Educational Technology and Distance Education at UW Bothell: Initial Findings, Observations, and Recommendations

Michael Lewis Goldberg
Associate Professor
University of Washington, Bothell
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I. Executive Summary

UW Bothell must begin immediately to develop a strategy for initiating and supporting an integrative approach to educational technology and distance education. While naysayers and boosters of ET and DE have been battling in the media, practitioners have developed a body of research and practice that establishes models which UWB can draw on and adapt to its own unique mission. This model assumes that technology is only used to enhance the teaching process, that it isn't always necessary and may be counterproductive, and that its use should be considered among a broad array of teaching practices and tools. At the same time, an instructor can only make intelligent choices about pedagogy by an understanding of all options, including technology. Because this proposal views technology-assisted DE (video, telecommunications, computer) as a subset of educational technology and ET a subset of all teaching techniques, it places more importance on the degree of such practices as faculty-student and student-student interaction, cooperative learning, student-directed learning, and critical thinking and assessment rather than modes of delivery. These distinctions are especially important when assessing the use of technology as well as more traditional methods. Past failures by instructors using educational technology offer valuable warning lessons, while the successful experiences, teaching tools, assessment techniques, and methods provide examples to emulate or adapt. An innovative, effective, and sustainable educational technology initiative at UWB based on these best practices will provide numerous opportunities for improving the teaching and learning experience for students and faculty while aiding the institutional health of the campus. This strategy is essential because for most students in the near future, ET will increasingly become a part of "traditional" teaching environments, web-based DE will become an occasional alternative for many and a complete alternative for others. Thus failure to create a comprehensive ET strategy will create substantial difficulties for UWB. In developing this initiative, UWB will be able to draw on the extensive resources for supporting ET at the University of Washington while taking a leading role in this endeavor.

As a commuter campus which is heavily dependent on FTE for funding and which stresses access to education for time- and place-bound students, UWB (like UWT) faces particular pressures for initiating a comprehensive ET strategy. These pressures include present and prospective student demand for DE courses, the training and expectations of increasingly technologically savvy students, competition from other universities offering DE courses, expectations of Washington state politicians, the Higher Education Coordinating Board, and the UW administration, and the need for continued support from the UWB Advisory Support, current and prospective donors, and the general community. Failure to address these needs now will eventually force UWB to produce distance education courses with little planning and without integration into a general ET strategy. The advantages to a well-designed ET initiative would be many, including retaining more FTE, draw FTE from other institutions, attract prospective students interested in (and expecting) the effective use of educational technology, improving student's academic outcomes and increasing student satisfaction, gaining political support from state legislators and UW administrators, garnering positive publicity, attracting more donations from community and business sources and grants from foundations and UW initiatives, and lessening strains on classroom space and parking.

A successful UWB educational technology initiative (including distance education courses and degrees) will have an *organic* relationship to the institution's mission and structure, with course content created from within existing programs and controlled by faculty, and with techniques best suited to the intended academic outcomes. It will *integrate* technology within

the larger discussion and practice of teaching so that a sharp divide between "traditional" and "technological" education is avoided, especially focusing on innovative pedagogy. It will be student-centered, placing concern for students' learning experience foremost. The success of the program should be carefully measured my innovative short- and long-term assessment of student outcomes developed by the faculty with the support of UW resources. It will stress cooperation between faculty, Academic Services, and the administration, and be implemented gradually as resources permit, but with a sense of urgency. A successful UWB educational technology initiative will support the campus' mission by increasing the opportunity for interdisciplinarity, linked courses, service learning, teach teaching and the sharing of expertise. It will foster the integration of student's use of technology in their into coursework (rather than simply using technology to deliver content and administer classes). It could promote diversity if UWB's distance education courses attract students from a variety of cultural perspectives beyond its current demographic. These DE courses would include small seminar-style web-based courses (optimally capped at 20 students), web-based "competency" courses requiring minimal faculty interaction but with a high degree of student-content interactivity, and interactive video courses currently transmitted via television. Competency-based courses and modules could help teach basic skills and disciplinary competency, free up faculty time, and generate opportunities for faculty cooperation in creating teaching databases for shared material. Faculty wishing to create these courses and modules could draw on the existing resources of the University of Washington while retaining at least part of the intellectual property. If UWB implemented an ET initiative following the above prescriptions, it would be eventually be able to offer the opportunity for earning a degree entirely online within the existing programs without creating a separate "distance education" degree.

In order to implement this initiative successfully, UWB would need to invest sufficient human and financial capital to provide the necessary technological and human infrastructure as well as faculty development opportunities. Sufficient Faculty, staff, and administrators would need to work together to create institutional structures and policies to guide the initiative. UWB would require support from outside of the campus, including a reduction in FTE to enable smaller web-based seminar courses. Minimum levels of faculty involvement in ET need to be established along with the means to increase opportunities to engage the technology critically and productively at all levels of involvement. Investments should be made in faculty willing to spearhead the ET initiative and mentor other faculty by providing release time as well as the necessary hardware, software, support, and training. In order to maintain forward movement, UWB should recognize that a willingness to engage ET is an important quality in new hires. As UWB moved forward with its ET initiative, it could generate positive publicity for its innovative and effective practices. These would help generate additional funding, which is crucial to a successful ET strategy. Funding could come from the Washington state legislature, UW's "initiatives and strategies" sources, private donations (including a targeted "teaching with technology" fund, and public and private granting agencies.

II. Introduction: The Context of an Educational Technology Initiative

A. The General Context

Anyone following prognostications and debates in the media about educational technology in higher education might get a bad case of intellectual vertigo. On one side are those who proclaim the complete eradication of the "bricks and mortar" university, replaced by a cyber space where "educational brokers" facilitate the "virtual education" of "knowledge consumers" by "content providers." On the other side are those manning the barricades, protecting an ideal "traditional" education with its idiosyncratic, personalized, and face-to-face culture of critical thinking that fosters a nurturing relationships between students and faculty.[1] Squeezed between these two warring factions and searching for some type of equilibrium are those who recognize both the problems and possibilities of ET while casting a critical eye on the shortcomings of an idealized "traditional" education. The majority of higher education faculty remain largely on the sidelines, viewing ET with a combination of curiosity and suspicion.

