for a personal interview. The interview is video-taped for faculty and student analysis.

Mock interviews are also conducted wherby two students interview a third student. All three students must become well acquainted with the company represented. This interview situation permits the student an opportunity to serve as interviewer; hence, become more oriented to characteristics a company may be seeking in new hires. Each interview is video taped for analysis by the specific students involved, the instructor and the class as a whole.

The interview format encompasses a series of interviewer asked questions concerning college preparation, work experiences, agricultural background, position requirements, and knowledge/interest about the company. An opportunity is provided the applicant to ask pertinent questions about the company. Student based questions may include inquiries about personal growth, typical career paths, employee evaluation procedures to specific questions about product lines or marketing techniques.

After the interview is completed the instructor and student view the video-tape and discuss alternative answers and merits of the interview. Additionally, the instructor critiques the resume and cover-letter.

A major obstacle to a successful interview is the inability or lack of desire by the applicant to fully research a potential company. Students are required to carry out a successful research project with an Agribusiness as the research topic. Sources of information may include direct conversations with an employee, the campus interview office, stock brokers, corporate and product line literature, advertisements, and prearranged office visits. All students must obtain the name, title, address, and telephone number of the individual(s) responsible for granting personal interviews. Other information deemed desirable to obtain includes company size, financial holdings, product lines and annual sales, history, entry level training pograms, and an appropriate estimate of a beginning salary range. The company research is presented to the class.

Conclusion

The effectiveness of the career search seminara cannot be quantitatively described; however, two qualitative measures of the seminars effectiveness are provided. The first is provided by companies or institutions which interviewed students before and after the introduction of the seminar. Interviewers reply that students better understand the interview format, possess knowledge about specific business activities, and maintain a confident, positive, professional orientation during the interview. The second line of evidence is provided by recent alumni who have stated that the career search seminar was a major factor in their successful employment.

The Washington State University And the University of Idaho Instructional Television System

Betsy Boehm Hsu

Introduction

In 1981 the Department of Instructional Television at Washington State University (WSU) and the Engineering Outreach Department at the University of Idaho (UI) began to offer courses over a two-way interactive microwave system. WSU and UI are located only eight miles apart from each other. The development strategy for the system was to reduce travel time between the two institutions, increase the visibility of educational programming, and enhance the educational opportunities in general throughout the region. Educational programming over the WSU/UI ITV system includes a variety of courses in undergraduate and graduate education. Both the WSU and the UI campuses are transmitting as well as receiving centers for educational programming.

The goal for additional development in instructional television in the state of Washington was accomplished in 1983 through the Washington State High Technology Education and Training Act which authorized the development of the Washington Higher Educational Telecommunications System (WHETS). The legislature appropriated an initial $1.5 million to build a two-way interactive microwave system around the state in order to provide graduate instruction in engineering and related fields. WHETS programming is currently transmitted between WSU in Pullman and the University of Washington in Seattle. It is received at off-campus stations in Spokane, Richland and Vancouver, as well as in Moscow, Idaho at the UI.

Fig. 1 WSU/UI System and WHETS Location Map

Hsu is an assistant professor of Landscape Architecture, Washington State University, Pullman, WA 99164-6414.

Method

WSU/UI ITV System User Survey

During the winter of 1986-87 a survey was initiated by the Department of Horticulture and Landscape Architecture at WSU in order to gain a broader insight into the attitudes and specific use patterns of faculty, administrators and students who use the WSU/UI ITV system. It was generally recognized by the faculty who were familiar with the system that there were discrepancies as to how their involvement with this kind of "high tech" teaching was being evaluated by their respective departments. Most faculty seemed to agree that traditional teaching methodologies required revision when broadcast over the system. Although there was a general consensus regarding a positive note in student evaluations towards learning through telecommunications, faculty seemed to agree that problems arose regarding instructional methods and additional time involvement with course development and student contact hours outside of the classroom.

Content of the Survey

The survey was directed toward the WSU/UI system users instead of the WHETS system users because of the diversity of undergraduate and graduate course work that is currently being taught over the WSU/UI system. A total of 29 surveys were sent to administrators and faculty at both institutions. Twenty surveys were returned yielding a 70 percent response rate. While the survey coverage might seem small, it does in truth represent the current total number of faculty and administrator users of this system. Also, the 70 percent response rate is high and shows a good representation for survey results to be analyzed. The categories covered in the survey include questions regarding type of use, course credit transfer and student credit hour calculation, the benefits as well as the disadvantages of the system to faculty, students and administrators, and the type of nonconventional teching methods utilized.

