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Evaluation of the
Telecommunications and Information Infrastructure Assistance Program

Case Study Report

Western Brokering Project
90467

Boulder, Colorado

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PREFACE

On behalf of the National Telecommunications and Information (NTIA), I am pleased to share the following report that is one of a series of case studies conducted on grants awarded by the Telecommunications and Information Infrastructure Assistance Program (TIIAP) in 1994 and 1995. The case studies are part of the program's evaluation effort designed to gain knowledge about the effects and lessons of TIIAP-funded projects. NTIA contracted Westat, a research and consulting firm, to perform an independent evaluation of the program's first two years of grants. The evaluation consisted of a mail survey of 206 grant recipient organizations and in-depth case studies of selected projects. In February, 1999, the Commerce Department released Westat's evaluation report.

The projects selected for the case studies cover a broad range of program types and sizes, planning grants as well as demonstration grants, and they show varying degrees of implementation, sustainability, and replication. Westat selected the projects to represent a cross-section of all projects funded in the program's first two years. Specific selection criteria included geographic region, target population, project application area, project category, and size of award. To conduct each case study, Westat reviewed all project files, including progress reports and the final report, and conducted site visits. The site visits consisted of project demonstrations and interviews with project staff, representatives of partner organizations, and project end users.

NTIA thanks the case study participants for their time and their willingness to share not only their successes but their difficulties, too. Most of all, we applaud their pioneering efforts to bring the benefits of advanced telecommunications and information technologies to communities in need. We are excited about the case studies and lessons they contain. It is through the dissemination of these lessons that we extend the benefits of TIIAP-funded projects nationwide.

We hope you find this case study report valuable and encourage you to read other TIIAP case studies. You may obtain additional case studies and other TIIAP publications, including the final Westat evaluation report, through the NTIA web site (www.ntia.doc.gov) or by calling the TIIAP office at (202) 482-2048. We also are interested in your feedback. If you have comments on this case study or suggestions on how TIIAP can better provide information on the results and lessons of its grants, please contact Francine E. Jefferson, Ph.D. at (202) 482-2048 or by email at fjefferson@ntia.doc.gov.

Larry Irving
Assistant Secretary for Communications and Information

TIIAP CASE STUDY

Western Brokering Project

A. EXECUTIVE SUMMARY

The Western Brokering Project was designed to investigate ways to address the significant barriers that institutions of higher education face in offering distance education[1] across state lines. It grew out of a study of distance learning conducted by the Western Cooperative for Educational Telecommunications (WCET), a unit of the Western Interstate Commission for Higher Education (WICHE). Its overarching goal, as stated in the project narrative, was to "test and refine a plan to build an ongoing capacity to 'broker' the education resources of western colleges and universities and, utilizing existing telecommunications networks, to make higher education more widely available to underserved and placebound students throughout the region."

While initially designed and funded as a planning grant, the Western Brokering Project seemed to walk the line between planning and demonstration. Its planning processes were largely conducted through trying out different systems, rather than simply devising a plan and later implementing it.

The project worked with one private and five public institutions in five states:

- California state University, Chico
- Front Range Community College
- National Technological University
- University of Alaska Southeast, Sitka Campus
- University of North Dakota
- University of Wyoming

Each institution selected one program area for project participation. See Exhibit 1 for a summary of the six programs, the types of services they received, and their current status.

The institutions received support and technical assistance with developing programs, marketing, interstate distribution, and coordinating receiving sites. At the outset the institutions did not know about the needs, markets, or laws in other states and did not have out-of-state connections within their field, politically or with professional organizations. Through the Brokering Project, the institutions were able to cross these boundaries and offer their programs to new markets of students.

Three of the six initiatives (University of Alaska Southeast Health Information Management program, University of North Dakota Space Studies program, and University of Wyoming Land

[1] Distance education refers to efforts by one educational institution to offer courses to students who are not on campus. It includes programs requiring little technology such as correspondence courses by mail and those conducted over the Internet or by satellite and interactive video technology.

Surveying program) are still offering courses to students in other states. The California state University at Chico Emergency Medical Services Administration program is offering courses only in-state. The Front Range Library Information Systems Technology (LIST) program was discontinued in the fall of 1997 by the community college due to low enrollment and lack of a clear academic home for the program. The National Technological University Hazardous Waste Management program never provided any distance learning courses through the Brokering Project due to difficulties in deciding which technologies to use and problems generating a market.

Exhibit 1: Summary of Program Characteristics

Institution Name	Type	Degree Offered	Field of Study	Technologies Used	Primary Type of Assistance Received	Current Status
California state University, Chico	Public 4-year	Certificate	Emergency Medical Services Administration	Videotape, e-mail, Internet, audio-conferencing	Marketing	Still offering courses in-state
Front Range Community College	Public 2-year	Certificate, Associate's	Library Information Systems Technology	Telephone, computer with modem, videotape, satellite	Institutional development, Marketing	Program cut in fall 1997 due to low enrollment
National Technological University	Private	Certificate, Master's	Hazardous Waste Management	Telephone, computer with modem, videotape, satellite	Institutional development, Marketing	Did not offer courses through the Brokering Project
University of Alaska Southeast, Sitka Campus	Public 4-year	Associate's	Applied Science in Health Information Management	Audio-conference, videotape, computer with modem	Institutional development, Marketing, Receiving site partners	Still offering courses to students in other states
University of North Dakota	Public 4-year	Master's	Space Studies	Telephone, videotape, computer with modem	Mediating distribution in other states, Institutional development, Marketing	Still offering courses to students in other states
University of Wyoming	Public 4-year	Certificate, Associate's	Land Surveying	Telephone, videotape	Mediating distribution in other states, Marketing	Still offering courses to students in other states

The institutions and programs expected considerably more marketing support from the Brokering Project than staff had intended to provide. Institutional staff evidently expected the project staff to possess, and even apply, an expertise in marketing their programs and actually market the programs for them. Brokering Project staff intended only to provide technical assistance in how to go about marketing programs. Throughout the project, this tension was negotiated and was generally resolved by compromise, with the Brokering Project staff providing some marketing assistance directly and through the state liaisons.

One of the project's biggest problems was tuition and other student costs. In most cases students were charged non-resident tuition rates, which are typically 200 to 500 percent of in-state tuition. In some

cases, due to the Brokering Project, the institutions were able to use the "WICHE rate" of 150 percent of in-state tuition for these programs. Technology access fees, such as long-distance telephone charges at peak hours, satellite receiver charges, videotapes and postage, and others were usually added, too. Some programs, then, were unable to cite exact charges students would incur until after all students were registered. Even after all students were registered, costs for long distance carriers and Internet services varied. Furthermore, obtaining federal financial aid became a problem when students were enrolled simultaneously in both the sending and receiving institutions.

Part way through the grant period, the Western Brokering Project staff were given the opportunity to work on the development and implementation plans for the new Western Governors University (WGU), a virtual university operating entirely at a distance and offering other institutions' courses and programs as well as developing its own programs. Staff were able to transfer their experience and lessons learned through the Brokering Project to WGU. With higher political clout and visibility, WGU may be able to solve some of the problems the Brokering Project could not. Also, technology advances since 1995 have addressed some difficulties as well.

Each of the project participants interviewed expressed the view that higher education is undergoing dramatic and fundamental changes, and that the Brokering Project found itself both shaping and reacting to some of those changes. These changes were critical to the Brokering Project, and thus to WGU, to the extent that they defined the need for institutional and program development services of the Brokering Project to be focused on competency courses and skill-based modules. Also, the target audience and recruiting mechanisms were different for these programs. These factors combined to create a project that was at the same time successful and unsuccessful.

B. OVERVIEW

Purpose and General Approach

The Western Brokering Project grew out of a study of distance learning conducted by the Western Cooperative for Educational Telecommunications (WCET), a unit of the Western Interstate Commission for Higher Education (WICHE). This previous study found that institutions of higher education faced significant barriers to offering distance education across state lines, including:

- Differences in state regulations;
- Institutions' legal and policy issues, such as non-resident tuition rates, campus and state approval processes, and accrediting agency approval processes;
- Lack of student support services in other states and at great distances;
- State and institutional cultural differences;
- Technical incompatibilities; and
- Market research and marketing in unfamiliar territory.

