available funds. Several years ago, the faculty senate resolved that faculty would receive either three credits of release time or the equivalent in overload pay to prepare any new online course. Chancellor William Pearman has adhered to that policy and offered faculty the financial incentive necessary to develop a successful online program. This financial incentive, coupled with institutional tenure and promotion guidelines that reward faculty for developing web-based instructional programs, is a major reason that UH-West O'ahu's success in this area. Release time and overload pay are important

incentives that have helped to nurture UH-West O'ahu's online program developments while the institution remains committed to the principles of student participation and easy access.

In the brief space of two years, the faculty of this upper-division institution has created 22 online courses. It has also helped to develop two degree programs via distance education—the BASS degree, which, at the upper-division level, is almost completely online for students transferring to UH-West O'ahu, and the BA degree in Business Administration (BABA), which is approximately 50% online. In addition, a certificate program, the Certificate in Substance Abuse and Addictions Studies, is offered online. In comparison UH-Mānoa offers two partial online degrees—the BA in Information and Computer Sciences and the BA in Liberal Studies—and two certificate programs—the Certificate in Telecommunication and Information Resource Management and the Certificate in Travel Industry and Management. The Certificate in Database Management is offered by UH-Hilo. Thus, UH-West O'ahu offers 33% of the online BA degree programs and 25% of the online certificate programs system-wide, a considerable achievement given its limited resources.

If the incentives for faculty continue and if the institution is able to receive adequate technical and administrative support, UH-West O'ahu's online programs will continue to expand. By the end of academic year 2003-2004, the upper-division credits for a BASS degree will be almost totally online. More of the courses in the BABA degree should also be online. By Spring 2003, the institution is scheduled to have at least nine more online courses, bringing the total number to 30. In addition, the UH-West O'ahu Writing Center will expand its online program by offering tutoring in accounting. Furthermore, the UH-West O'ahu distance education web site will be updated and revised.

In an address (January 2002) delivered to the Pan Pacific Distance Learning Association, Dr. Rose Tseng, Chancellor at UH-Hilo and former Chair of the UH Task Force on Technology and Distance Education, stated that five factors are necessary for a successful system-wide distance education endeavor: (1) vision, (2) institutional support, (3) faculty commitment and recognition, (4) collaborative team efforts, and (5) a lot of creativity and hard work. Dr. Tseng's formula for success is an accurate description of the elements that

have contributed to the creation of the infrastructure for the delivery of UH-West O'ahu's online programs. Faculty and administration enjoy a shared vision and have built on their experiences in providing distance education since 1981, to deliver the best online instruction possible. The creation of this labor-intensive and successful institutional model is due in large measure to the financial incentives provided by the UH-West O'ahu administration, to the recognition of this work in the guidelines for promotion and tenure, and to the efforts of the faculty. In addition, members of all segments of the campus have combined their creativity and energy to help UH-West O'ahu emerge as a leader in online learning.

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Footnote: ¹ Figures from the UH Institutional Research Office show that in Fall 2000, the full-time instructional faculty at numbered 1,117 at UH-Mānoa and 153 at UH-Hilo.

Dr. Rebecca Lee is an associate professor of literature, director of the Writing Program, and coordinator of Distributed Learning at UH-West O'ahu. She received her PhD in English, with a specialization in Victorian Literature from the University of Arizona. She teaches online courses in writing and literature, and she has developed online tutoring programs in accounting, economics, statistics, and writing through the UH-West O'ahu Writing and Learning Center.

University of Hawai'i Community Colleges: E-Learn

MARILYN WALSH

The E-Learn program is a collaboration of all seven UH community colleges to offer a distance-delivered Associate in Arts degree. The core mission of the UH Community Colleges is to put postsecondary education within the reach of every resident of the state. To provide that access, community colleges must be affordable, adaptable and flexible. Interim Dean of Instruction at Kaua'i CC, Helen Sina, who chaired the UHCC Distance Learning Committee during the development of the distance-delivered Associate Arts program noted: "Combining the resources of all seven institutions to offer an Associate in Arts degree by distance was a natural 'next step' for us." The challenge has been to maintain a delicate balance between meeting the needs and expectations of each college while creating a seamless, "one-institution" environment for the students – a task made more complex when seven separate community colleges are involved. In spite of these challenges, the University of Hawai'i Community Colleges are continuing to work toward these goals and are in the process of advancing into new territory that will bring benefits to the UHCC system, the colleges, and the students.

In Spring semester 2000, the UH Community Colleges began **E-learn**—a series of distance courses that were offered across the seven campus system. E-learn was designed so that students could work towards the Associate in Arts degree without having to attend traditional classroom-based courses. All seven UH Community Colleges collaborated by establishing a series of courses that allowed students to earn a degree through cable TV, Internet, and interactive television.

Students enrolled in E-learn choose one of the seven UH Community College campuses to be their degree-granting, or "home" campus—usually the one closest to the student home, as there may be times the student will need to contact or visit the campus. In addition to conferring the student's degree, the home campus provides academic and student support services, such as registration, academic advising, financial aid, and library and computer support for all courses taken

(including those taken from another campus). Alvin Tagomori, Dean of Students at Maui CC, Bonnie Honma, Counselor at Kaua'i CC, and Hae Okimoto, Manager of Information Technology Services, Distributed Learning and User Services for the UH system took responsibility for developing a website that would facilitate communications with students.

The new, online AA degree is the same as the Associate in Arts Degree offered at any UHCC campus except that students can earn their degree with the help of distance technologies. Through E-Learn, traditional obstacles to attending college such as geographic location, work, physical and social conditions, personal circumstances, and family and community responsibilities, are reduced or even eliminated. Nevertheless, many students combine traditional campus-based courses with those that are available online. As Vinnie Linares, English Professor at Maui Community College, states: "The distance courses add to the convenience and flexibility required by our many non-traditional students who are faced with juggling the demands of family, job and study schedule." Linares has extensive experience in offering courses to Moloka'i and Lana'i using interactive

UHCC distance courses offered and enrollment for 2001

	INTERNET		CABLE		ITV	
	# of courses	Enrollment	# of courses	Enrollment	# of courses	Enrollment
SPRING 2001	73	1162	24	580	19	197
FALL 2001	186	1386	39	635	31	239

*No data collected for Summer 2001.