This report is most concerned with the perspectives, experiences, research findings and vision of this third group. This model seeks to build on and improve existing educational approaches while being open to creating entirely new techniques. Of all the prognostications one hears, at least one is certain: technology in general and distance education in particular will transform higher education in America. Most higher education institutions—and virtually all public institutions—must create a critical, reasoned response to the role of ET in their curriculum and culture or risk becoming irrelevant.

Although these "balanced" practitioners uncerstand the significance of educational technology to the future of higher education, they do not take anything like a technological determinist point of view. For them, the technology does not drive educational practice—teaching does. For that reason, they do not assume that every instructor must use technology at all times, or that technology always—or even usually—is the answer. Some basic assumptions that grow out of this proposition include:

- Technology should only be used when it improves the educational experience. If technology does not enhance the teaching and learning process, it is preferable not to use it.
- Course design and teaching techniques begin with the question, "what is the best way to teach this material"? Technology becomes one of many tools that may be utilized for this purpose.
- Like all choices involving teaching, the use of any technology comes with benefits and costs, advantages and disadvantages.
- One can only make intelligent choices about course design and pedagogy if one understands the array of techniques available, including advanced technology.

One of the reasons for the broad disparity in views regarding ET is the slipperiness of the language. To start with, consider the basic terms: "Distance Education" and "Educational Technology." Although often used without further description, neither is very precise. "DE" is generally taken to be a learning experience where the student and teacher/content provider are separated by physical distance mediated by technology. "DE" may be delivered via the following means: mail post, videoconferencing, audioconferencing, videotape, audiotape, 3.5"

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[1] As I note below, the concerns of this group of critics regarding some of the practices, policies, and pronouncements of certain educational technology boosters are serious and not to be ignored. However, valid concerns do not provide a legitimate basis for dismissing or ignoring efforts at the effective use of educational technology and distance education.

computer disk, CD/DVD, laserdisk, or the Internet (web-based or text-based). Any of these formats might include some degree of interactivity between instructors and students or none at all. They may include critical thinking components or may focus solely on the mastery of content. They may have a specific start and stop date, a specific meeting time, or be independent of date, time, and place constraints. Or they may be hybrids of any or all of the above categories.

"Educational Technology" is another term badly in need of careful definition. Some take it to mean teaching and learning which incorporates everything from television to telephones to computers. Others would limit it to digital technology. It's helpful to realize that ever since humans began creating non-verbal means for communicating ideas, "technology" has had a place in teaching, and advances such as the printing press, chalkboards, mimeographs, postal delivery, whiteboards, slide and overhead projectors, etc. have played a role in shaping (and occasionally "revolutionizing") educational practices. For the purpose of this report, I will make a distinction between "advanced ET" (computer- and/or Internet-based means to enhance teaching and learning) and "traditional ET" (all other human fabrications for that purpose). In order to align with current practice, I will shorten "advanced educational technology" to "educational technology" while maintaining the distinctions articulated above.

A third category that should be considered is "educational technique," which refers to any means instructors use to enhance the teaching and learning process. The range of techniques are of course great: one-way or interactive lectures, small to large group discussion, one-on-one tutoring, student-directed learning, collaborative learning, role-playing, Socratic method, etc. Teachers might use technology within different categorizations of educational technique: the delivery of course material, communication, assessment and course management, and student activities and assignments.

My purpose in this semantic exercise is to stress both the similarities and differences of available technologies, and more importantly, their subsumption within the broader category of teaching technique, so that pedagogy is established as the starting point and main focus of our considerations. Further, these categories expose the false simplistic divide between "distance education" and "traditional education." A research seminar that utilizes student-directed collaborative learning, critical thinking components, learning-centered technology, is highly interactive, and includes both synchronous and asynchronous discussions has far more in common with a version of the course that is taught completely on-line than with a 500-student non-interactive, competency-based, non-collaborative, faculty-directed introductory lecture course without teaching assistants. And a course based on video lectures without on-line discussion and critical thinking components is closer to its lecture-course counterpart than the first two courses. The first two courses clearly have differences—and thus relative advantages and disadvantages—but the main similarities of the first and third course is that they are on-site. Even the claim of "face-to-face" education, which has been used broadly to signify all "traditional" education, breaks down when one considers the term more carefully. If "face to face" is defined as "direct communication between people in each other's presence," then only the first course accomplishes that. Thus in assessing the effectiveness of ET in general and DE in particular, we need to be careful about what we are assessing and what we are comparing it to. At the same time, we need to be aware of the shortcomings and limitations of "traditional" education and technology as well, and try to develop and maintain the best practices of both.

The current state of ET and DE provides an excellent opportunity for UW Bothell. The type of DE courses that are best suited to UWB—small, interactive web-based courses and less interactive web-based competency courses—have undergone a fair amount of scrutiny, exposing

both the strengths and weaknesses of a variety of approaches and teaching strategies. A wide range of ET tools and software have been developed, tested, and improved, offering instructors an exciting array of teaching aids. The resources available via the Web along with the methods of searching, retrieving, adapting, and assessing them, increases daily. UWB still has time to develop an innovative, integrative, and effective approach to ET that will respond to the needs of its students, the concerns of the HEC board and the legislature, and the high expectations the faculty bring to their instructional mission.

The research on ET makes clear that while there is a fair amount of poorly designed and hastily planned DE courses, there are also many clear examples of innovative and effective teaching within a completely on-line environment. This should not be surprising, as one finds a similar mixed bag in assessments of traditional higher education programs. Instituting an ET strategy at this time should spur assessments of teaching practices and outcomes in all educational environments, just as it would encourage innovations and improvements in teaching techniques using a range of technologies. Reports on the use of ET in traditional classroom settings are even more encouraging. Instructors find that the new technology offers an array of opportunities for innovative, effective teaching.