The TIIAP project was therefore designed to investigate ways to address these problems. Its overarching goal, as stated in the project narrative, was to "test and refine a plan to build an ongoing capacity to 'broker' the education resources of western colleges and universities and, utilizing existing telecommunications networks, to make higher education more widely available to underserved and

placebound students throughout the region." The objectives of the Western Cooperative for Educational Telecommunications' (WCET) planning project were to:

- Facilitate and coordinate the development, financing, distribution, and utilization of six electronically delivered degree and certificate programs to students in 15 states;

- Develop the capacity of participating colleges and universities to integrate telecommunications with teaching and learning practices that recognize the time and place constraints of non-traditional students;

- Identify and test solutions to geographic, cost, and technological constraints of providing library, information, and Internet access to remote and placebound students who are enrolled in an out-of-state degree or certificate program and paying tuition to an out-of-state institution; and

- Demonstrate the opportunities for interstate sharing of existing telecommunications resources.

Each of the six participating programs used a combination of technologies to deliver its courses across state lines using existing telecommunications networks and other technologies. The focus of the assistance provided through the Brokering Project was on human resources and administrative tasks critical to interstate delivery, as well as ensuring that students had appropriate access to the technology they needed for the courses.

The direct end users of the Western Brokering Project were the faculty, administrators, and other staff of institutions of higher education that were able to provide new or revamped distance education programs. The institutions received support and technical assistance with program development, marketing, interstate distribution, and the coordination of external sites that provided support services to students. At the outset, the institutions did not know about the needs, markets, or laws in other states and did not have out-of-state connections within their field, politically or with professional organizations. Through the Brokering Project, the institutions were able to cross these boundaries and offer their programs to new markets of students.

The students (and their states) who participated in the programs were also beneficiaries. In general the students who took the distance education courses would not have had access to such courses in a traditional setting, i.e., because they lived in rural areas far from institutions providing the programs, the state they lived in did not provide the program they sought, or they could not take courses during normal business hours.

While initially designed and funded as a planning grant, the Western Brokering Project seemed to walk the line between planning and demonstration. Its planning processes were largely conducted through trying out different systems, rather than simply devising a plan and later implementing it.

Description of Grant Recipient and Project Partners

Grant Recipient. The grant recipient was the Western Cooperative for Educational Telecommunications (WCET), a project of the Western Interstate Commission for Higher Education (WICHE), located in Boulder, Colorado. WICHE began as a regional compact among 15 western states and was authorized by Congress and the President in 1953. As one of the nation's four regional higher education agencies, WICHE works with the states to negotiate interstate agreements, administer student exchange programs, research higher education policy issues, and coordinate projects to strengthen higher education in the region. Member states include Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, North Dakota, Oregon, South Dakota, Utah, Washington, and Wyoming.

The Western Cooperative was established by WICHE in 1989 to strengthen the efficiency, impact, and quality of educational telecommunications systems and programs. As a self-funded project receiving little financial support from WICHE, the Western Cooperative is composed of 150 member institutions, including higher education institutions, corporations, and nonprofit organizations, from 37 states and 4 countries.[2] Its regular services include acting as an information clearinghouse, monitoring the development of educational telecommunications in the western states, and organizing briefings, white papers, and panel sessions. In addition, WCET works as a contractor to provide evaluation, technical assistance, planning, and information dissemination support to state and federal agencies, colleges and universities, and private organizations.

The TIIAP project director of the Western Brokering Project was brought in to WCET and WICHE after the grant was awarded. Previously he had been the North Dakota Statewide Director of Distance Learning and served as an advisor on the WCET Steering Committee. The project director was responsible for the day-to-day management of the project, including budgeting and reports, running the Advisory Committee, coordinating the state liaisons' work, coordinating the marketing functions of the Brokering Project, and investigating sustainability issues. He conducted three of the six initial site visits to the institutions offering programs and had overall responsibility for institutional development at California state University at Chico. He spent 100 percent of his time on the project.

Overall direction and project oversight was provided by the director and assistant director of WCET. The director came up with the original project plan and co-wrote the application narrative with the assistant director. The director had good connections with the state Higher Education Executive Officers (SHEEO) and provided greater visibility to the project than it otherwise might have had. The assistant director worked to make the initial contacts with states and establishing committees. Each contributed about 5 percent of her time.

A site development coordinator worked to make connections between business, health, and education leaders at the state and local levels and the institutions in order to recruit and support students and identify local distance learning and support receive sites. She had previously worked in a public television network on K-12 distance learning. She worked 100 percent of her time on the project.

The project also hired a secretary solely for the Western Brokering Project. The secretary provided logistical and administrative support as well as answering inquiries from state representatives and the toll-free telephone line that was provided for students.

WCET created an Advisory Committee, comprising one representative from each WICHE state and six representatives of "constituency groups," such as business, health, Native Americans, etc., to

[2] WCET works with states outside the western region but focuses largely on western states only.

assist with planning. The group included top-level higher education office and academic institution executives. Selections were made by the higher education coordinating or governing agency in each state; in fact, because interest and perceived importance of the project was so great, four of the system heads selected themselves, and eight chief academic officers of higher education systems were appointed. The Advisory Committee met three times to provide advice at the start of the project, to select the six institutional partners, and to review the project and recommend how to move forward at the end of the grant period. The Advisory Committee also promoted and coordinated relations with the states, and in individual consultations, helped negotiate with programs and interceded on policy issues in their states.

Several consultants were hired to assist the institutions in developing and organizing distance learning programs and courses that meet both the institutions' and the potential students' needs. Another consultant, who was also a faculty member for one of the selected programs, researched and developed model contracts for organizations supplying host sites, mentoring services, and onsite clinical experiences. She also contributed a sample student handbook for student participating in distance learning programs.

The WICHE Student Exchange Program (SEP) office assisted the project with residency and tuition issues with interstate education. The SEP director was particularly helpful as the project was transitioning its work back to the institutions and to the Western Governors University at the end of the grant period.

Project Partners. The primary partners were the six higher education institutions and the programs that participated in the project. Proposals were received from 12 programs, but 6 were selected for participation in the Brokering Project. As described in the project's final report, the institutions and their programs were:

University of North Dakota: Master's of Science in Space Studies. This program, the only one of its kind in the nation, examines legal, technical, political, scientific, and medical issues associated with exploring and using space. Prior to the Brokering Project, the program was offered on two Air Force bases in North Dakota, and faculty would travel in between the two to teach the courses in a traditional format. The faculty wished to serve a wider audience, adapt to the mobile lifestyles of military officers, and end their own travel schedule. The Space Studies department needed assistance in adapting the program to distance technologies and obtaining approvals from campus officials. The program used television monitors, VCRs, telephones, and computers with modems.

University of Alaska Southeast, Sitka Campus: Associate's Degree in Applied Science in Health Information Management. This program was already in existence in Alaska. With the field of health information management expanding rapidly, the University wanted to partner with other institutions to extend the program. It used speaker telephones, television monitors, VCRs, and computers with modems.

California state University, Chico: Certificate in Emergency Medical Services Administration. This program existed in only two other institutions in the country and was in a field of high demand. By taking three courses, students could earn a certificate. It offered in-service training opportunities. The program used videotape, e-mail, the Internet, and audio-conferencing.

University of Wyoming: Certificate or Associate's Degree in Land Surveying. While other institutions offered land surveying courses, this program provided courses of greater breadth and depth. With a distance learning component, the program could meet the mobile lifestyles of practicing surveyors. The program used telephones, television monitors, and VCRs.

National Technological University (Colorado): Certificate or Master's Degree in Hazardous Waste Management. This existing program wanted to expand its market beyond large corporations and needed assistance in developing a new model and making internal changes to do so. It used telephones, computers with modems, television monitors, VCRs, and satellite receivers.

Front Range Community College (Colorado): Certificate or Associate's Degree in Library Information Systems Technology. Unlike the other five programs, this one was not in existence at the time of application. The college wanted to create a degree that would be offered solely through distance learning technologies. The program taught new methods of researching and evaluating information accessed through the Internet and specialized databases. The intended audience was paraprofessionals for large libraries or full staff for small, rural libraries. The program used telephones, television monitors, VCRs, and computers with modems.