television. Although most of the courses offered via E-Learn are Internet-based courses, other technologies are also used. Cable TV courses, for example, use the state cable channel. In order to participate, students need to have access to cable TV and the cable channels listed in the class schedule. Interactive television (ITV)

courses require students to visit a designated campus at a specific time to participate in a closed-circuit television presentation. Increasingly computer technology is combined with television. For example, students enrolled in cable or interactive TV courses are sometimes required to use e-mail to communicate with their instructors. However, a number of courses are offered completely online and they provide students with greater flexibility and accessibility. In some instances, students are able to complete their degree exclusively using online resources. Some courses, however, may require campus visits during the semester, especially if they are enrolled in courses that make use of lab work and oral exams, such as chemistry, biology, and foreign languages,

All online courses demand a set of minimum requirements that include access to a computer with Internet and Web browser. Students are asked to take a short survey to help determine not only whether their computer skills are sufficient to take a distance-delivered course, but also to determine whether their learning style is conducive to online teaching methods. An online orientation is available to students, and, in the case of WebCT-based classes, all students are recommended to review the WebCT tutorial.

New programs have also been developed to support faculty professional development in the creation and maintenance of online courses. One program is TALENT (Teaching and Learning with Networked Technologies) which began in 1995 as an initiative of the Hawaii Education and Research Network (HERN). HERN was a three-year project awarded to the Department of Education and the University of Hawai'i to promote the use of the Internet in bringing about educational reform.

Other programs have also been implemented to support faculty during the regular calendar year and during the summers with campus-based training opportunities. Leeward CC, for instance, recently completed a 3-week long faculty development session on the use of student-centered learning in WebCT.

Informal meetings are also encouraged so that faculty can meet in interdisciplinary groups and share their experiences of teaching online. Individual initiative has been another important factor in online course development at the various UH community college campuses, especially when these individual efforts have received institutional support via funds devoted to the development of online courses.

The UHCC distance education committee has addressed and solved many of the challenges of coordinating the E-learn initiative and offering a distance associate of arts program. This group has also established some of the important groundwork for the new information system being implemented in July 2002. The committee has also addressed some of the issues involved in marketing the new program, and has helped with the creation of the E-learn website at <http://www.hawaii.edu/uhcc.e-learn>. Other challenges for the committee remain. For example, they need to develop ways to provide online science labs, provide testing options for classes, produce quality advising and counseling, and ensure that quality distance education experiences are in place for all students. In spite of these challenges, the faculty at the community colleges is aware of the importance of the changes that have taken place and of the need to expand access using online methods that address the needs of all students.

Marilyn Walsh is a public information officer in the Office of the Chancellor for the University of Hawai'i Community Colleges. She also served as a member of the marketing sub-committee for the UHCC E-learn program.

Sneak Preview: Outreach & Technology in the College of Education

PAUL B. MCKIMMY

Introduction and current status

One of the first steps in strategic planning is assessing the current environment. Developing a clear understanding of the College of Education's technology initiatives and outreach programs therefore became a priority when I came on board in February, 2002. As Director of Outreach and Technology for the College, a new position, I have two related roles. My primary charge is to convene and coordinate our efforts in offering programs to neighbor islands. My second role is to assist faculty in making use of emerging technologies. In assessing our current environment, I am greatly encouraged.

Our outreach programs, those programs that are available to students living outside O'ahu, involve varying formats of distance education delivery and necessarily tap our faculty's technology skills. The LEI Aloha project (Learning Enhancement through Innovations) has made significant and ongoing contributions to the technology skills of our faculty. This project is a result of a federal grant—Preparing Tomorrow's Teachers Today. Under the direction of Dr. Curtis Ho and Dr. Catherine P. Fulford, it has provided regular opportunities for faculty learning through professional development workshops, technology-intensive course creation, online resource development, mentoring, and access to the Technology Learning Center.

The College currently offers a variety of programs to neighbor islands. These include the Bachelors in Elementary Education and Special Education, in progress on Kaua'i and Maui; the Interdisciplinary Masters in Education, in progress on Maui; the Post-Baccalaureate Certificate in Secondary Education (PBCSE), starting Fall 2002 in Kona; and the Masters in Rehabilitation Counselor Education which is available state-wide. Additional courses are also offered through distance media as a result of funding from grants and as a result of individual departmental initiatives. The EdLeads (Summer Masters) Program offered by the Department of Educational Foundations, for example, offers education professionals a

combination of intensive summer coursework at Mānoa with online-learning projects conducted during the Fall and Spring semesters.

A number of College of Education faculty members have already taken their first steps in learning to use web-based course tools or have delivered a course using interactive television. Even more have directly indicated an interest in training with new delivery tools and formats. The willingness to learn new technologies and adopt a proactive approach to program re-design is a significant asset to the College. I expect to see more faculty members accept the challenge of technology-mediated instruction in the next few years. Training, direct assistance, and, in some cases, overload pay is available to support and encourage course redesign for priority courses.

Commitments

Along with such encouraging signs, the College of Education faces some significant challenges. The first is the continuing statewide shortage of teachers, especially on neighbor islands, and scarcity of budget resources. In December 2000, a proposal to fund teacher education on neighbor islands was approved and funded. This has resulted in the implementation of our Outreach and Technology initiative. The proposal called for drawing students from all neighbor islands and enrolling over 100 at full implementation (College of Education, 2000).

The College's commitment includes continuous offerings of an elementary program, a secondary program, a masters program and a special education program on neighbor islands. The location of these programs will likely rotate between Kaua'i, Maui and Hawai'i with services to Moloka'i and Lana'i extended through statewide offerings. The availability of our programs to islands beyond O'ahu is critical to meeting the state-wide teacher shortage. While recruitment of mainland teachers offers one solution, the radically higher attrition rate of these new-comers contributes to the continued staffing problems in our public schools (College of Education, 2000).

Aspiring teachers on neighbor islands have historically not had regular or consistent access to College programs. In June 2002, a poll of our Kaua'i B.Ed. cohort revealed that five of thirteen responding students would have enrolled three to ten years ago if the program had been available then. Availability of credentialing and professional development opportunities to neighbor islands enable local students, the population with the highest retention rate, to become teaching professionals.