Despite the many successes, critics of educational technology are right to be suspicious of the rhetoric and policies of its more ardent supporters. Distance education initiatives in particular have been burdened by poor planning and unrealistic expectations which have been driven by the hype of the moment. DE has been touted as a way to cut costs, universalize education, and largely make faculty "redundant." What is striking about these claims is how little of it is based on actual research of outcomes, but even more importantly, of student's desires. Indeed, many of those who tout the need for a "business" model for education seem to be unconcerned about the needs and wishes of the "customers." "Traditional" (18-to-22 year-old) students may one day opt in masse for having their college experience consist of staring at a computer screen at home (not to mention their parents reaction!), but until then, the social (and socializing) components of on-site, in-person education will continue to hold its appeal. And while "non-traditional" learners have been touted as the "obvious" targets for DE courses, UWB's experience with these students suggests that most of them want a fair amount of contact with a face-to-face community of teachers and students. Further, while certain large institutions might realize some financial gains from producing software or pre-packaged courses (which will be, in effect, technologically sophisticated textbooks), most institutions are finding that ET in general, and DE in particular, requires a substantial and on-going investment. This is especially true with an upper-division campus where courses are necessarily smaller. As I note below, a successful program will be impossible without clarifying the level of investment needed (along with the educational benefits) to the funding agencies that have expressed their desire for UWB to incorporate educational technology and distance education into the curriculum.

What seems far more likely (and thus readily applicable to UWB's mission), is that ET will increasingly become a part of "traditional" teaching environments, including courses which combine on-site and distance teaching. Web-based DE (including video instruction, which will soon become fully incorporated into web technology), will become an occasional alternative for most students, and a complete alternative for others who feel comfortable with this mode of education or who are not able to gain direct access to an institution. Thus while ET is unlikely to replace traditional education, it will transform it significantly. If planned carefully, this transformation can serve to further improve UWB's commitment to "access through excellence."

B. The UW Context

Despite the stated desire by the UW administration to support ET initiatives, none of the UW campuses appear to have a clear strategy for integrating ET and DE into the curriculum. The University of Washington has taken several important steps and created some useful resources, and a few programs at UWS (most notably in the College of Health Sciences and the School of Engineering) have more clearly defined policies and strategies. UW University Outreach has taken primary responsibility for distance education, which is not part of an overall educational technology strategy at UWS. These courses (and increasingly, learning modules), are meant to be self-supporting, with students covering the cost of developing, maintaining, and running the courses (although the university covers the cost for much of the technical infrastructure). In order to sustain this model, most of these courses have limited interactions with faculty members, and faculty members to not maintain ownership of the courses. Most UW Extension courses may be taken for credit by UW students, including UWB students. At this point, UWS faculty have shown little interest in developing distance education courses as part of their department's or program's curriculum.

UWB would be taking the lead in developing a campus-wide educational technology initiative. This situation provides both opportunities and challenges. As a relatively new institution with limited resources and a faculty with an already significant teaching and service load, taking a vanguard approach might appear daunting. However, UW has a number of important resources on which UWB can draw to help in this process. These include UWired (especially the Center for Teaching, Learning, and Technology or "Catalyst"), UW Communications and Computing (C & C), the Program for Educational Transformation Through Technology (PETTT), Undergraduate Education, UW Extension, and less specialized initiatives like the Tools for Transformation grant. The staff at Catalyst has been especially eager to connect with UWB faculty, and have played an important role in the search for the UWB educational technologist.

UW Tacoma has the potential to become an important collaborative partner as they continue to develop their educational technology efforts. The director of UWT's Information Technology unit, Barbara Horgan, has a strong background in information and educational technology, and heads a committee focused on educational technology at UWT. Last year the campus began instituting the educational technology delivery system BlackBoard, which UWB will be using as part of a joint-licensing agreement. Such cooperative efforts point to the possibility for a less ad hoc and more integrated approach as both campuses look to developing ET and DE in the future. Horgan has expressed interest in helping to organize informal meetings between faculty and staff from both campuses interested in educational technology. (See discussion of on-line degrees, below.) The two new campuses have the opportunity to utilize their relative institutional dexterity to take the lead in the use of educational technology at UW.

The recent co-location with Cascadia Community College offers another opportunity for partnership and cooperation. For example, it might make sense to combine some faculty development efforts, which would make use of economies of scale while also forging stronger links between the two faculties. Another possibility might be the sharing of resources and staff for technical support, particularly since CCC's technical training courses in software applications, web design, database construction, etc. might provide student interns, drop-in labs, etc.

C. The UWB Context

For UW Bothell, the questions is not whether to address the role of educational technology, it is when. This is because the pressures from a variety of sources for educational technology and distance education will soon become overwhelming. These include:

Present student demand: In a recent survey, nearly a quarter of UWB students responding claimed they were "extremely likely" to take an internet course offered any time. Another 23.6% marked "5" or "6" on the seven point scale between "highly unlikely" and "highly likely. With nearly half of UWB students desiring the flexibility offered by web-based courses, the need seems apparent.