Description

The Users

There are three major user groups of the WSU/UI ITV system which include faculty, administrators, staff and students. Electrical engineering (35%) are the largest user group. Criminal justice and mechanical engineering (15%) are the next highest followed by sociology, landscape architecture and animal science (11%). Anthropology (5%) also utilizes the system for instructional purposes. The fact that electrical engineering is the most frequently taught subject over this ITV system indicates the current emphasis on system use towards disciplines in higher technology.

The first users, however, of the WSU/UI system were faculty from the Department of Animal Science and the Department of Horticulture and Landscape Architecture in the College of Agriculture and Home Economics at WSU. These initial courses, one in sheep breeding and the other in the history of landscape architecture, are still being offered over the system. At

Fig. 2 System Users by Discipline

Survey Response by Discipline
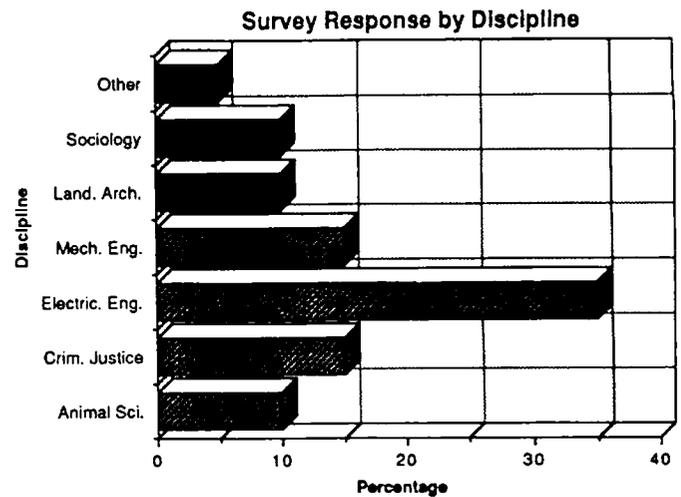
WSU the other disciplines which use the system for instructional purposes include criminal justice, sociology, electrical and mechanical engineering. The UI system users by discipline include anthropology, criminal justice, sociology, and electrical and mechanical engineering.

Design of the WSU/UI and WHETS ITV System

The WSU/UI and WHETS ITV system is designed primarily to deliver educational programming live from an "electronic" classroom. Since the major purpose of instructional programming is the use of planned production, these classrooms are capable of pretaping programs as well. Currently, WSU, the University of Washington, and the UI are the only stations on this network with transmitting capabilities.

Fig. 3 WSU Receiving/Transmitting Classroom Layout

■ camera   ■ camera

tables with voice-activated microphones

Instructor's station

TV monitors
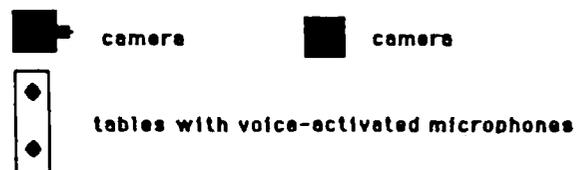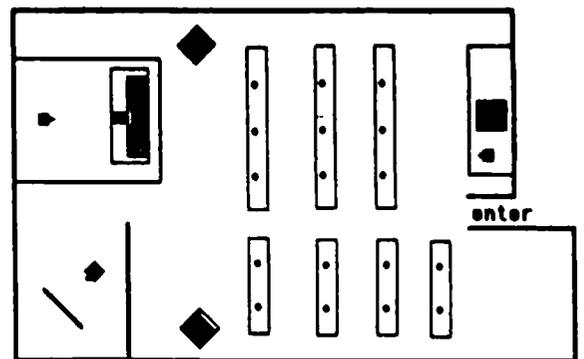
1. overhead monitor
2. character generator
3. preview/graphics
4. line monitor
5. microwave signal/west
6. microwave signal/north
7. microwave signal/east

The electronic classroom layout is similar to a traditional classroom where the instructor is located at the front of the room and the students are arranged in parallel rows facing the instructor. However, in the electronic classroom the instructor shares the podium with television monitors and cameras. The current carrying capacity for the WSU/UI system, insuring that all students have a seat and can view a monitor, is 32 seats in the WSU classroom and 35 seats at the UI. Unfortunately, only 12 of the seats at the UI are currently equipped with a microphone for two-way interaction.

The television camera and the TV monitor become the "eyes and ears" of the classroom. In the WSU transmitting classroom there are four cameras and each camera plays a different role in taping the instruction. The camera which is most frequently used is placed over the instructor's desk top which acts as an overhead projector. A fourth camera is focused on a screen where slides are projected for visual instructional material. These cameras have zoom out capabilities for close up and long range shots. They also can be rotated which allows the instructional material and the classroom to be scanned. Both these mechanical devices are valuable specifically when the instructor wants to focus in on an aspect of a graphic or when a particular students who has a question can be brought onto the television monitor for a one-on-one communication with the instructor.