Strategies

Addressing our state-wide needs will require rethinking and retooling the delivery of programs. Modern methods of delivery fall into one of four categories of instruction: face-to-face, online, video/interactive television, or hybrid (any combination of methods). The College of Education has traditionally delivered outreach programs face-to-face, by flying faculty to neighbor islands, or by interactive television through HITS (Hawai'i Interactive Television System). A few courses have been offered fully or partially online using course management systems such as WebCT or Blackboard.

Each delivery format possesses strengths and weaknesses. By taking advantage of the pedagogical strengths of multiple formats, hybridizing the delivery, instructors can offer greater opportunities for student success – the best of both worlds (Chamberline, 2001; Lago, 2000). Due to the clinical and interpersonal nature of teacher preparation, it is unlikely that wholly online programs will evolve. Hybrid courses and programs promise the convenience and access of online delivery without completely forfeiting the advantages of direct personal contact. Students enrolled in hybrid courses at other institutions have reported that they appreciate the combination of direct contact with decreased commuting time (Young, 2002). In order to capitalize on the strengths, efficiencies and opportunities that each delivery mode offers, we will continue to develop more courses and programs in hybrid formats.

The State-wide PBCSE program scheduled to begin in Fall of 2003 will take advantage of this multi-modal approach. Students in this program will experience an "executive MBA" format, in which they travel several weekends during the semester to meet in a face-to-face environment. These face-to-face opportunities will

build rapport, allow for traditional group discussion, create a cohesive learning environment, and provide modeling opportunities. The balance of instruction, project work and interaction will occur online. Online components will capitalize on efficiency of content delivery, assessment, and asynchronous interactions. Practicum and student teaching experiences will be managed with faculty visitation. By approaching the program in this manner, we will address the state-wide demand for certification, meet the career objectives of neighbor island applicants, and, it is hoped, fill the cohort to capacity. A full cohort will maintain financial feasibility and allow us to schedule the program on a continuous basis.

Hybrid formats will create new demands to be addressed, including available Internet access, students' capacity for self-direction, and technological comfort. While the student body continues to demonstrate increased technological proficiency, hybrid programs will not be a "best fit" for everyone. It therefore makes sense to continue offering programs in traditional formats to specific neighbor islands while we add capacity with state-wide models.

Happenings and Things to Come

As part of the Technology Advisory Committee, I have played a role in addressing the top three priorities identified for the College. These objectives include the upgrade of network infrastructure, the replacement of outdated computers in our computer labs, and acquisition of Internet connectivity and projection equipment for instructors in University High School Building 1. The network infrastructures of several buildings are now in the process of an upgrade, our networked computer classrooms are undergoing phase-in of modern/mobile/wireless computers and Internet and projection equipment will be available in University High School Building 1 by Fall 2002.

The acquisition of mobile computing is of particular interest in today's educational setting. In recent months, increasing numbers of schools are purchasing mobile carts with wireless laptops as an alternative to desktop computers (Minkel, 2002). Mobile computing provides flexibility in location, classroom layout, teaching methodology, and multiple possibilities for improved learning (Weathers, 2001). Using special software (Apple Remote Desktop or NetOp School), our instructors can view students' work remotely,

control a student's computer for demonstrations, or even "sleep" the entire classroom to get students' attention. The teachers we prepare will likely use similar technology in the schools where they are employed.

Opportunities to implement technology-mediated strategies will continue. Several faculty members are currently working with me to expand their knowledge of online course tools with the intent of redesigning courses for hybrid delivery. In the next year, new learning opportunities will emerge for College of Education faculty using WebCT, Tegrity Weblearner, and other distance delivery tools. Planning and development of more outreach programs are also in process as we gear up to meet the commitments of our outreach plan. As we expand our outreach offerings and redesign courses to fit the needs of today's students, faculty will need to avail themselves of training and development opportunities. Mastery of technology-mediated instruction is a function of attitude over all else. By maintaining a positive outlook and actively learning new instructional methods, we will continue to meet our challenges and prepare educators for work in a technology-rich world.

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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 T3CF 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](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.

The contributors to this article are: **Vicki Kajioka**, director, DOE Advanced Technology Research Branch; **Donna Shiroma**, educational specialist, ATR; **Debi Tisdell**, resource teacher, ATR; **Lena Kanemori**, DOE teacher, retired and **Jean Tsuda**, educational specialist, ATR, retired.

UH Information Technology Services: Faculty Development Program

HAE OKIMOTO

Universities are increasingly looking toward technology to overcome geographical barriers to access, and this has placed new demands on faculty to explore the potential of technology in their classrooms. As a result, faculty development in the use of appropriate applications for teaching and learning has become a critical issue. In the 2000 *Educause* survey (<http://www.educause.edu/issues/survey2001/report.asp>) of current issues in higher education, faculty development was rated, out of forty issues, as the third highest information technology related issue deemed most important for campuses to address for strategic success.

The faculty development efforts of the Distributed Learning and User Services (DLUS) group of the University of Hawai'i system's Information Technology Services (ITS) encompasses a variety of initiatives ranging from providing technology training to the faculty in a number of software applications (Photoshop, Powerpoint, iMovie, and Respondus), to hands-on training in how to improve classroom teaching using technology. In addition, special provisions are made to help faculty prepare to teach online and develop skills in online pedagogy.

Initial faculty development activities conducted by the ITS staff focused on training faculty in the use of WebCT at summer institutes. Although this helped faculty to gain new technical skills, their interest tended to be on "how to" do something rather than "why" a particular task was important in the teaching and learning process. The results of these early efforts were disheartening as faculty creations tended to be no more challenging to students than online correspondence courses. In order to address this problem, a new faculty development program, Teaching And Learning using Electronic Networked Technologies (TALENT) was developed over several years to train faculty in pedagogical issues of online teaching in addition to offering them hands-on technical training in WebCT and other software applications.

Faculty tend to teach the way they were taught as students. They combine the teaching styles of favorite professors with strategies developed from their own successful experiences of teaching and standard

administrative procedures for classroom management. While there are tools that can be used to deal with standard teaching situations, effective classroom teaching usually occurs in a dynamic and fluid environment. This is especially true in online teaching. Thus, training in technology enhanced instruction requires familiarizing faculty with pedagogical issues as well as providing effective instruction in the practical technical skills necessary to put a course online. As faculty are more available to commit time to this work during the summer, the TALENT Summer Institute plays an important role in the TALENT program. However, as many prefer to receive this training during the academic year, the TALENT program offers online and interactive television sessions during the Fall and Spring semester. These sessions include a range of topics, such as "Enhancing Interaction and Assessment Using Online Instructional Modules in your Course" (<http://www.hawaii.edu/talent>), which addresses pedagogical as well as technical issues, and "Photoshop, Dreamweaver, and Digital Movies" which is purely technical in content. Participation in TALENT offerings during the academic year tends to be dominated by faculty who are interested in using technology as a resource to add to their traditional face-to-face class. As a result, individual sessions are focused on a variety of topics. For example, the session on how to enhance student interaction in online classes is limited to a threaded discussion of how to use WebCT, but issues of how to use other threaded discussion options often arise and are included in the class.