Other Project Participants. Other partners were the state liaisons who were selected from each state to help determine who to contact in states regarding recruiting and support for students. They provided insight to local politics that might affect project goals and procedures, including a historical perspective on distance education in their states. They identified stakeholders, (e.g., state agencies, professional associations, institutions) and provided Brokering Project staff a connection to these groups by attending meetings and site visits with them. The liaisons also assisted with direct marketing to students, including conducting mailings and collecting mailing labels from the professional associations. Most importantly, they served as a local contact for state inquiries from students, state agencies, and institutions. Liaisons were appointed by the states' higher education offices and were mostly staff from those offices or were tied to institutions of higher education.

Project Costs

Determining costs of the project at the outset was difficult because the institutions providing matching funds were not selected until after the project was underway. Each of the 12 institutions submitting a proposal made a commitment of in-kind matching funds. In the negotiations with TIIAP, the project used the six lowest matching amounts, which totaled $617,884. When the project commenced and the six institutions were chosen, the in-kind match from the institutions was $813,124, due to the selection of more "costly" distance learning programs, and when the project ended, the in-kind match had risen to $994,861. There was some difficulty in sorting out payment timelines due to large start-up costs for WICHE/WCET staff tasks and smaller institutional costs. This issue is described more fully in Section D under Problems. The total project cost was $1,751,017, with a federal share of $652,160 and WICHE cash contribution of $103,996. WICHE's cash contributions covered portions of salaries and benefits, computing services, telephone usage, office rental, and indirect costs for the project director and secretary.

C. PROJECT CONTEXT

Community Description

The broad community served by the Western Brokering Project included the 15 western states of Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, North Dakota, Oregon, South Dakota, Utah, Washington, and Wyoming. The region had the fastest growing population in the country, was largely young, and had an increasingly ethnically and racially diverse population. Even with the large population density across California, the region includes vastly rural states, such as Alaska, Montana, North Dakota, South Dakota, and Wyoming, and states where traditionally underserved

American Indians make up a portion of the population. As stated above, many students in these less-populated areas have little access to nearby higher education. And with many California institutions facing budget and program cuts, students in California might not have access to the programs they wanted or needed and would therefore be interested.

As the project developed, staff worked extensively with five states (Alaska, Arizona, California, Colorado, and Wyoming). Institutions enrolled students from 36 states (14 of which were western states) and six foreign countries.

Status of Telecommunications/Information Infrastructure Environment Prior to the TIIAP Project

At the time of the grant application, several states already had intrastate educational telecommunications networks, including Oregon ED-NET, the Utah Education Network, the North Dakota Interactive Video Network, and South Dakota's Rural Development Telecommunications Network. These networks were already sharing faculty and courses. No real network existed across state lines, and the existing networks had neither the capacity, the interest, nor the resources to expand.

Three of the six institutions that were ultimately funded were already offering, at a distance, the courses the Brokering Project selected, but only within their states. And one of the other institutions had distance learning experience through other courses. The concepts of distance education itself were not new. However, the project staff knew from years of monitoring and evaluation educational telecommunications activities that the effectiveness of such systems was dependent on such non-technological factors as adequate training and support for students and faculty, responsive administrative services, and the use of multiple technologies for students to interact with each other and their teachers.

Other Community Characteristics

Among those interviewed, there was a growing belief that the higher education community is changing dramatically. Higher education has traditionally been thought about in terms of "markets." The concept of regional resource sharing is not new, but technology has changed distance education and its capacity to move programs to students. Several respondents suggested that higher education has traditionally been supply-driven, i.e. students have had to go to a central site where education was provided and receive whatever education was offered from educators who had a "monopoly" on information. Under that model, information was a scarce commodity, and one of society's goals was to get the maximum number of people in touch with the information. With such current technologies as the Internet, video, and teleconferencing, the information is readily available. Students have a wider variety of sources of information and are not dependent on courses offered in one place to obtain information or a specific skill. This becomes particularly salient as enrollment in some western states is declining, due to a decline in the school-age population.[3] states must be able to provide the courses and programs students want and need, or enrollment may decline further.

Consequently, according to a number of respondents, institutions across the country are beginning to recognize financial gains in using electronic means to bring courses in for their own students and offering courses to students in other states and communities. Because of funding and budgeting systems in colleges and universities, bringing an out-of-state courses into a state is more efficient than sending

[3] One respondent indicated that Wyoming, North Dakota, and South Dakota are actually depopulating. Also in some areas where the high school graduating classes are growing, that growth is not felt in institutions of higher education due to new school-to-work opportunities and for-profit institutions.

students to other states for the courses the original state does not or cannot provide. Similarly, sending courses out of state and charging only in-state tuition is more cost-effective than bringing those students in at non-resident tuition. This was variously referred to in interviews as a "consumer revolution," a "slippery slope [towards] student-centered" education, and a "renaissance where higher education gets to a level plain of accessibility."

These market changes are due in part to a need for qualified and skilled workers; the economy has a need for competency, rather than just degrees. Under systems like that of the Brokering Project and WGU, higher education can be packaged into modules, i.e., skill-based groups of courses that meet an identifiable need in the economy, but are not full degree-granting programs.

Technology also changes some of the internal processes of higher education. Distance education requires a major conceptual transition in effective teaching. The pedagogy, pacing, and structure of a course shifts such that there is actually more contact between students and professors. "Inherently and inevitably on-line teaching becomes more interactive," one institution representative commented. And the logical progression from saying that this kind of distance education system is even possible shifts higher education to being student-centered. When the faculty member is no longer the owner of information, the responsibility for quality learning experiences goes back to the student. Those involved with the Brokering Project view this as a shock to the higher education system, but one that must be addressed if traditional higher education systems are to remain viable. "Even the visionaries are too conservative [about how this changes higher education]," commented one WICHE staff member.

These issues in higher education, learned through the process of working with the institutions, states, and students, affected the Brokering Project as it transitioned to the WGU work to the extent that they defined the need for institutional and program development services to be focused on competency courses and skill-based modules. Moreover, the Brokering Project and other distance education consortia, according to one institutional partner representative, have demonstrated that traditional higher education institutions will not be able to see distance learning as far as it can go because they are unprepared, unable, or unwilling to make the systemic changes necessary.

D. PROJECT IMPLEMENTATION

Activities/Milestones that Occurred Prior to the TIIAP Grant Period

In 1990 the University of Arizona approached the Western Cooperative asking if it would be willing to assist the university in delivering a distance learning program that culminated in a Master's degree in Library Science. The university wanted WCET to run interference between the program and the receiving state agencies and help define what the impact would be for campuses. The state-level staff in Arizona and other WCET states felt that they had invested in a technology infrastructure that should move beyond geographic and political boundaries. The project would have created a framework for what was involved in taking distance learning across state lines, but WCET was forced to respond that they did not have the funding to take on the project. They did help the University of Arizona with some initial contracts and some small marketing assistance. They went to the U.S. Department of Education, but found that they were not ready to take on such a technology-infused project. The Director of WCET was familiar with the NTIA, and the NTIA administrators said that while the project did not fit, they were currently developing the TIIAP program.

In 1993 WCET was able to use its own funds to develop a concept paper out of the University of Arizona request. The project studied the legal barriers to institutions trying to cross state lines (described in Section B1 above). WCET broadened these ideas with a U.S. Department of Education Fund for the

Improvement of Post-Secondary Education (FIPSE) grant and developed "Principles of Good Practice for Electronically Offered Academic Degree and Certificate Programs," which described a framework for interstate reciprocity on the course-approval process. That document is still being used by state higher education governing and coordinating boards in reviewing distance learning programs. Furthermore, the six regional accrediting agencies have agreed to adopt or adapt the principles for use in their campus reviews. Another document that grew out of the FIPSE project, "When Distance Education Crosses state Boundaries: Western states' Policies," looked at the regulatory and licensing issues of institutions operating in other states.

In early 1994 the Western Cooperative took the findings of that study to its Steering Committee and membership and developed the concept for the Western Brokering Project. In order to submit a grant proposal, staff had to solicit institutions and programs to participate. They sought only degree or certificate programs offered at a distance from Western Cooperative members and other institutions in the WICHE member states. Eleven institutions nominated 12 programs for consideration with a three page pre-solicitation that described the program, the target audience, and how the program would use technology to deliver the education services. The Western Cooperative director and assistant director wrote the application for the TIIAP grant with those 12 possible programs and some goals in mind for selecting 6 to participate.