- ***Prospective student demand:*** As more community college students get used to distance education courses, more will look for this feature in their upper-division university.
- ***Future student's training and expectations:*** In five years, most of the students coming directly out of community college from high school will have experience searching and evaluating web sources; designing web pages; creating PowerPoint presentations; scanning and manipulating images; and inputting and manipulating data in a database, to name but a few skills. They will expect to continue to use these tools in college.
- ***Competition from other universities:*** With the growth on university distance education alliances and the proliferation of "portals" by which students may easily shop for and access a wide range of courses, students will have far more options than currently. UWB students who desire greater flexibility in their schedule or simply want to experience on-line education will have access to a variety of options, including "big name institutions" such as Cornell, Harvard, and Columbia. Another source of competition will come from courses offered by Washington state public institutions because of the greater ease of transferring credits and arranging financial aid.
- ***Governor/Legislature/HEC Board:*** While it is clear that many state politicians have unrealistic expectations about what distance education will do (such as save money), there is the general expectation from the above institutions that UW will develop these options in the future. It is not unlikely that politicians will begin to enforce "quotas" on the number of distance education courses a campus delivers, basing funding on achieving preset goals. Further, because the state subsidizes students' education, it is likely that many legislators will support "outsourcing" distance education to "brand name" universities for students willing to pay for the "privilege," or to other institutions who can deliver "low cost" DE, whatever the quality.
- ***UW Administration:*** Given the vulnerability of the smaller campuses, as well as their greater dependence on FTE for funding and their "non-traditional" student demographic, it is likely that UWB will face substantial pressure from the UW administration to deliver distance education courses.
- ***UWB Advisory Board, current and prospective donors, and the general community:*** In order to maintain our commitment to educational excellence and our place as an important institution within the "high tech corridor" of the Puget Sound, UWB needs to develop a coherent and dynamic educational technology initiative that excites our broader constituencies.

The danger of ignoring these pressures is that as FTE numbers start to fall (especially from students taking DE as their second and/or third courses from another university, institutional pressures will force UWB to produce distance education courses with little planning and without integration into a general ET strategy. This has happened at a number of colleges and universities across the country, and for many the results have been disastrous. Others are currently struggling to revamp their courses, reconfigure and strengthen their technological infrastructure, and rebuild the trust of students who felt "ripped off" by the experience. It would mean having to "make do" on limited resources and pulling resources away from already strapped programs and services. It would prove the fears of opponents of distance education, but it wouldn't do UWB much good.

The alternative, outlined below, would have many clear advantages. I have mentioned the many pedagogical benefits above, and I discuss them more specifically below. Here, I will note the advantages to the institution as a whole. By developing a thoughtful educational technology initiative which complements UWB's central mission, I believe UWB will be able to:

- **Retain more FTE** by enabling students to create more flexible schedules and continue their education online during particularly busy periods in their lives.
- **Draw FTE from other institutions**, especially those that lack online DE courses.
- **Attract prospective students** interested in (or expecting) the use of educational technology and the option of DE courses.
- **Improve student's academic outcomes** and increase student satisfaction.
- **Gain political support** from legislators eager to see UW integrate technology and develop DE courses.
- **Attract donations** from community and business sources supportive of this approach.
- **Garner positive publicity** for innovative and effective use of educational technology.
- **Lessen strains on space** for classrooms and parking.

Fortunately, UWB is not starting from scratch. Individual faculty members have begun to work with ET tools, and several degree programs and initiatives, including the Masters in Public Policy and the Restoration Ecology Network, are incorporating ET and DE into their curriculum. Academic Services has increasingly been supporting faculty efforts to use technology, and the hiring of a new Educational Technologist should add an important component to their efforts. Finally, the move to the new campus provides UWB with an excellent technological infrastructure. Thus many key components are already in place.

There are obvious costs and risks associated with this initiative, even if UWB develops a coherent and effective strategy. Indeed, a coherent and effective strategy guarantees both, because despite the hyperbole about the great savings to be realized from distance education, it is clear that a successful program will require a good deal of resources. The threat is that ET will drain away institutional funds and the time and energy of the faculty and professional staff, all of which are in short supply. As I outline below in the implementation section, recognizing and meeting these demands from the start is central to the success of the initiative.

III. Educational Technology at UWB

A successful educational technology initiative at UWB would be organic, integrative, cooperative, innovative, student-centered, and gradual. It would promote interdisciplinarity, diversity, curricular innovation and flexibility, and student-directed learning and collaboration.

On-line distance education courses that would fulfill these goals include small, seminar-style courses and competency-based courses with lower levels of faculty-student interaction. Following these guidelines, UWB would be able to offer enough DE courses to enable a student to earn an upper-division "distance educational" degree within already existing programs in the near future.

A. Foundations of the Initiative:

- **Organic:** The use of educational technology and any content developed by faculty should come from within established programs and be controlled by the faculty who create them.[2] All teaching techniques, including means of delivery, should begin with the goal of excellence in teaching and learning. Faculty should choose the technologies that best fit their pedagogical goals. A separate "distance education" program should be avoided at all costs.
- **Integrative:** Distance education should be a component of ET, so that ET techniques are seen as broadly applicable to a variety of environments. Faculty should seek to discuss ET techniques within a broader discussion about general teaching practices, so that a sharp divide between traditional and advanced technological methods is avoided.
- **Cooperative:** The ET initiative must bring together faculty, administration, and Academic Services staff for planning and implementation. The variety of competencies needed to use ET successfully in the classroom requires faculty to develop a more cooperative approach to course design and delivery.
- **Innovative:** UWB is justifiably proud of its excellence in teaching, and one of the key features of this commitment is the innovative practices of its faculty. Combining this creativity with the possibilities of ET could spur the creation of new and exciting techniques and technologies which could become a hallmark of UWB courses, both traditional and on-line.
- **Student-centered:** All use of ET—especially in DE courses—should be designed and implemented around concern for students' learning experience. Poor planning, support, etc. will sour students on these techniques and harm UWB's reputation for teaching excellence. Instead, UWB should become known as an institution that puts students education needs first.
- **Outcomes-based:** As part of the move to develop a better understanding of what our students are learning, UWB should take care to create ET techniques, and especially DE courses, with specific outcomes in mind that can be assessed. Assessment of outcomes should be under the control of faculty and should be developed to give an accurate sense of the complex nature of learning in both its short-term and long-term manifestations.
- **Gradual:** The initiative should be implemented gradually, with a strong sense of purpose and forward direction that does not outstrip the available resources and leverages the lessons learned and competencies gained by faculty and staff.

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[2] In cases where UW or UWB are contributing large amounts of resources to the development of a course or software, it will be necessary to develop policies and guidelines articulating ownership of intellectual property. See Implementation, below.