The Summer Institute and the topical discussions conducted during the academic year are similar in content. The main difference is that the summer program is more compressed due to time limitations. In addition, sessions offered during the academic year are open, while participating in the TALENT Summer Institute is selective and faculty must first apply to be accepted. Interested faculty and staff submit a proposal stating what they hope to accomplish by attending the summer institute. Selection is based on realistic timelines for completion of the project, need for the course or service proposed, and the alignment of the



proposal with campus' priority with respect to technology-facilitated instruction.

Distributed Learning and User Services is a system-wide office. Participation is solicited from all 10 campuses of the University of Hawai'i system. Seventy percent of participants are from the five O'ahu campuses. In total, forty percent are from UH-Mānoa, twenty percent from UH-Hilo and UH-West O'ahu, and another forty percent from the community colleges. These percentages will change as more neighbor island campuses participate and as DLUS develops its distributed, hands-on model at each neighbor island campus.

Acceptance to the TALENT 101 requires faculty to participate, as students, in a month-long, online course followed by two-day hands-on workshop. The purpose of the course is threefold. First, the course explores, through four instructional modules, a sequence of pedagogical issues related to teaching and learning online. These modules include:

- the role of interaction in the online environment
- the role of community formation in the learning process and strategies for developing learning communities in an asynchronous, online classroom
- the role of assessment in measuring student learning and potential computerized assessment methodologies, and
- the application of an evaluation rubric in evaluating already developed and offered online courses.

Faculty usually find the application of the evaluation rubric to other online courses to be an interesting exercise, as it encourages them to evaluate structure, organization, ease of maneuverability, and clarity of directions. All these considerations are explored in the context of the faculty's own course.

TALENT 101 also attempts to provide first hand experience to faculty who may never have taken an online course or never taught online before. They need to learn how to adapt their traditional teaching strategies to online situations. TALENT 101 offers them a taste of that experience. In addition, it seeks to model good online teaching practices that blend multiple teaching strategies and methodologies. Finally, TALENT 101 introduces faculty to WebCT, the course management tool supported by ITS. Faculty gain knowledge of content through readings, participation in threaded discussions, assignments, and assessment of their knowledge. This one-month long online component of the course requires approximately 3-4 hours of work per week. The faculty must complete all the assignments prior to the in-person two-day face to face institute which is the hands-on component of the TALENT workshop where faculty are trained in organizing their course and uploading content to an online environment. While the online portion of TALENT 101 explores the "why" issues of online teaching, the face-to-face component is more practical in nature and covers the many "how to" questions that arise. The content for this portion includes the process of introducing students to the course and familiarizing them with it, teaching online etiquette, dealing with traditional first-day-of-class



administrative issues that arise in teaching an asynchronous course. The hands-on portion is also island-based—that is, due to the dispersed nature of the campuses of the University of Hawai‘i system, each island takes care of its own group of participants. DLUS staff travel to the various islands to provide technology training to participating faculty and offer staff development opportunities for local instructional technology staff.

The University of Hawai‘i delivered over 275 online courses during the spring 2002 semester. The total number of courses offered by the university system continues to grow as faculty become more comfortable with using technology and as the technology becomes easier to use. Due to a high level of interest, DLUS has now developed TALENT 201, in conjunction with Leeward Community College. This program assists faculty in the creation and presentation of content. Workshops in the series include more advanced topics such as storyboarding; shooting, editing, and streaming video; advanced WebCT tools; and narrated and indexed PowerPoint. The course was first offered in August 2002. However, interest by faculty has been so high that a second session had to be added to meet demand.

Technology plays a vital part in the economy of Hawai‘i and continues to gain importance in the teaching and learning process. But such developments are not limited merely to distance courses. While 275 courses were delivered online at UH in the Spring semester of 2002, a total of 450 active WebCT course accounts indicated a much wider use of online strategies, system-wide. These figures, however, barely get at the level of faculty participation in online learning when we consider the number of courses that make use of email, listserves and other applications. The TALENT program, nevertheless, offers an important example of the university’s commitment to preparing faculty to use technology effectively in the classroom and providing them necessary tools to take advantage of the increasing presence and importance of technology in the classroom. It is not inconceivable, however, that as our faculty gain experience in the use of online learning strategies and become more technologically literate, the need for this type of training will cease to be necessary. But for the present, the need for courses such as TALENT remains great.

Hae Okimoto is director of Distributed Learning and User Services in Information Technology Services at the University of Hawai‘i. She is active in the distance learning community on a national level through the Western Cooperative for Educational Telecommunications and serves on the board of directors for the American Association of Higher Education.

A Smooth Road from Conventional Teaching to Distance Learning in Teacher Education

HARUO NISHINOSONO

Introduction

As a result of rapid developments in information and communication technology (ICT), dramatic changes are taking place in approaches to teaching and learning in university and school classrooms. These changes offer new opportunities to explore entirely new methods of instruction in teacher education. ICT provides alternatives to conventional audiovisual media (films, videos and TV programs) and opens up an entirely new framework for knowledge distribution among teaching professionals. However, introducing new information technologies into schools will not automatically confer benefits on teachers and students. In spite of the promise made available by technology, many teachers remain conservative, preferring to hold fast to their familiar teaching practices, and reluctant to explore the possibilities that technology creates for transforming teaching and learning. Of course, the introduction of ICT into schools does not automatically produce benefits to students. It often amounts simply to the installation of equipment that is seldom used. The reasons for this reluctance to change can be traced to the individualistic and isolated nature of the teaching profession and the low communication rate among colleagues in the workplace.