Activities/Milestones that Occurred During the TIIAP Grant Period

Start-Up. The first task of the Brokering Project was to hire a director for day-to-day management activities and a secretary. Staff then finalized members of the Advisory Committee and gave the higher education governing or coordinating agency in each state criteria to begin selecting state liaisons. The WCET assistant director was instrumental in staffing the project and forming the committees.

Selection of Programs. After the TIIAP grant was won, WCET asked for a 10-page proposal from each program. The proposal required a statement of commitment to see at least one class of students through to graduation. The Advisory Committee met in February 1995 to select the six participating programs. The criteria included the following:

- Mix of technologies among the programs and the use of appropriate technologies for each program;
- Uniqueness of programs among all distance education programs available while still meeting a need;
- Targeting underserved populations for professional development or career needs; and
- Other characteristics, including the ability to demonstrate an effective distance learning strategy, institutional capability and commitment to support the program, and a likelihood of success of the program.

In addition, the programs were required to meet the Western Cooperative's "Principles of Good Practice for Electronically Offered Academic Degree and Certificate Programs."

The Advisory Committee members interviewed representatives of the programs, narrowing the list to eight. After further negotiations with the institutions, six were selected. The remaining programs were not selected for a variety of reasons, including (1) high tuition costs; (2) high receiving site costs; (3)

addressing non-targeted audiences (those not underserved or rural); (4) non-unique content; (5) two-way video technology that would not reach across states; and (6) a lack of political, technological, or fiscal readiness on the part of the institution.

Initial Site Visits. After the six programs were selected, Brokering Project staff conducted site visits with each of the institutions in order to meet the faculty and staff, align expectations between campus and brokering staff, and develop an implementation plan. The higher education governing board or coordinating agency in each state nominated a state liaison to assist the project; however, the state liaisons did not accompany Brokering Project staff on the site visits because the selections were not finalized until after the site visits were conducted.

Support and Technical Assistance for Institutional Partners. Site development tasks covered several broad areas. Brokering staff, with the considerable help of the state liaisons, assisted the institutions in understanding state laws and policies regarding offering courses out-of-state. They aided the programs in applying for approval from the state and institutions.

Project staff also helped institutions develop their programs to better function across state lines. This included identifying the appropriate faculty, staff, student services, and political and administrative factors that would create a successful distance education program.

One of the functions that the project most underestimated the need for was marketing of the programs.[4] Staff provided limited market research and contacts for the programs and, working with campus staff and state liaisons, designed strategies to develop and reach untapped markets. They created a website describing the programs and had it listed in several web search engines, including Globewide Network Academy.

The final major program support function was developing receiving site partners and resources. Because several of the programs used technologies such as satellite and audio-conferencing, the Brokering Project assisted with finding local "learning centers" where students could go to participate in the course and receive a portion of their instruction. Staff hoped that these sites would serve several programs, but because they were located where students were and students in the different programs were not located near each other, this did not occur. Typically these were community colleges or other community centers. Also, several programs required students to participate in a practicum or clinical internship. Brokering staff also assisted programs in locating places where students might complete these portions of the programs.

There was a great difference in the type and level of services each institution received, largely due to the diversity of programs and institutional needs. The Front Range Community College (FRCC) program was an entirely new program and, therefore, required considerably more institutional development work. In fact, staff estimate that FRCC received 90 percent of all site development assistance across the six programs. The Chico, NTU, and University of North Dakota programs required a greater emphasis on marketing and recruiting, whereas the University of Wyoming staff did their marketing almost entirely on their own.

Student Recruiting. The most requested service from the institutions and programs was for student recruiting. Outside of their own states, public institutions rarely have any connection to, or even

[4] Brokering Project staff and written materials make a distinction between "marketing" and "recruiting." Marketing refers to activities conducted for the institutions that were designed to understand the general interest within a community for an area of study. Recruiting is used more narrowly, referring to activities designed to identify specific students who are interested in enrolling in a particular course or program and was focused on the students, rather than the programs. This distinction is at times blurred, but is continued in this report where possible.

knowledge of, potential students. The colleges, state agencies, professional organizations, and educational opportunities vary greatly among the states. Moreover, students needed a place to find out what distance learning programs are available, who the providing institutions were and what their experience was, and whether the programs were worth their participation and tuition. A variety of techniques was used by both Brokering Project staff and the state liaisons.

Presentations about the Brokering Project and the six programs were made in person and by telephone to state professional associations, state licensing boards, state and federal governing agencies, and local higher education institutions. These presentations were designed to reach professional communities' internal networking systems both to generate need and locate potential students. They needed to educate potential students on the basic question, "what is distance learning?" because many could not imagine not going to campus for courses. The project also conducted direct mailings to the same groups and included corporations and organizations that might be interested in graduates of the programs.

Project staff created brochures for the Brokering Project and each of the six programs. Brochures were used as handouts at presentations and in mailings. Advertisements were placed in local newspapers in targeted rural areas, especially where local institutions had already agreed to be receiving sites. Advertisements and articles were also placed in professional association newsletters. A 30-second public service announcement was created and distributed to rural radio stations in targeted states for the Chico program.

In addition to the Internet website created with all brochure information about the project and the programs, an e-mail address was set up to receive information requests. Where possible, links were made to the institutions' websites. The project also established a toll-free telephone line for inquiries about the project and programs. Brokering Project staff responded to e-mail messages, answered the telephone line, and returned after hours voice mail messages.

Support and Technical Assistance for Students. The Brokering Project staff worked heavily with state liaisons and local institutions to ensure that all students had access to the equipment, library and computer resources, and the Internet that they needed to participate in distance learning programs. The site development coordinator worked with local entities to provide student services and to assist students with special needs due to disabilities, technical access, communications access, and geographic and unexpected problems.

Staff found that legal contracts and other special arrangements with state agencies and local institutions would facilitate addressing these issues. One of the faculty members from the University of Alaska Southeast program was hired as a consultant to develop contracts for student services, such as mentoring, local college hosting and services, and clinic experiences for students.

This consultant also developed a sample student handbook for students participating in distance learning courses. Staff found that some students needed more assistance with the technology than others. Several of the programs used speaker telephones and found that some students were not familiar with switching between a speakerphone and the receiver.

Brokering Project staff assisted students with administrative difficulties, including registration, tuition, residency requirements, and financial aid. The WICHE Student Exchange Programs, another WICHE-sponsored project, was instrumental in facilitating tuition adjustments. The Student Exchange Programs are mechanisms by which professional degree students, graduate degree students, and undergraduate students can enroll in out-of-state schools for only 150 percent of the in-state tuition, as opposed to non-resident tuition that is typically 400 to 500 percent of the in-state tuition. WICHE sets

fees for states to "buy" slots in out-of-state institutions that offer programs not offered in their own state. While it is a separate program from the Western Brokering Project, several of the Brokering Project state liaisons were certifying officers for the Student Exchange Program. This overlap created a situation where states were already using the 150 percent system for one WICHE project and so were able to carry that rate over to Brokering Project Programs; thus, the 150 percent became the de facto regional tuition rate in several cases.

Other Activities. The Brokering Project held telephone conferences every 6 weeks with the state liaisons. Each institution and program sent the liaisons and project staff materials and then updated the group over the telephone.

WICHE staff also investigated issues surrounding accreditation of the programs. Several regional accreditation agencies operate in the western states to accredit programs and institutions. However, each has different requirements that are not automatically reciprocal. Universities must generally pay a large fee and complete time-consuming paperwork to be licensed to offer education in another state because of the states' concerns for quality control. Frequently, they find it not worth the effort. WICHE staff shared their "Principles of Good Practice" with the various accrediting agencies and made adherence to those principles part of the criteria for participating in the Brokering Project. While also developing their own standards, the accrediting agencies found that meeting Brokering Project criteria lent a legitimacy to the programs. However, in several cases, state-level accrediting bodies still stood in the way of out-of-state institutions bringing in their programs.

Steps Taken to Sustain Project Activities Beyond the TIIAP Grant

The Brokering Project was initially viewed as sustaining itself over time. However, as staff discovered that the services the project provided to institutions and programs were very site-specific, they determined that the project could not provide all services to institutions and states in a generic manner. This created sustainability issues. The project had neither the resources nor the interest in continuing to provide site-specific services in program development, marketing, receiving site coordination, recruiting, and student services and technical assistance. Moreover, the Brokering Project staff and sites continued to face political difficulties that the project and WICHE could not handle on their own.