B. Advantages Linked to the UWB Mission Statement:

- **Interdisciplinarity:** Faculty teaching courses with more than one disciplinary competency required could draw on modules that explained basic terms, approaches, and methods of those disciplines. This would enable students to gain basic competencies in the disciplines not covered in the course.
- **Linked courses:** Distance education courses or hybrids would make it easier for students to take two linked courses taught in a single term. The linked course experience could be further enhanced by on-line discussions and other tools aimed at connecting students involved in both courses. Hybrids could be designed so that two linked courses complimented each others schedule. For example, one course could be taught on-site for the first half and off-site for the second half, while the other was scheduled the opposite. Or both courses could be designed as one-day-a-week courses, with the equivalent of one class worth of DE material, and each could take one slot in a two-class-per-week schedule.
- **Team-teaching/expertise sharing:** Full and hybrid online learning tools offer a number of interesting ways for faculty to team-teach courses without creating large courses incapable of discussions or else sacrificing FTE load per faculty. For example, by creating two "sections" online, faculty may create strategies to participate in both smaller discussions without the burden of attending two different classes. The same tools also allow for "expertise sharing" that goes well beyond guest lectures so that faculty could swap a week in which they "run" the discussion and/or present material. Online learning tools also allows expertise sharing beyond UWB, whether at UWS, UWT, or across the world.
- **Student use of technology:** An ET initiative should go beyond faculty content delivery, communication, assessment, and administration. Students must also be integrated into the ET strategy in a dynamic way. Students are already using a variety of ET tools in their course work, including email, database searches, and online discussions. Students should be taught to maximize their use of these tools by providing them with the means to better understand both the functionality of the applications as well as the various choices to be made and overall strategies to be pursued. For example, instructors should utilize a growing online literature on performing web-based searches. Further, while there are general rules one might follow, there are also discipline-specific lessons to be learned. Beyond these basic tools, however, an ET initiative will work to integrate student use of web design, databases, PowerPoint, peer-review editing programs, and other software applications that enable them to perform more complex tasks while learning (or improving) important technology skills.
- **Group work/collaboration/student-directed learning:** A great deal has been written about how ET can facilitate group work, collaboration, and student-directed learning (as well as the many new and "traditional" challenges of such projects). Research has established that the judicious use of ET can be especially effective for group writing workshops. In my own experience, I have found at least one collaborative project to be superior online compared to the onsite version.
- **Service learning:** ET supports a range of service learning teaching techniques, including collaboration, student-based learning, the need to keep in contact while in

the field, and the difficulty scheduling course meetings because of the time demands of the service learning commitments.

- **Diversity:** Interactive DE courses that attract students beyond UWB can bring in students with a variety of cultural perspectives. This would be especially true of team-taught courses with faculty from institutions with different demographics than UWB.

C. Types of Distance Education Courses

Research has established two types of web-based DE courses which show particular promise for our campus: small seminar-style courses and web-based "competency" courses. The first is apparent, but the second is more unexpected and may be more controversial. In addition, the use of real-time videoconferencing courses will continue to have a place in the curriculum.

1. Seminar-style courses: The development of small online discussion and/or research courses would appear to fit UWB's curriculum well. Studies have shown that such courses work best when limited to 20 students because of the high degree of student-faculty interaction in such courses and the difficulty in maintaining coherent on-line discussions in large groups. Hybrid courses can be larger, since there is less dependence on online discussion, but again, research suggests that groups should be divided into sections of no more than 30 students.

2. Web-based "competency" courses: These courses deliver content with limited or no interaction between faculty and students, and students are assessed solely based on assignments that evaluate their command of the material. These types of courses first gained popularity in technically oriented courses like computer programming and engineering, and has since moved into areas such as business administration. Initiatives like the Western Governors University along with private companies have been developing web-based competency courses for a variety of programs and disciplines, including the arts and sciences, and are establishing competency-based online degrees. While some might see these types of courses as a betrayal of traditional notions of "face-to-face" teaching, it's important to go back to my original categories and definitions. Many large lecture courses are now taught that are non-interactive and based on multiple choice tests. While a dynamic lecturer might increase the value of the course and the impact of the material, this might dissipate somewhere beyond the 15th row. Telecourses consisting of video tapes and/or television programs have gained in popularity in recent years, especially at the community college level, in some ways approximating the non-interactive lecture course. (Some of these may schedule discussion meetings at different times in the term. Others provide either optional or required online discussion. In Puget Sound community colleges, however, non-interactive telecourses seem to be the norm. Finally, UW Extension offers numerous courses consisting of non-interactive lectures and study questions, most of which can be taken for undergraduate credit (UWB students are currently able to do this to satisfy general education requirements). Thus while competency-based courses do appear to lack certain components central to the higher education experience, they are not new, and they are fairly pervasive at the lower division level.

My point is not to defend competency-based courses in general, but to consider the ways they might be used successfully in an online environment and within the UWB curriculum. The enormous flexibility offered by educational technology provides the opportunity for creating web-based competency courses that will have a number of advantages over their non-interactive lecture and video counterparts. One way to think of these online courses is as advanced self-paced textbooks, and indeed, textbook companies, sometimes in collaboration with universities,

are beginning to move from designing supporting textbooks to providing the structure and administration of entire courses. Other universities are beginning to create them on their own, hoping to use their "brand name" to sell their courses to students beyond their campus. UW Educational Outreach is moving in this direction, and offers the possibility of collaboration (or possibly, competition) with UWB initiatives in this area.