In this paper, I describe, in two parts, an innovative approach to distance learning for teacher education conducted with second year students in the B.Ed. program at Bukkyo University in Kyoto, Japan. The first part concerns the development of symbols and a pictorial presentation system for a universal communication required for distance learning. The second, concerns the application of the system to convert instruction from a traditional teaching style to a new one applicable to distance learning, and to examine its feasibility.

The case for a common professional system of symbols and models

Television, telephone and Internet make it possible to communicate across the globe—anywhere, anytime.

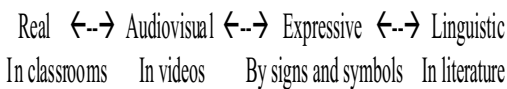
Yet in spite of the convenience of modern communication technology, such innovation has brought about no productive exchange of teaching experiences among teachers, especially among those working in different languages. In effect, the language barrier prohibits professional exchanges among teachers. And yet, other professionals such as architects, electricians, and mechanics use symbols and figures to express their ideas and to communicate with each other, even though they may speak different languages. They have developed a common professional terminology and system of symbols and other conventions that allow them to conduct important business such as prescribing treatments, designing products and describing experiences. The teaching profession, however, has no universally agreed on system of symbols or models for prescribing lesson plans, describing teaching and learning events in classrooms, and assessing teaching outcomes. I wish to make the case that the success of distance learning, especially if it involves international collaboration, requires a means of common communication that is sufficiently rich to express important professional ideas and share common experiences across various workplaces and on the Internet.

Description of educational problems

Educational researchers conduct scientific observations, engage in qualitative and quantitative analyses, and share their experiences through academic journals or other publications. More recently, these professional communications have been increasingly conducted through ICT. But no matter how convenient these methods are for researchers, teachers have very limited opportunities to share teaching experiences in a systematic way through technological media. Educational problems are increasingly growing more diverse and complex. Teachers are also made aware of them, immediately, and on a global scale—through communication satellites and the Internet. They can communicate orally with their colleagues or other teachers only in school meetings or in the workplace,

but the language barrier inhibits a broader sharing of professional experiences. Traditional literature in education successfully describes philosophical thought and educational values, but fails to communicate practical knowledge in any reliable form. Teachers are unused to expressing ideas and experiences through public media to enhance their professional competence. There is no universally regulated or unified method to describe teaching and learning events and the teacher’s judgment in his/her classroom.

Educational measurement tools can reliably assess the outcome of instruction, but no means exist to communicate the richness of the instructional process. Video recordings do show the teaching process, but without any interpretation. Observations of real teaching situations are useful, but remain ineffective in showing the teacher’s intentions or ideas. The spectrum from visible record to linguistic description can be shown as follows:



Language is indeed the most convenient means for conveying ideas and experiences within a community where everyone speaks a common language, but its effectiveness diminishes outside the community of same-language speakers. Audiovisual images, however, represent a powerful means of overcoming language barriers, though they require interpretation in a spoken language. Successful implementation of distance learning among participants at different workplaces depends on efficient and effective communication. Well-defined signs and symbols offer promising tools for different communi-

ties to describe actions, share ideas and communicate experiences to the public as well as within a circle of specific professionals. Terminologies, signs and symbols are commonly used to form a professional society in order to share knowledge and experiences.

In the following section I describe a trial distance education project that employed a common system of symbols in a Japanese setting with the goal of determining its feasibility before advancing to the next stage of implementing the project in an international setting. The project introduced here was limited to large classes of Japanese students. The purpose of the project was to use graphic models to change students’ perceptions, through a process of progressive revisions, from a teacher-oriented approach to instruction to a learner-oriented approach.

A framework to describe instruction

The proposal described here aims to provide pre-service teachers with a new framework that promotes innovative instruction in daily teaching, and acts as a means of communicating these ideas with colleagues among different workplaces. A process of revising is vital to improving an initial lesson plan by referring to the actual situation observed in the class, then using the refined plan to move the students to their intended instructional goals. Student teachers start by writing

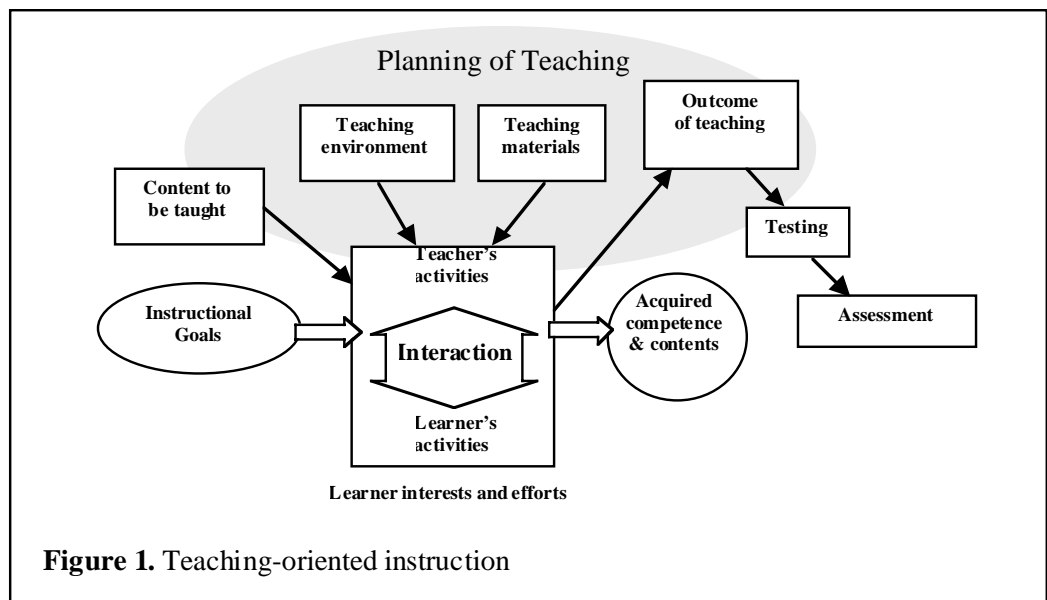


Figure 1. Teaching-oriented instruction

lesson plans using pictorial images. They then proceed to the next stage of using keywords or concepts, representing ideas in graphic models and describing judgment and explanations in empirical statements. This framework was applied successfully to my classes in 'Instructional Technology' at Bukkyo University in 2000 and 2001. The following sections provide a series of graphical models along with explanations of their functions.