As a planning grant, the Brokering Project's intent in its application narrative was to "identify various options for the continuation of a regional degree brokering service." Just as Brokering Project staff were beginning to investigate strategies for long-term sustainability, an opportunity arose to shift focus to the emerging virtual university, the Western Governors University (described below). Had that opportunity not come along, staff speculate that the Brokering Project would have (1) become more closely aligned with the WICHE Student Exchange Programs (SEP), and (2) attempted to adapt distance education to existing exchange strategies. As it happened, the Student Exchange Program created a pilot program for using their tuition rates for distance learning programs and courses. Staff believe the SEP reputation lent greater legitimacy to the distance learning and education programs.

Transition to Western Governors University. In the spring of 1996, the Western Governors Association began creating a virtual university, Western Governors University (WGU). Governors Romer of Colorado and Leavitt of Utah envisioned a competency- or outcomes-based university conducted entirely electronically. Because the university would be competency-based rather than based on credit hours completed, WGU could solve some of the cross-state credit transfer problems that the Brokering Project was facing. (See Exhibit 2 for a comparison of the Brokering Project and WGU.) Moreover, the governors had the clout to deal with some of the political difficulties the Brokering Project continued to face but could not solve. The Western Cooperative was selected as contractor to design and implement

the administration and student support services for WGU, and the WCET director thought that the work of the Western Brokering Project would best be able to inform the work of WGU. After receiving permission from TIIAP to shift focus to the WGU work, Brokering Project staff began shifting their work. This was done in the 16th month of the 18-month grant period and during the two no-cost extension periods (6-month, then 3-month) of the TIIAP grant.

Work for WGU. WGU managers were initially averse to hiring staff who did not have a deep understanding of their vision because it was time consuming and would slow down development. Consequently, WCET staff as contractors played a greater role at the front end than originally intended. Under contract with WGU, the Western Cooperative, through WICHE, worked in three main areas. However, before they could begin to work on these areas (described below), they had to conceptualize the whole virtual university based on a skeletal framework developed by the Western Governors Association. Much of the experience of the Brokering Project went into the development of the WGU design.

The Western Governors University was originally supported by the governors of Arizona, Colorado, Idaho, Nebraska, New Mexico, North Dakota, Oregon, Utah, Washington, and Wyoming. Guam, Hawaii, Indiana, Montana, Nevada, and Texas have since joined. Visions of WGU began in summer 1995 when governors began expressing interests in exploring the use of technology for interstate higher education cooperation. Governor Romer was interested in increasing educational accountability through competency-based programs where students earn degrees by passing assessments rather than meeting credit requirements and taking certain courses. Governor Leavitt wanted to expand electronic connections and the use of telecommunications in higher education. The governors and most other western governors signed on and put up the money to begin designing the virtual university with the intent of addressing access, affordability, and certification of performance.

Representing a major shift in higher education, WGU began fall 1998 with a largely new and untested vision for education. It will offer (1) competency-based degrees for students who successfully complete appropriate standardized assessments (which can range from a pencil-and-paper test to a hands-on demonstration) at a local center or other approved testing center; (2) a clearinghouse and referral service for full academic programs offered across state lines; and (3) an open college that will list the courses designed for the competency-based degrees, list other courses offered by qualified providers, and register students for those courses. WGU is designed so that a student may take courses from a variety of postsecondary institutions and corporations (e.g., Intel, Micron) and then combine what they learn into a degree. With competency-based degrees, the number of courses taken is not critical as long as the student successfully completes the final assessment. For example, a student need not take a course in a topic she believes she has already mastered, and can perform those skills in the assessment.

Fundamental to WGU's success are regional learning centers where students will access online courses and catalogs, sit for exams, and receive other support services. Brokering Project staff suggested that these centers would be located in areas where there are no other postsecondary education options or where there are other postsecondary options but in different fields or with constraints such as time offered, cost, or program flexibility.

Exhibit 2: Comparison of Brokering Project and WGU		
	Western Brokering Project	**Western Governors University**
Accreditation	By individual institution	WGU as a whole
Degree Grantor	Individual institution	WGU
Delivery Mode	Internet, e-mail, videotape, telephone, mail	Internet, e-mail, videotape, telephone
Earning a Degree	Based on credits, courses	Competency-based
Earning Credit	From each institution from which completed course, then transfer	Not applicable, since credentials are based on certification rather than accumulation of credits
Location	Student home/office, location established by individual institution	Regional learning center, student home/office
Marketing/Recruiting	By individual program to individual student	All programs, mall concept
Program Development	Existing program (except FRCC)	New or existing program
Provider	Individual institution	Institutions or WGU
Sponsors	States, institutions, TIIAP	Private industry, states
Student Services Provider (registration, advising, textbooks)	Individual institution, or state	WGU or affiliated learning center

Activities/Milestones that Occurred Following the TIIAP Grant Period

Brokering Project and Western Cooperative staff worked on three main tasks for the WGU after the TIIAP grant period ended. First, the Brokering Project director led a team creating the WGU Smart Catalog/Advisor, an online, interactive resource providing students with information about WGU, the courses and programs, and student services. They worked with IBM to develop elements of the system and the database management systems required to store and retrieve information.

Having had the experience with the Brokering Project institutions, programs, and students, WCET staff's second task was to identify the student services WGU would need and designed some mechanisms for providing them. Staff worked with the American Association of Collegiate Registrars and Admissions Officers to design systems for enrolling, withdrawing, dropping and adding courses, record keeping, privacy, and other administrative services. They worked with representatives from the University of Colorado and the U.S. Department of Education to target the financial aid issues that WGU might need to anticipate.

And third, Brokering Project staff assisted in finding partners for WGU, including corporate partners, (e.g., IBM, Sybase, Oracle, Lucent Technologies) and higher education partners, (e.g., Governors state University in Illinois, Regents College in New Jersey, Mountains and Plains Project, University Corporation for Atmospheric Research, North Dakota Faculty Council, Colorado Deans and Directors of Continuing Education, and University of Highlands and Islands in Scotland). Partners were intended to assist with the development of, or actually provide, local learning centers where distance courses could be received and where students could obtain services.

Issues

Changes in Higher Education. Each of the project participants interviewed expressed the view that higher education is undergoing dramatic and fundamental changes, and that the Brokering Project found itself both shaping and reacting to some of those changes. These factors, described previously, combined to create a project that was at the same time successful and unsuccessful.

In response to the growing need for programs that are packaged into skill-based modules, several of the Brokering Project institutions offered programs to students who needed only an additional course or skill to meet job and/or licensing requirements, rather than a higher degree.[5] The University of Wyoming Land Surveying program found that about half of its students were enrolled for relicensure or continuing education interests and not for the degree. Similarly, when the Front Range Community College Library and Information Systems Technology (LIST) program was ending, students who had already been through a traditional degree-granting program were more upset about not being able to finish their LIST degrees than those who had a less academic background and were looking for skills rather than a degree. Both noted an emerging shift away from degree requirements for employment and toward performance and competence requirements.

Quality Control. The educational quality of the courses offered through the Brokering Project was an initial concern for both the Brokering Project staff and potential students. Part of the selection criteria for the programs was offering "an effective distance learning strategy…and a likelihood of success." Ultimately, the accrediting agencies, which are usually responsible for providing quality assurances, interpreted meeting Brokering Project criteria as providing a quality program. However, these criteria, outlined in "Principles of Good Practice for Electronically Offered Academic Degree and Certificate Programs," pertained more to the distance learning aspects of the courses or programs (e.g., student access to services) than to the educational quality of the curriculum, instruction, or materials. The instructional qualities of the programs were never addressed by the Brokering Project. It seemed that the institutions' endorsements of the programs were considered enough by project staff. Students concerns about the educational quality of the programs and courses were addressed unevenly across the six projects.

WGU Transition. As the Brokering Project staff began refocusing their work on the WGU tasks, they determined that the WGU work would help solve some of their own sustainability issues as well. However, this transition represented a major redirection in their work. At the time staff acknowledged that the transition should not affect the work with the six institutions, and that the Brokering Project should have the ongoing role throughout the grant period of assisting the programs in recruiting students and marketing the programs. However, in hindsight staff realized that their work with the institutions was limited by work with WGU. Several of the institution staff interviewed, while realizing that the Brokering Project's focus had shifted, did not seem to know what the Western Governors University was, how the Brokering Project was involved, or whether their institution would be participating.