Web-based competency courses could have a number of uses at UWB while providing several advantages. In IA&S, faculty sometimes must spend several weeks teaching basic material to students who cannot be counted on to have this background (for example, a knowledge of microeconomics or film analysis.) Often, faculty have to balance teaching basic competencies while also integrating more challenging critical thinking components. Web-based competency modules could be used to provide the introduction to this material, with the instructor providing some basic clarifying feedback. Depending on the design and advertised expectations of the course, the module would either be integrated into the course structure or be available to students who need the background. These modules could also work as stand-alone courses, especially designed as prerequisites for courses the following quarter. Thus students wishing to take an advanced film course could choose either to take the 300-level traditional course or the 2-credit web-based competency course. While the traditional course would offer more complete coverage, the web-based course would be designed to provide a basic level of competency. Faculty might also work with research librarians to create self-contained for-credit modules designed for teaching discipline-specific skills needed for advanced research seminars.

While there will be the option of simply utilizing web-based courses from other institutions when needed (either by "renting" them or by losing the FTE), designing and administering these courses within UWB, when appropriate, offers a number of advantages. First and most importantly, faculty could design the background course to fit the particularities of the advanced UWB courses. Faculty could also work cooperatively to create modules for courses taught by different faculty within degree options or course clusters ("Finance," "American Studies," "Human Rights"). These modules might grow from creating a relational database of terms, methods, and theories within degree options. Designing and controlling these modules would also mean receiving credit for the FTE without having to allocate a great deal of faculty time during the course. Instead, the course would be developed as part of curriculum development release time (see below). Depending on the current availability for specific courses and the relative desirability of the course, it could also attract outside FTE. In a few cases, there might even be commercial applications in the online textbook market. UWB faculty would be able to utilize UW resources at UWired and the Office of Educational Assessment (and, if applicable, UW Educational Outreach) as well as the growing resources available from UWB's own professional staff.

Creating such a course may not be an option for many, since it will entail a substantial investment of time and a certain amount of risk. In general, UWB will want to consider ways that faculty can leverage their expertise and existing course material in conjunction with available resources. But whether outsourced to other institutions or created at UWB, online competency-based courses can place a useful role in an overall ET initiative.

3. Interactive video courses: A third type of course which shows promise in a more limited way, at least in the short term, is real-time instructional television courses. At present, these are traditional courses whose access is extended by the use of sending an analog signal to remote receiving stations. This allows students greater flexibility in their scheduling, especially when the remote sites are at workplaces (hospitals for nursing courses, high tech firms for

business or computer courses). It also allows faculty to team-teach from different locations, and can improve the diversity within the classroom by bringing together different populations. Finally, it provides access to students in remote areas (Indian reservations, rural communities, international sites, etc.) who would otherwise not be able to attend college. In time, it is expected that this type of technology will merge with web-based technology as streaming audio and video becomes feasible for more people and institutions. Students will be able to participate in real-time courses from wherever they might be as long as they have a computer, a digital camera, and a wireless hookup. Like any new application of ET, this will come with advantages and disadvantages, costs and benefits.

D. Online Degrees:

Given the above prescription for a successful educational technology initiative, it would not be consistent to argue for separate online degrees at UWB. Instead, as DE courses are developed, a student would have the opportunity to take more and more of these courses. Ultimately, programs that have enough of these courses will be able to advertise that students can earn a degree online. To facilitate this process, it would be worth exploring collaboration with UW Tacoma, perhaps by accepting their courses as part of credits earned toward the major and not just as general education requirements. (For the Interdisciplinary Arts and Sciences program, it would make sense to create an "Liberal Studies" degree without a specific degree option. It would also mean creating an online program core course (now required) and possibly an online senior seminar, although students could also fulfill this requirement with a senior thesis). Academic advisors would need to be trained to look beyond UWB for courses and pathways through the major. In this way, UWB could respond to the perceived need for online degrees while keeping these courses under the control of the program faculty. And unlike many distance education degrees, UWB will be able to guarantee that students will have the same access to UWB faculty regardless of the learning environment.

IV. Implementation

Below, I discuss the various demands on the institution that will be required to implement an ET initiative. These include developing the necessary technological and human infrastructure; providing support and incentive for faculty development; creating institutional structures that initiate and provide oversight for policies, standards, and decision-making processes; requesting a change in the UWB FTE ratio based on delivering distance education courses; hiring faculty are interested and/or have experience with educational technology, and generating the necessary financial resources. In order to succeed, UWB must make the necessary investment to provide faculty with the incentive to "buy in" to the initiative. The initiative must be structured so that faculty perceive and experience their developing expertise in and use of educational technology as an enhancement to their career and professional satisfaction rather than as a hindrance.

A. Initiating Faculty Development

1. **Ongoing plan for faculty development at all levels:** No educational technology initiative can succeed without faculty support, and faculty will not support an ET initiative that does not support them. The key is to implement a strategy that creates positive opportunities of entry for faculty at all levels of interest in ET and maintains forward momentum. Although it is clear that "early adopters"—those comfortable with technology and excited about its potential for teaching and learning—will use ET, a variety of sources (including the experience of UWS's

UWired) have demonstrated the difficulty of moving beyond the already converted. Instead, a comprehensive ET initiative must integrate the perspective and needs of "wary adopters"—those interested in the pedagogical possibilities but intimidated by the technology or the perceived time required— and "resistant adopters," including the uninterested as well as the openly suspicious. "Early adopters" must be given the resources to develop their interests and share their findings with both like-minded colleagues and those less comfortable with the technology. "Wary adopters" should be encouraged and supported in taking first steps in applying technology in ways that seem especially innovative and promising, and be given access to the resources to expand their use of ET as their interest increases. "Resistant adopters" should be shown concrete, useful, small-scale uses of ET that they had not considered, so that they may make and informed choice about which technique to use for the outcome they desire. A successful initiative would transform "early adopters" into "mentoring adopters," "wary adapters" into "gradual adapters" and "resistant adapters" into "minimum adapters," with the potential to develop their ET skills further. All must be seen as part of the same ongoing campaign to familiarize the faculty with the possibilities of educational technology as well as the background to assess the advantages and disadvantages.