At the very beginning of the course, I start by describing educational goals, then proceed to specifying instructional objectives, predicting teaching and learning events, selecting teaching materials and planning outcome assessments. This is the procedure that is most widely adopted among Japanese teachers. It represents a design for conventional, teacher-oriented instruction. It is efficient when it comes to designing lessons for transferring knowledge from teachers to students. However, students attending this sort of class tend to be passive and follow the lesson without any clear awareness of the meaning of what they are learning. Figure 1 shows a model that describes the procedure of teacher-oriented instruction and depicts the relationships among the elements.

Learner-oriented instruction, on the other hand, starts from the students' understanding of the mean-

ing of learning. Teachers have to estimate students' expectations or interests at the beginning of the course. They proceed by planning flexibly and making appropriate adjustments and end by using assessment techniques that accommodate unexpected results. Teachers and students, who are often unfamiliar with this type of instruction, are frustrated by the ambiguity entailed by this kind of planning. They have some rough ideas concerning instruction, but cannot express themselves in written form, at least not at the beginning. This model is illustrated in Figure 2.

In actual classroom situations teachers and students always interact with each other and take the initiative to plan their teaching and learning activities. Teachers start from an assessment of their own intentions and educational aims, anticipate students' behavior, and follow up by taking appropriate actions. Descriptions of the teachers' intentions and analyses of their instructional objectives, however, do not necessarily motivate the students nor offer an effective account of the scope and sequence of learning. On the contrary, when teachers start from an understanding of the students' intentions and activities, teachers are better placed to arrange an environment that will support the students' learning. In this kind of planning, we can describe the physical and psychological environ-

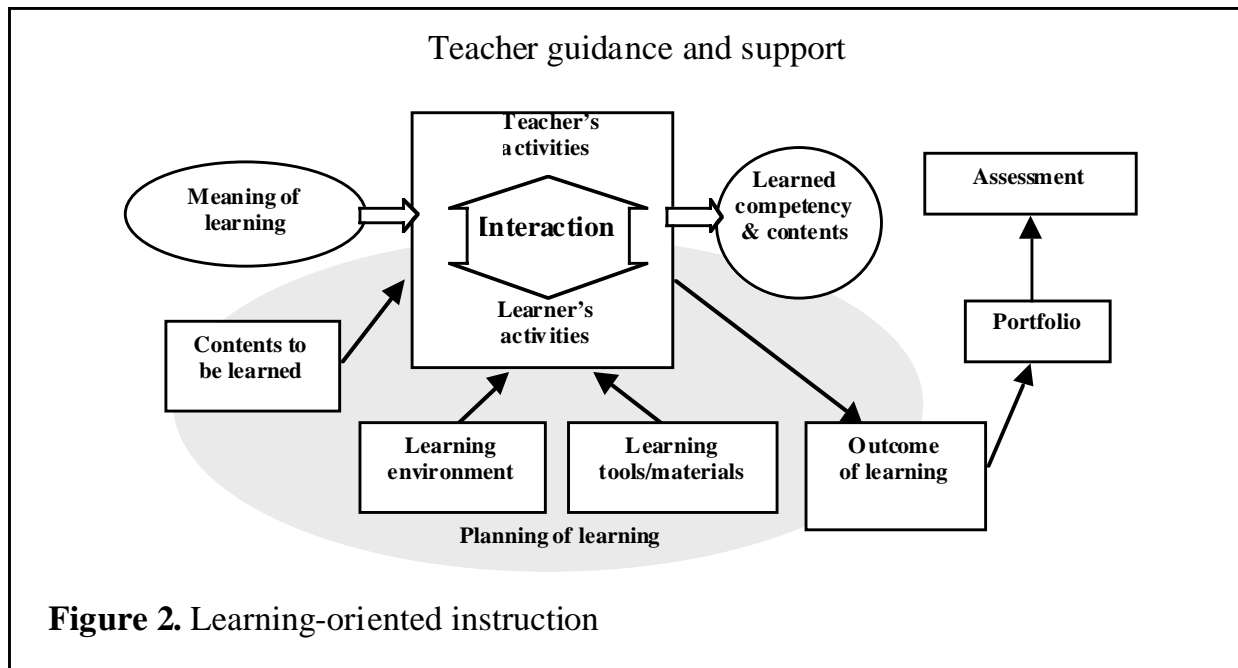


Figure 2. Learning-oriented instruction

ment for a more effective learning by means of models and propositions. Integration of these two planning perspectives—teacher-oriented planning and student-

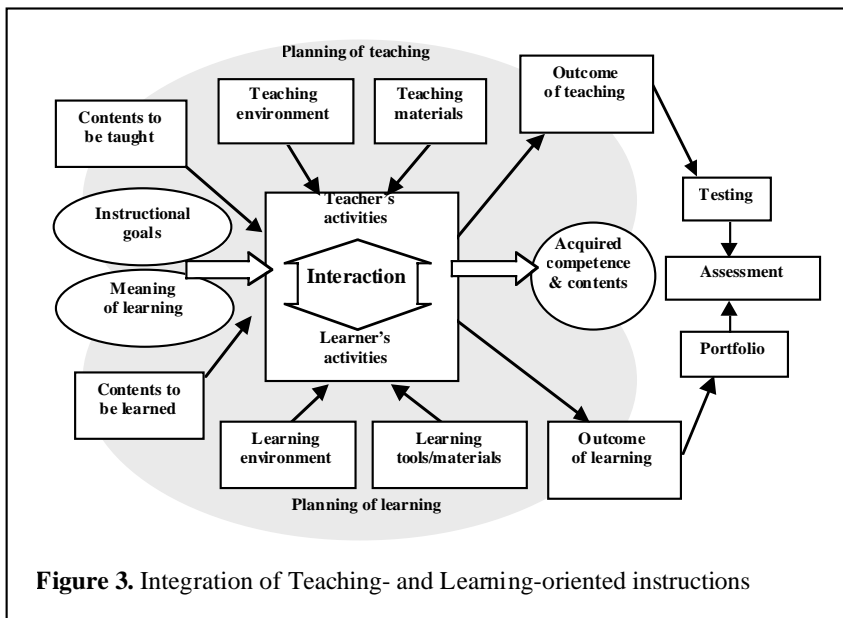
from school to school, from society to society and from nation to nation. It is a straightforward matter to express these ideas as expectations and philosophical

views, but hard to reach a common, agreed-upon method of how to represent educational goals and actual teaching or to describe instructional actions that may occur in the teaching process. Descriptions in written normative form are easy to read, but difficult to modify and revise with reference to observed events in an actual classroom.

