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

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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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