In order to introduce faculty to ET, UWB first needs to develop a baseline level of faculty interaction with technology. All faculty should be required to establish a presence on the web, whether through the use of BlackBoard or their own web design software following campus and programmatic guidelines. All faculty should also be required to have at least one meeting a year with a UWB educational technologist. This meeting will be an opportunity for the technologist to hear about the pedagogical practices and content areas the faculty member cares most about. The technologist will be able to introduce the faculty member to concrete ways to use technology to improve or enable the faculty member's vision of teaching. Rather than trying to introduce faculty to a variety of tools and applications, the technologist should communicate their specific uses. Both of these activities would require little time of faculty, but would make an important contribution to the effort to integrate ET into the curriculum. Ideally, the UWB General Faculty Organization (GFO) would take the lead in initiating these policies and creating frameworks for implementing them. Obviously, these requirements should not be put in place without the professional staff to provide the necessary technical support.

2. Role of the Educational Technologist: Hiring a multi-talented educational technologist will be key to this effort. UWB's Academic Services already has a strong team of people who integrate educational technology in their areas of expertise. UWB is also fortunate to house all the different departments of teaching and learning support under one administrative structure. The educational technologist must be able to work with the different constituencies within Academic Services at UWB as well as support service personnel at UW, UWT, and UWS while also developing strong relationships with faculty. Ideally, s/he will be an educator first and foremost who also commands solid technical skills. This person will possess (or have the capacity to develop) strong supervisory abilities, if as expected this division of Academic Services grows with the campus. Most importantly, this person will need to have the vision and skills necessary to organize a campaign to energize faculty to participate in the type of ET initiative outline above. Hiring an individual with such diverse talents will probably require increasing the current salary level to meet current market demands. Rather than seeing the position in a "presentist" mode—that is, how this person will serve those currently interested in technology—it will view it as an investment in the future health and vibrancy of the campus. If

the prognostication delivered above comes anywhere close to occurring, it will be money well spent, and will appear, in retrospect, a bargain indeed.

B. Providing Incentives for Faculty Development

Given the substantial teaching and service load of UWB faculty, along with the expectation and desire for continued research, it is doubtful that few beyond the "early adopters" will make use of the technology without provide the necessary incentives. I would propose consideration of the following incentives:

1. Course release time: Course release time should be available for faculty who want to develop a promising web-based distance education course or substantial ET module or modules. The release time would enable the instructor to gain any necessary technological skills, develop course content, implement assessment procedures, and learn about teaching strategies using the new technology. The faculty member would be obligated to take part in the initiative to further the use of ET on campus. A more ambitious plan would convene a quarter-long "Teaching and Technology Academy," perhaps initially drawing on the services of past UWB Distinguished Teaching Award winners, based around creating and implementing innovative pedagogies using technology. Those involved would work with the Educational Technologist to design and implement a mentoring program for the rest of the year that would provide stimulus for the next year's group of Academy members. In either case, funding would be needed to support teaching replacements for faculty receiving course releases.

2. Financial support: Faculty should receive financial support for purchasing hardware, software, technical support, and training for developing innovative ET projects. At present, faculty desiring to use software not covered by campus licenses must get the funding from their departments or else purchase them on their own. The same holds true for peripherals, manuals, on-line help, and training not covered by the standard UWB Information Systems package. Since departments do not have a budget for providing these things, they exact a high cost on those programs willing to underwrite entrepreneurial faculty and a strong short-term disincentive against providing the support. For faculty involved in significant web-based activities, this support should include their "home office." Faculty should be provided with hardware and software equal to their UWB offices. Until UW is able to offer faculty high-speed internet access, these faculty should also be subsidized for cable, DSL, or wireless service.

3. Paid curriculum development time: Faculty interested in developing basic or more advanced technical skills should be paid for 2-4 week period of training by UWB professional staff, faculty mentors, and/or outside experts. Faculty will agree to employ a certain minimum amount of ET within their classes and will begin to develop this material during the training period.

3. Educational technology and promotion and tenure: The successful use of technology in one's teaching and its dissemination throughout the campus should be given a prominent place in consideration of both teaching and service merit, given the impact it will have on the campus as a whole, as outlined above.

C. Technological and Human Infrastructure:

UWB must develop and maintain a sufficient infrastructure to support faculty and student use of educational technology, especially in distance education courses. A recent survey of five institutions with DE programs suggested that having a "near failsafe" system was a key benchmark for success. While the report also noted a range of pedagogical and administrative issues, the lack of a sufficient support system for faculty and students was seen as a make-or-

break feature. The reason is simple: one can have a wonderfully designed course, but if students access to it is blocked they will experience the same resentment and frustration reserved for a poorly taught courses—and they will be unlikely to return to the medium. The effect on students and faculty is perhaps less drastic but just as negative when ET fails in the traditional classroom. Then, students view technology "getting in the way" and faculty abandon its use. As Barbara Horgan, IT Director at UWT has written, "faculty cannot begin to explore the uses of IT in the classroom until they are supplied with the basic tools of the trade. These include a machine capable of running current software, a variety of software applications, reliable and robust communication networks, training on the use of these tools and devices, technical support, and well-equipped classrooms." Legislators and HECB members need to understand that "bricks and mortar" universities don't just house classrooms, but also that long list that Horgan identifies as being vital to a successful ET and DE initiative.

D. Creating Institutional Structures to Provide Oversight

1. Faculty-led committee to provide guidance: The GFO should authorize a committee lead by a faculty member but including representatives from Academic Services and the UWB administration to develop policies and strategies for a long-term ET initiative. These would include:

- Guidelines for choosing recipients of the support for faculty use of ET listed above in section ***IIIB***.
- Policies for insuring faculty control of academic online content and procedures for clarifying intellectual property issues.
- Guidelines for developing outcomes and assessment procedures for both traditional and DE courses.
- Guidelines and procedures for approving non-UW online courses for credit while matriculating at UWB.
- Input on decisions about licensing of software, technical support, hardware purchases, and similar issues.
- Input on the scheduling of computer labs and the prioritizing of uses beyond the traditional quantitative or CSS-related uses.