In conventional lesson plans, teachers are able to describe educational aims and goals, instructional contents, teacher activities, learner activities, teaching materials and other remarks. But when teachers start to develop their ideas of educational norms, they find that the value system differs from teacher to teacher, from school to school, from society to society and from nation to nation. It is a straightforward matter to express these ideas as expectations and philosophical views, but hard to reach a common, agreed-upon method

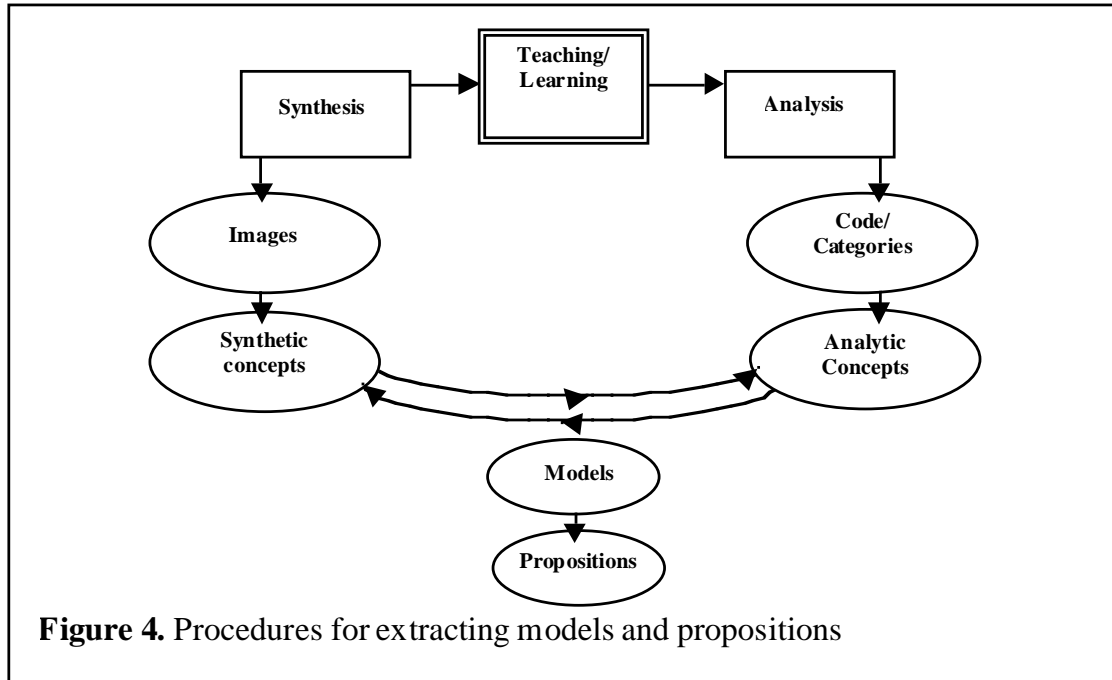
of how to represent educational goals and actual teaching or to describe instructional actions that may occur in the teaching process. Descriptions in written normative form are easy to read, but difficult to modify and revise with reference to observed events in an actual classroom.

On the other hand, when we start to develop lesson plans from a prescriptive model of teaching and learning, it is not difficult to reach agreement on symbols, concepts, models and propositions or empirical statements to describe the lesson plan. The configuration of symbols, concepts, models and propositions, and empirical statements constitutes a structured lesson plan and represents specific procedures to follow in order to achieve one's educational goals. Keywords and graphical representations of instructional design greatly support teachers in developing their ideas and revising them regularly. These concepts can be described in symbols and/or keywords, and the models can also be represented by symbols and concepts. By employing this method, each symbol, concept, model and proposition is free from any specific value system. Thus, the educational value of



oriented planning—into one comprehensive model of instruction is represented in Figure 3. This integrated procedure for designing instruction requires students to reflect and plan in two directions simultaneously. First, the model starts with teachers' intentions concerning instruction, proceeds to a formulation of teaching strategies, and ends with the development of concrete lesson plans. Secondly, the model includes direct observations of students' learning, analyses of activities and predictions of subsequent learning events arising from instruction. Finally, actual classroom experience is added, and both directions are taken into account to generate lesson plans. The design procedure proposed here consists of five components; images, codes/categories, synthetic and analytic concepts, models and propositions, which form sequential steps as shown in figure 4.

In conventional lesson plans, teachers are able to describe educational aims and goals, instructional contents, teacher activities, learner activities, teaching materials and other remarks. But when teachers start to develop their ideas of educational norms, they find that the value system differs from teacher to teacher,



teaching is testified to after the construction of the lesson plans, not before their construction.

Moving Toward Autonomous Learning for Teacher Education

It is hard to change the framework of a familiar teaching style or to accept new types of instruction, even in teacher training colleges. The present correspondence courses at Bukkyo University have fifty years of history based on instruction that employs textbooks, report correction and correspondence with students. This system has proved effective in transmitting subjects such as educational philosophy, educational psychology and educational history, but it is ineffective in more practical areas of study such as practice teaching and curriculum planning. Now is the time to explore new communications systems in the teaching profession that share our experience in moving from teacher-centered instruction to learner-centered instruction.

The three instructional trials that I describe in the section following this one illustrate typical lessons in two courses that I teach: *Introduction to Instructional Technology* and *Introduction to Instructional Design and Analysis*.

My aim is to study the feasibility of using instruc-

tional symbols with large classes in a large lecture room, not in an experimental setting.

My experiences show that new approaches to instruction require from three to five years to prove their feasibility in different situations. In these situations, it is impossible to keep the same experimental settings to validate the feasibility of the new attempt. The class sizes of the experiments range from 78 students to 228 students. Computer facilities differ from one class to another. Yet in spite of the different settings, the same symbols and figures are used to direct instruction in the expectation that these methods can be transferred to the distance education situation. The following principles were gradually introduced during the course of the lessons. Each allowed a smooth transition from teacher-centered instruction to learner-centered instruction and were applied in three sequential trial courses:

Educational principle: The right to learn depending on one's capabilities.