One of the state liaisons was particularly concerned that WGU would not be able to replace or even replicate the services of the Brokering Project. He felt that WGU would target the technical needs of corporations and was designed to meet a different need than the continuing education needs of Brokering Project participants. He thought the Brokering Project was the first step in taking education to citizens and providing them an opportunity to continue their education without leaving the state. Moreover, he was angry that when it switched its focus, the Brokering Project left the states without ways to continue their work. The Brokering Project, he said, did not give states enough time to get rolling. He was pleased with

[5] Each of the six institutions' programs did culminate in a degree if students were interested in completing the entire program by distance or a combination of distance and on-campus learning.

all services the project provided and felt that it was a really worthwhile and workable project, but was very frustrated that it was dropped from WICHE's priority list and ended too soon.

Problems

TIIAP Grant-Related Problems. One grant-related problem the Brokering Project faced was a long time period for development than originally planned. The project was fully staffed in January 1995, following the October 1994 grant start-up. Only one of the programs was able to begin 1 year later in fall 1995, and the remainder did not begin until spring 1996, when the original 18-month grant period was ending. Project staff had originally hoped for a 3-year grant in order to have the state liaisons in place before the site visits to the selected programs began to facilitate better marketing and recruiting. Several institutional partners indicated that they too needed a longer planning time to better anticipate and address student needs.

Initial Site Visits. The initial site visits to the six programs produced one major unexpected outcome: the programs expected considerably more marketing support from the Brokering Project. Institutional staff evidently expected the project staff to possess, and even apply, an expertise in marketing these programs and actually market the programs for them. Brokering Project staff intended only to provide technical assistance in how to go about marketing programs. Throughout the project, this tension was negotiated and was generally resolved by compromise, with the Brokering Project staff providing some marketing assistance directly and through the state liaisons. Staff recognized that institutions in traditional education delivery did not have to market their programs, let alone in unfamiliar regions.

Another unexpected outcome from one of the site visits was a personality conflict between the program's staff and the site coordinator. The visit ended without having resolved all questions regarding the program and service expectations. After conflicts in the first visit, the project director conducted the second visit and subsequent interactions. The problem lay in the fact that the university had an internal hierarchy that Brokering Project staff were unaware of and that was hidden in their apparent laid-back functioning. Staff speculate that this might have been avoided had the state liaisons been on board prior to the first visits.

Marketing. Overall, both the project staff and institutional partners underestimated the effort, time, and cost of marketing the programs. They felt in several cases that they expended too much energy for the few recruited and enrolled students that they got from other states.[6] The total number of students completing the distance courses across the six programs did not justify the effort. In particular, the mass mailings conducted for each of the programs yielded too few inquiries, let alone enrollments; on the other hand, targeted advertisements in community or professional association publications were more effective.

Staff found that marketing courses and marketing programs required different techniques and strategies. Marketing courses required a broad, sustained effort to continually add students. New students must be added each term. Conversely, marketing programs required 2 to 3 months of intense work to find students who would make the bigger commitment to enroll in a longer term program. The benefit is that the each course in the program generally costs less with a full cohort of students. Moreover, even the different institutional programs required different techniques. In some cases, such as Space Studies and Health Information Management, the institutions intended the program to be an entire degree-granting program, which required more upfront work in targeting and recruiting students. But in others, such as

[6] An exact count of students who enrolled in distance courses offered through the Brokering Project is unavailable due to a lack of tracking students who took more than one course. It is estimated that fewer than 200 individuals completed out-of-state distance courses.

Land Surveying and Library Information Systems Technology, students were more interested in gaining skills through courses than in earning degrees from entire programs. This latter marketing requires more ongoing maintenance to keep enrollment up each semester.

Student Support Services. There was not a great understanding among faculty of what would be involved with support services and what other departments in the institutions they would need to work with in order top provide services. In programs where students would never come on campus, ensuring access to faculty, advisors, and library services was critical. Students often needed textbooks and course materials, which they generally could not buy anywhere but the university. Institutions found that students needed more technology support, even for audioconference calls, than they anticipated and thought it would have been helpful to have some sort of local support services for students. While Brokering Project staff could provide expertise, advice, and solutions, they could not provide the actual services. The institution, rather than the brokering service, would have responsibility for student support.

Among the participating programs, there was a range in the ability of institutions to provide student support services. According to Brokering Project staff, the Universities of Alaska, North Dakota, and Wyoming were able to offer a fair amount of service to students. The Alaska program in particular worked closely with the continuing education office in Wyoming to assist them in providing support to Wyoming students enrolled in the Alaska Health Information Management program. In addition, according project staff, the Cal state Chico program did an adequate job of supporting students, but the Front Range Community College program provided little support to students. Brokering Project staff attribute this to the fact that FRCC was developing an entirely new distance learning program, and, therefore, had to concurrently complete a greater number of tasks than the other four projects. Brokering Project staff believe that the Alaska system of linking programs to continuing education departments was a good model that could be replicated.

Receiving Sites. Brokering Project staff found that, as providing distance education becomes more feasible for institutions, most want to send out instruction rather than receive it. Respondents speculated that some of the problem can be tied to the competitive culture whereby being a receiving site is an indication that the site could not provide those courses itself. However, the lack of available sites is more likely tied to lack of incentives. Several state liaisons suggested that sites might have been interested in providing another institution's courses or programs but did not feel like they would be getting anything out of it. Some of the institutions were unable to put into place incentives to encourage the establishments of receiving sites. Project staff suggested incentives could be monetary, trading of services, spirit of community service, or regulatory directives. The project director speculated that the problem is as much a culture barrier as an incentive barrier; it simply is not as prestigious to be viewed as a receiving site as it is a delivering campus. One way to change this might be to put in institutions' mission statements a need to help the surrounding communities to gain access to education. For example, in Bend, Oregon, the state established and supports an educational center that brings in other institutions' programs.

Several of the institutions avoided this problem by using technology that did not require receiving sites, such as telephone conferencing. Videotapes and online courses, while not requiring a central site like satellite technology does, may not be accessible for all potential students (and if they are, access may be at too high a cost, especially with Internet access).

WGU is planning to establish local learning centers in each participating state to provide technology access and student services. It is anticipated that tuition will defray some of the costs and states may support the rest. However, this has not occurred on schedule.

Tuition and Other Costs. The most frequently stated reason that callers to the toll-free telephone line cited for not enrolling in a course offered through the Brokering Project was high (and in some cases

complicated) tuition. In most cases, students were charged non-resident tuition rates, which are typically 400 to 500 percent of in-state tuition. For several of the programs, the tuition rates were simply different. For example, in Alaska the community college tuition rate was $73 per credit hour, but in New Mexico the rate was $11 per hour. Even if New Mexico students paid the in-state tuition rate, they would still be paying over six times as much.

In some cases the programs were offered at the "WICHE rate" of 150 percent of in-state tuition. However, technology access fees, such as long-distance telephone charges at peak hours, satellite receiver charges, videotapes and postage, others fees were usually added. Sometimes these costs went down as the number of students in one location went up. It was, therefore, difficult to estimate these costs at the time students registered for courses, and programs were unable to cite exact charges students would incur until after all students were registered.

Obtaining federal financial aid also became a problem when students were enrolled simultaneously in the sending and the receiving institutions. Financial aid regulations do not permit a student to receive financial aid for tuition payments to two institutions, and an institution's accreditation status affects how financial aid is calculated. With programs being offered outside the regional accrediting agencies' jurisdictions, the institutions' accreditation status was not always clear, and this tied up students' financial aid as well. Furthermore, financial aid typically will defray commuting costs for students who live off campus but take classes on campus, but financial aid would not cover costs for students driving to satellite receive sites.

Distance programs and students had problems negotiating campus fee requirements for distance students who never used on-campus services. For example, most campuses charge all registered students fees for services such as libraries, athletic facilities, and other services that only on-campus students would use.