2. Cabinet-level appointment to provide coordination: A single individual should be responsible for overseeing the educational technology initiative and representing its needs in the Chancellor's cabinet. This person would also be expected to take an active role serving on UW-wide committees involved with technology, thus insuring that UWB will be adequately represented in discussions that will have a major impact on our campus. S/he would also serve as liaison with other institutional partners such as Cascadia, UWT, etc. This position would require keeping current with the latest developments in educational technology and projecting needs and strategies for the future. If the educational technologist were hired at a sufficient level and given enough responsibility, this person might fill this position. Otherwise, this position might be filled by an Associate Dean or by a faculty member who is given a sufficient release from teaching. (This might be a new hire with existing background in teaching and technology.)

E. Requesting a Change in the UWB FTE Ratio

The legislature and the HECB have made clear their interest in Washington state public universities expanding access through distance education requires smaller class sizes and greater

expense, it therefore seems reasonable to make the case that for each DE course developed, the FTE ratio for one faculty line will be reduced to 15:1 (45 students per faculty line per quarter). Without this reduction, programs will need to increase the size of traditional courses, adding to an already onerous FTE ratio. This type of arrangement would seem in keeping with the way FTE is calculated, as when a smaller FTE ratio is assigned to Masters degree programs. A modified FTE ratio would demonstrate that the HECB, UW administration, and legislature is serious about delivering quality distance education to Washington citizens and competing in the newly developing worldwide educational "marketplace."

F. Hiring Faculty Experienced with or Interested in Educational Technology

In order to maintain forward movement, it is important for UWB to recognize that a willingness to engage educational technology is an important quality in new hires. At the assistant professor level, where graduate students are increasingly aware of the necessity to develop their ET skills, this quality should be viewed as a "preferred" requirement for the job. It may also be appropriate to identify some jobs as ET-oriented and make some familiarity with ET a minimum requirement (for example, a media studies position). Finally, while senior faculty candidates might not be expected to possess this quality, those who do should be valued especially highly for the leadership they might offer their program and campus in implementing ET.

The need for developing an ET presence, especially distance education courses, may provide an excellent opportunity for part-time faculty (especially those who desire a full-time non-tenure-track position). Although a successful ET initiative will not succeed without the strong support of tenure- and tenure-track faculty, part-time faculty should be encouraged to develop ET modules and DE courses, and some kind of load reduction and technical support offered to do so. Those faculty who develop a strong interest in DE might be considered for full-time lecturer positions that stress this approach.

G. Generating publicity about ET at UWB

As soon as practicable, an inventory should be taken of current UWB faculty's uses of ET, and a web page devoted to those practices should be created and linked to pages within the UWB web site. These efforts should also be featured in press releases to local press outlets to establish UWB's presence in this area. As the initiative develops, articles focusing on its innovative features should be written for a variety of traditional (such as the *Chronicle of Higher Education*) and online publications. Press releases and informational bulletins should be designed for a variety of outlets, from *University Week* to national publications.

H. Generating Financial Resources

Although an educational technology initiative will realize some economies (less classroom space, parking) and may generate additional revenues, these gains will be far outweighed by the financial costs incurred. Without a substantial infusion of funding, the above initiative will not be practicable. A substantial effort should be made toward generating funds based on a clearly articulated campus initiative that emphasizes an innovative approach to ET. If the initiative proceeds gradually, as suggested above, initial funding may be viewed as seed money for establishing successful examples of the use of ET to potential funding sources. Some possible sources of funding include:

1. Washington state legislature: Although there seems to be a common perception that the Washington legislature will not fund educational technology efforts sufficiently, they are clearly an important potential source of funding. Any request for additional funds from the legislature should be attached to a specific proposal about the use of ET at UWB (as sketched out above) and the benefits it will realize: economies, revenues, increased access, better technical training for students, improved education. Requests for additional funding for hardware, software, and technical support would be more likely to receive support than items like release time and training.

2. Private donations: One potentially promising source for funds might be to establish a targeted ET fund for UWB donors. This fund would be tied to an overall initiative and would target donors especially interested in innovative teaching through the use of technology, and the technical training of students beyond course work in computer science (as opposed to donors who are primarily interested in ET in "revolutionizing education" or "creating efficiencies"). The advantage to this source is that it could generate funds for more informal arrangements to develop ET modules and courses while the campus pursues more formal granting procedures.

3. UW Tools for Transformation Grants: UWB has been successful at winning these grants in the past, and an ET proposal might prove to be especially "transformative." A proposal involving UWT might be especially well received, given the multi-campus focus of the grant mission.

4. Program for Educational Transformation through Technology: PETTT is accepting applications for major efforts to use educational technology that can be adapted for use at UW.

5. National Endowment for the Humanities, National Science Foundation, and other national funding agencies and foundations: There are a variety of funding agencies interested in supporting educational technology in higher education. At the same time, there are thousands of units within higher education desperately searching for sources of funding. When UWB has a clearly developed initiative with the support of faculty, these agencies and organizations will be an important potential support of funding.

IV. Conclusion

UWB clearly stands at a crossroads, and the first step is to understand what possible roads lay before us. This is a landscape that is fast unfolding: as I generated this report, new information came in daily, much of which has yet to find its way into these pages. Some may believe that they have no need to traverse this new terrain, but this report is intended to argue that we are already travelling upon it, "choosing" roads without identifying them and making certain paths more difficult to follow as we ignore their development. UWB needs to harness its innovative approach to teaching and curriculum and apply it to educational technology. At the same time, it needs to recognize that the demands of creating and sustaining this unusual institution have already taken a substantial toll on faculty time and energy. Faculty need to be provided with the resources to view this as an opportunity and not an additional burden; at the same time, they need to understand the pressures UWB will face if it does not develop an ET initiative that supports and enhances the institution's mission. This report is meant as the opening comment in what I hope will be a long and productive conversation as we undertake the next stage of UWB's journey.