Article 26 of The Constitution of Japan maintains that *All people shall have the right to receive an equal education* corresponding to their ability, as provided by law. A strong governmental policy that promotes national education as a duty has hampered the development of teachers' initiatives

while strengthening their passive attitudes towards the instructional planning needed for educational reform. Students also tend to think of education as their duty rather than their right. It is essential to transform this attitude into a more autonomy-minded attitude so that teachers take more responsibility in planning lessons. Japanese education is still paternalistic in nature, from elementary to higher education.

Social factors: the learning community and the learning organization.

The school has two aspects, that of a community and an organization. The community aspect tends to be stable and maintains its cultural heritage, while the organization part acts as a means to enhance its own functions as well as to encourage change. The school is expected to be a learning center for its community and to adapt progressive features to correspond to society's changing, growing needs and the learners' expectations.

Developmental steps: images, models and empirical propositions.

The traditional procedure for developing instructional programs begins with the instructor identifying educational goals and instructional objectives. However, as students begin to identify these goals and objectives, the instructor must clarify expectations and explain their meaning. This means that although the instructor often begins with ambiguous images, they are able to clarify them gradually in accordance with the students' progress, identifying the real learning events and describing them in the form of models and empirical propositions. These images, models and propositions are evaluated during and after class, stored in a computer and used to design the next lessons.

School factors: educational ideals, teacher competence, realities and constraints.

Education students are expected to plan a virtual school, but find difficulty in taking educational ideals, teacher competence, realities and constraints into account. The task is too complex for novice teachers to describe all the relevant factors and should be tackled in more advanced courses. Educational ideals should correspond to teachers'

levels of competence and the realities and countless constraints that schools face on a daily basis.

Team learning principles: autonomy, collaboration, contribution, responsibility and respect.

In order to change the students' passive attitude into one of active learning, five principles are introduced from the beginning of the courses and repeatedly referred to during the semester. They are: autonomy, collaboration, contribution, responsibility and respect.

Instructional components: meaning, activities, contents, environment, tools and outcome.

The instructional process is a complex one. It is hard to design a complete process from the beginning. However, by using a list of components stored in an Excel file, students can draw on some of the elements to be considered in instructional design.

6x6xN group formation and instructional management.

The 6x6xN arrangement is based on the typical size of classes in Japanese schools, which ranges from 25 to 40 students. My classes tend to be much larger. Practical experience has taught me to reorganize virtual classes into more manageable units (based on the smaller sized school classroom), and so I divide them into six groups of six students. Six groups constitute a virtual class. In a course with 72 students, for example, I would create two virtual classes (6x6x2). I have found that Microsoft Visio's organizational diagram sheets offer an effective tool to manage this specific arrangement of groups of six teams.

I have experimented intensively with the above framework over the past three years in my *Introduction to Instructional Technology* course to test its feasibility. The first stage started with 228 undergraduates, and advanced to a course for 78 students in a laboratory well equipped with computers. Finally, I employed it in a course for 108 students in an ordinary classroom connected to a small computer laboratory.

Three Instructional Trials

The common goal of these trials was for students in the various courses to propose a virtual school as well

as create an example of a lesson plan that they would use to conduct a class on a specific subject or topic. In each case, three actions were taken to move the students' introductory lesson plan from a conventional teacher-centered model to a more learner-centered one.

The first trial:

This course, *Introduction to Instructional Technology 2000*, involved 228 students in a lecture hall designed for 300. The class was arranged into 6 large divisions containing 6 groups of 6 and 7 member teams working in independent units. Within each division of 6 teams, students exchanged ideas in poster sessions and presented their works on the walls of the classroom. Their aim was to develop their ideas of a virtual school and create a lesson plan. In designing their virtual school, each group was expected to clarify its educational aims, describe the facilities available in the school, and develop a timetable of lessons. Students used the Internet to visit the homepages of different schools and had direct contact with actual schools to use as a model for their virtual schools. Students endeavored to depict their ideas using illustrations and figures. I avoided providing an overwhelming amount of information or forcing the students to memorize and understand the meaning of what was presented.

The second trial:

This course, *Introduction to Instructional Design and Analysis*, involved teaching 78 students in a computer lab arranged into two virtual classes. The aim was to ascertain the effectiveness of computer networking for group-work and to judge the quality of student reports. Computer facilities were provided and each student could use PowerPoint and Word to express his or her ideas. However, in spite of the rich technological setting, the images of virtual schools produced by this class were not as good or as developed as those generated in the first stage. In this configuration in which students sat at computer displays, student discussions were not intense enough or sufficient to generate new ideas. This experience showed that group discussion is indispensable in exploring issues and ideas in creating a virtual school; adequate technological facilities do not necessarily guarantee a high quality of instructional products.

The third trial:

The third course, *Introduction to Instructional Technology 2001*, was conducted with 108 students (6x6x3) in an ordinary classroom equipped with a projector and screen. The aim was to ensure effective team working and quality work in designing a virtual school, as well as producing examples of a lesson plan on a specific subject or topic. Students were also able to use a separate computer lab equipped with about forty computers. By using the group-mailing function of cellular phones, students were able to communicate with each other to arrange work meetings and to exchange ideas after class. Each virtual class of six teams conducted their poster sessions independently. There was no interaction between these classes, although they were often in the same room. The group arrangement meant that it was unnecessary for each student to have a computer. They were, however, able to contribute to the project to the degree that they were competent in using communication technology.

Conclusion

Bukkyo University is currently facing the critical issue of having to revise its correspondence courses by integrating them more closely with our full-time offerings and, at the same time, developing a framework for distance education. Information and communication technology and research on teaching and learning will enable us to develop entirely new approaches to instruction that accommodate greater numbers of students who come to us with a greater range of experiences and variety of interests. In this evolving scenario, the lecture approach to instruction is neither attractive nor effective as it precludes active student involvement and quality learning. The above sequence of instructional trials has helped to reveal the importance of student discussion in situations that promote creative learning and produce visible and viable instructional outcomes in university teacher training courses.

Effective on-line learning in teacher education can be reproduced and validated in regular face-to-face classrooms, which has the advantage of allowing

more oversight and opportunities for investigating the processes of on-line teaching and learning. In fact, this is a good way to ensure that autonomous learning within groups is taking place while using ICT, and that it can be implemented in actual distance learning situations. The next step of this project, Trial Four, is to implement the above procedure for in-service teacher training in the Kyoto district.

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