Unclear Expectations. Only one of the six institutions presented a significant problem to the Brokering Project. The National Technological University (NTU) offered a program in hazardous waste management on an all-satellite model to mostly corporate sites and was interested in expanding its market to smaller companies and cities, which generally could not afford the equipment for satellite technology. Brokering Project and NTU staff agreed after the first set of meetings to experimenting with videotapes and to trying to find alternative local satellite receive sites.

The Brokering Project intended to provide several services to NTU. First, since NTU typically provided courses to private corporations, they were not under states' education authority and did not need to comply with state regulations for out-of-state sites. Brokering Project staff would therefore assist with mediating state approval where necessary. Second, staff planned to assist NTU in developing alternative ways to provide the program to sites where satellite technology was not available. Third, staff intended to seek other receive sites. And most importantly, Brokering Project staff would identify other markets through a variety of market research techniques including interviews, site visits, and mailings.

Brokering Project staff found that there was little need among smaller companies for hazardous waste specialists; there were no educational requirements for such positions; and there were no professional organizations in the field. Education institutions acting as receive sites generally charge access fees to originating sites, rather than pay subscription fees as large corporations do. These factors working against NTU's goals were compounded by the fact that the Brokering Project had difficulty working with NTU staff and obtaining clear goals and agreement. NTU's small staff had high turnover during the time they were involved with the Brokering Project, making it difficult to maintain focus and resolve issues in a timely manner. Throughout the project, NTU staff were redirecting the brokering activities and changing decisions. Significantly, after Brokering Project staff marketed the videotape

structure for the program to potential students in Arizona, NTU staff changed the technology choice and returned to satellite systems. NTU wanted to use satellite rather than video technology because they did not want students to be on different timelines in the lessons; Brokering Staff found that at the receive sites, the satellite lessons were typically being taped and viewed by students at different times anyway.

Brokering Project staff felt they put much time and effort into a program with no return, except that their credibility was lessened. The NTU course was never offered through the Brokering Project. In their final institution report, NTU seemed grateful for the time and effort the Brokering Project staff put into their program but felt in the end that the obstacles were too great and that videotape technology would not be a viable alternative.

E. PROJECT ACCOMPLISHMENTS AND IMPACT

Technology-Related Accomplishments

For the most part, the technology utilized by the Brokering Project was already in place. The six programs provided distance learning to remote students using videotapes, e-mail, the Internet, and audio-conferencing. Several of the programs had not previously been offered at a distance (University of North Dakota, Space Studies; University of Wyoming, Land Surveying; Front Range Community College, Library Information Systems Technology); one of these programs was created entirely for distance education and the other two were adapted for distance delivery through technology.

The University of Alaska Southeast program believed its reliance on the telephone allowed it to have the success it did because audio-conferencing did not require a special receive site. However, it should be noted that the program took other steps to ensure student support through local sites, which also contributed to its success.

Brokering Project staff anticipated that programs and students would make more use of e-mail for communications. They suspect that e-mail was not used widely due to students' lack of access to computers, modems, and the Internet. Institution and Brokering Project staff were quick to point out that in 1994 when the project began, telecommunications and distance education using the Internet and e-mail were not on the agenda of most states and were not a priority for many higher education institutions. It was much harder to find enough students to enroll in an online class.

Impact of the Project on Direct End Users

By creating a forum for the states and higher education institutions to work together, the Brokering Project may have reduced duplication among the states in course offerings. They were able to meet needs that crossed state boundaries by helping invest states' limited resources in ways that would benefit all.

Three of the six programs are still offering courses at a distance to students in other states. The University of Alaska Southeast Health Information Management program is still operational, and since the program began in 1992 (graduating first students in 1995), it has graduated 37 Alaska students and 4 Wyoming students, will graduate 1 New Mexico student, and has 3 Wyoming students in progress. Enrollment from other states was and has remained small largely due to tuition rates and long distance telephone rates for students who are not able to audio-conference in a group. As a result of the Brokering Project, the university has been able to successfully negotiate agreements with schools, professional associations, and hospitals to receive sites, recruiting, and clinical practica. The Wyoming state liaison

commented in her final institution report that the relative success and ease of marketing the program in Wyoming was due to a good match between a program and an identified need in the state.

The University of North Dakota Space Studies program is still running and has 200 students currently going through the program. During the Brokering Project, they enrolled students from 33 states and 5 foreign countries. They have received good feedback from students and are finding they need more faculty to meet the needs of the many students. They attribute the university's acceptance of the Space Studies distance program to the Brokering Project.

The University of Wyoming Land Surveying program offered three courses to 27 non-resident students in its first semester under the Brokering Project. It attributed a 20 percent increase in enrollment to the efforts of the Brokering Project. Currently, the program operates largely on a course-by-course basis where students take the courses they need, rather than completing an entire program. However, without being enrolled in an entire program, their largely military student body was ineligible for Veterans benefits, making it financially difficult to enroll. One faculty member interviewed felt that the $60,000 the Brokering Project expended for the Land Surveying program only gained them six students that they might have been able to find without the project's support. The source of this disparity in enrollment figures is unclear. Current enrollment statistics were not available, but at the end of the grant period over 130 students from 16 states and 1 foreign country were enrolled.

The Chico Emergency Medical Services Administration program enrolled three students from Alaska and Colorado in its first and second semester with the Brokering Project. After that, the program only offered courses to California residents. Program staff suspect that the high cost of enrollment has kept out-of-state students from enrolling.

The Front Range Library Information Systems Technology program offered courses for four semesters to approximately 20 students in Colorado and New Mexico. In the fall of 1997, the program was cut by the community college due to low enrollment and lack of a clear academic home for the combination library and computer science program. At the time of the site visit, several students were working independently to finish their degrees. FRCC now employs an on-line advisor, and the Student Services division is much more aware of the challenges facing them in serving distance students. FRCC is working with the Colorado Electronic Community College to offer online courses. These may eventually be absorbed into WGU.

As discussed previously, the National Technological University Hazardous Waste Management program never began under the Brokering Project, although at the time of their final institution report, it was still running on satellite technology to large corporations.

Impact of the Project on Other Beneficiaries and/or the Overall Community

The project had large policy implications for providing distance learning across state lines. It showed that there were indeed problems. But more importantly, the Brokering Project raised the visibility of these issues to the level where they could be addressed. With state higher education officers involved, the project was able to gain the attention of decisionmakers who could address state regulations and the bureaucracy of administration of programs. Moreover, the project has given greater recognition to distance education through the Western Governors University. Conversely, the publicity the WGU received raised the visibility of the Brokering Project.

One state liaison was concerned, however, that the low enrollment across the programs means a lack of visibility within the institutions, and therefore priority, among the institution staff and at the state

level in the future. Without greater visibility and being made a higher priority, he said in his final liaison report, interstate distance education was unlikely to garner much more success.

The Director of the WICHE Student Exchange Programs noted that the Brokering Project, while having raised the bar significantly, did little compared to the magnitude of changes technology has introduced in higher education.

Impact of the Project on Grant Recipients and Project Partners

The greatest impact on the Western Cooperative was the doors the Brokering Project opened into the Western Governors University. The Brokering Project provided them with greater experience in crossing state lines, contacts in states and institutions, and a firmer picture of what will be involved with WGU. They were able to play a large role in conceptualizing and planning WGU. Moreover, their early work with WGU gave greater visibility to Brokering Project work.

Project Goals Not Met

Project staff acknowledge that they did not focus as much attention on rural learners as they had planned. They were not able to get the programs marketed in rural areas. Furthermore, they found that they ran up against the traditional problems with rural areas and education: the need to have enough students involved in a single community to make it cost effective to have an onsite center. These local learning centers are an important means for rural areas to be able to provide education services. One strategy they hope might eventually be implemented is to have the rural communities build centers that could provide a variety of distance education programs and student services.

The Brokering Project's transfer of energy from facilitating the delivery of the six programs they had selected to working with the Western Governors University, while not exactly indicating a "goal not met," did represent a fundamental change in the project's intended tasks. At minimum it reflected a failure of the project to create a self-sustaining system. Permission from TIIAP aside, the new WGU tasks were, in the largest sense, creating and marketing a new entity, rather than brokering with existing entities. The weight of this shift will not be apparent until the WGU is up and running and it can be determined whether it can adequately replace the Brokering Project.

Impact of TIIAP Support on the Initiative

Brokering Project staff felt that without TIIAP support, the project would never have gotten off the ground. Some of the states may have been able to provide some funding, as they have for WICHE, but without the resources up front, the momentum would not have been there. Staff noted that states are generally reluctant to provide their own funds for interstate projects. In addition to financial support, TIIAP staff were helpful in the institution selection process.

Several institution representatives said they would not have been able to take their programs across state lines without the Brokering Project assistance, and if they could, it would have taken more time and significant effort.

Of the six programs that were not selected by the Advisory Committee for participation in the project, only one was implemented and offered courses across state lines successfully. While this may be

an indicator that the Brokering Project accurately selected programs that would succeed, it may also indicate that involvement with the Brokering Project was a factor in success.

F. EVALUATION AND DISSEMINATION

Evaluation

The Western Brokering Project collected evaluation evidence on a number of issues and from a variety sources. For each of the six programs, information was collected on the level and types of technical assistance they expected and received, the number of students enrolled, the number of states and receive sites that participated, and the telecommunications access issues and problems experienced.

The project had intended to directly survey enrolled students about their participation, use of technologies, and support services received. However, because these institutions typically have difficulty releasing student survey information, staff sought other means to obtain the information:

- State liaisons and the faculty or administrator for the six institutions wrote short evaluations of their experiences with the project and were interviewed about their opinions of the project.

- Project staff compiled descriptive statistics about callers to the toll-free number.

- Staff surveyed a sample of callers to the toll-free number to question them about the quality of information they received and the barriers to participation.

- The University of Alaska Southeast faculty member and project consultant provided a formative evaluation of the Brokering Project's marketing activities.

Despite these evaluations, no effort was made to collect followup data on the students who participated. Brokering Project staff were not able to provide data on the numbers of students they served, nor how the course impacted those students. The project's final report states that they had intended to encourage the institutions to collect these data and evaluations from their students. However, institutions were reluctant to release student data. One state liaison mentioned in the final report an inability to track students from his state who were enrolled in Brokering Project programs in other states. Staff acknowledged that in hindsight, they could have made providing participating student data one of the selection criteria for participating programs. By requiring this upfront, they would not have had to negotiate unsuccessfully with programs for these data.

Dissemination

The primary recipient of knowledge gained through the Brokering Project was the Western Governors University since the Western Cooperative has transitioned its work and lessons learned to the planning and implementation of WGU. The Western Cooperative also shared its final report with the other regional higher education compacts—Southern Regional Education Board, New England Board for Higher Education, and Midwestern Higher Education Commission. Meetings and discussions with these organizations that were begun during the grant period were continued after the grant to share implications for their regions.

The Western Brokering Project staff made presentations about their work to the following groups:

- Commissioners of WICHE,
- WCET Annual Meeting,
- Association for Continuing Higher Education,
- American Indian Higher Education Consortium,
- Mountain and Plains Project (interstate health programs),
- Northwest Academic Forum,
- Northwest Scientific Forum,
- Northwest Health Conference,
- Southern Regional Higher Education Board,
- Society for College and University Planners,
- Kellogg Foundation,
- Western Governors Association,
- Western Legislators Association,
- National Association of state Land Grant Colleges and Universities,
- National University Continuing Education Association,
- Midcontinent Institute,
- Council of Energy Resource Tribes,
- Faculty of Western Colleges of Audiology, and
- American Productivity and Quality Center.

G. LESSONS LEARNED

In its final report to TIIAP, the Western Brokering Project described a number of lessons learned. Several emerged as the most important after staff expanded on them during the site visit interviews.

"Locate" Course Offerings Together. The Project Director speculates that a more cost effective system would be to market an umbrella or mall concept where all programs are "located" together through electronic means. Rather than the time-consuming and often fruitless process of matching individual students to individual programs, he believes it would make more sense to market one service where a variety of programs are listed. Potential students would then come to that site. Finding students

for a particular program is harder, he speculates, than helping students find main listing of programs. This lesson fed directly into the WGU concept and Smart Catalog/Advisor.

Use Professional Association Contacts Rather than University Contacts. Professional associations provide an excellent source of information about the market for programs and good contacts to potential students. Where strong professional associations were lacking, recruiting was not as successful. Several state liaisons indicated that their marketing efforts were largely misdirected because the state liaisons themselves were for the most part connected to the state higher education systems. The programs and courses offered through the Brokering Project were targeted to non-traditional students who were not looking towards traditional higher education institutions and to whom the institutions generally had no access. One state liaison suggested that their colleagues located in the higher education system may have been protecting their turf because they did not want to send money or students to out-of-state institutions. Another suggested that the larger higher education systems have the perception that they were already meeting all of the student needs in the state, when really they did not have access to the employment sectors and workforce needs in the state. Both indicated the connections to professional associations and recruiting through systems other than traditional higher education were critical.

Conduct Needs Assessment. Had state liaisons been involved earlier in the project, it would have been useful for them to conduct some sort of needs assessments in their states both for general education needs and in terms of the six programs offered by the Brokering Project. Similarly, using the project's distinction between marketing programs and recruiting students, the programs should have been marketed and a need defined before students were recruited.

Define What Can be Accomplished under a Brokering Model. As the outcome of the planning grant, the Western Brokering Project created a model for brokering academic degree programs across state lines. While they acknowledge that there is no one successful way for every system, there are critical steps and tasks, as outlined in the project's final report to TIIAP and supplemented in interviews:

- Understand and communicate higher education institutions' programs and their culture, including program requirements, program history, intended audience and limitations in offering the programs.

- Maintain a central listing or clearinghouse of distance education programs and services that have met some standard criteria for quality.

- Understand and communicate the culture of states and communities that will receive services, including local institutions, professional associations, educational needs, resource needs, and target audience.

- Determine if specific education needs exist and where within states, by utilizing knowledgeable campus faculty, corporations, professional associations, other state and local agencies, and market research.

- Match resources with needs in targeted communities, including education programs, local receive sites, support services, and technology.

- Establish affiliations and build on existing infrastructures by identifying gains for all parties.

- Facilitate joint agreements and contracts in writing between all parties.

- Secure teaching and learning resources, including faculty, support staff, curriculum, student support mechanisms, and communication methods.

- Recruit students only after the previous tasks have been completed.

- Track enrollment cycle, monitor barriers, evaluate instruction and support, and student satisfaction.

- Along with the institution offering instruction, confirm student access to and training with technologies and materials as they enroll and monitor match of technologies to the program.

- Along with the institution offering instruction, maintain relations with distance learning site and students.

Staff found that helping programs construct new distance learning programs required more time and effort than they could invest. They could better have helped sites by identifying consultants and other resources that could assist institutions in creating new or adapting existing programs to distance education modes. They felt their priorities could have been better designed to match their resources

Plan Adequately Before Enrolling Students. As stated in Section D, Problems, the complexity of providing student services at a distance, the difficulty in securing local receive sites for distance programs, and the high costs associated with non-resident tuition and distance learning technology created significant barriers to the project. While the Brokering Project provided site- and program-specific strategies for avoiding these problems, they did not provide any clear solutions that would work in most situations. The lesson learned here may be only that planning and the laying of groundwork before enrolling students in a particular program is critical. Unless and until real solutions are found, the Western Governors University will likely have these same problems.

Require Programs to Provide Detailed Enrollment Data. As stated in Section F, Evaluation, the Brokering Project was unable to provide a count of how many students participated in courses and programs, how many enrolled in multiple courses, and how many earned degrees. Staff recommended that future projects might mandate that as a condition of being selected to participate in a technology project and receive brokering services, a requirement that institutions provide data on students enrolled in courses each semester. The project could ask for student names for each course and where they reside, as well as other data that would contribute to an evaluation of the Brokering Project's successes.

H. FUTURE PLANS

While it is unclear what role the Western Cooperative and WICHE will play in WGU in the future, they were the main staff and designers of WGU for 2 years. Their contract ends in June 1998, but the WGU Director for Customer and Provider Relations indicated that as WGU begins to implement the plans developed, there may need to be some adjustments that WCET would do. In any case, there will likely be some transition time to transfer knowledge to the WGU staff. And the WCET director is on the WGU Design Team so will likely remain involved.

It is unlikely that Western Cooperative staff will continue any brokering work begun under the grant. However, their work with state higher education offices and institutions has given them experience in those environments and may provide new projects.