In addition to the four television cameras, there are three television monitors in the WSU transmitting/receiving classroom. One monitor which faces the instructor can be switched to project the instructional material or either classroom. The two monitors facing the students can be switched to do the same. At the instructor's station there are several smaller monitors that indicate on-line visuals as well as material that is holding. Other monitors at the instructor's station indicate programming on several of the other channels of the WHETS system that is either being received or transmitted simultaneously. Needless to say, the capacity of the system is complex although stimulating, and it can sometimes distract and frustrate the first-time user who then might appear nervous during the lecture delivery.

Utilization of the WSU/UI ITV System

Undergraduate and graduate instruction receive the highest percentage of system use. Undergraduate instruction reflects 46% and graduate instruction 34% of the total time spent by faculty and administrators on the system. Community service activities in adult and continuing education by system user faculty and administrators showed no use rate (0%). Teleconferencing, and student and professional presentations demonstrated some ratings with 13% for presentations and 7% for teleconferencing. Other possible administrative uses of the system such as for job interviewing showed a no use rate (0%).

Fig. 4 Type of System Use
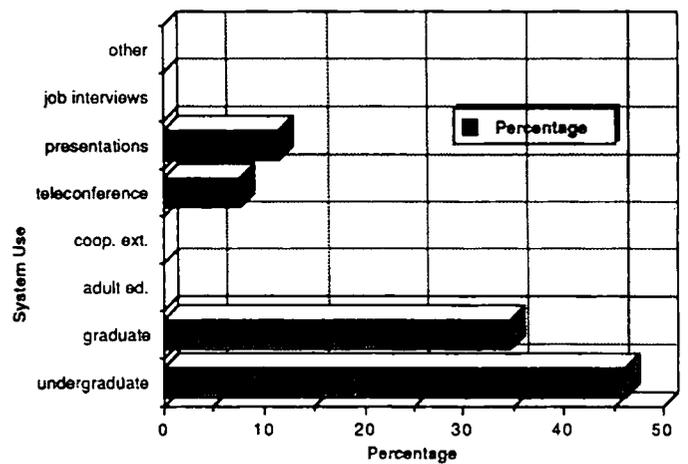
Undergraduate Instruction

The most common use of the WSU&UI system is undergraduate instruction. Most of the faculty in all the current use disciplines teach at least one undergraduate course. This system, unlike the current graduate programming for WHETS, was designed for the purpose of undergraduate as well as graduate instruction. The undergraduate instructional programming shows the greatest amount of diversity in course content, and in some cases, the largest variety of instructional techniques. Undergraduate instruction is being given in all of the liberal arts and science disciplines which are currently being taught over the system except in anthropology.

Graduate Instruction

Graduate programming also demonstrates a high frequency of use. However, current graduate educational programming is directed towards electrical and mechanical engineering and anthropology. Since WHETS networks with the WSU/UI system, much of the WHETS programming is being transmitted to the UI campus. This is especially reflected in the greater percentage of graduate instruction in the high technology disciplines.

Research

The system is not being used for research purposes. However, the communication of research results through student and professional presentations, or the creation of forums for the purpose of debate could be explored. There has been some teleconferencing with professional and student presentations over the system, but these types of activities have been relatively infrequent and sometimes costly. Smaller and more frequent forums between departments, colleges, universities and industry could provide an updated information exchange to occur which would encourage the pursuit of knowledge through research at a higher level. The new WSU Research and Technology Park which is being built on the WSU campus has at its disposal this powerful communication tool which can broaden the outreach of the research that is being done by this facility, the university and in region.

Community Service

The use of the system for the traditional service roles in continuing and adult education is also an underutilized aspect of system use. While there has been some use of the WSU transmitting station for the purpose of pretaping presentations through Cooperative Extension, the interactive capacity of the network is not being fully utilized for this purpose. In addition, the activity of pretaping Extension material has been pursued for the most part by Extension Agents, not by teaching or research faculty.

Community service which holds great potential for educational programming lies dormant. One of the limitations of community service has been the negative climate that surrounds service activities for faculty. As a result, there has been virtually no financial or moral support for faculty to pursue this traditional avenue of activity. Unfortunately, without community service activity, many programs, departments and faculty have lost not only their regional visibility, but often their credibility as well.

Administration

Administrators also demonstrate a lack of creative foresight in the utilization of the available ITV systems. One possible avenue to explore aside from teleconferencing, is the pursuit of job applicants through interviewing over a telecommunications network. A department might be able to save thousands of dollars in travel and entertainment costs by interviewing potential candidates through an interactive telecommunications system.

Transfer of Credit and Student Contact Hours

One significant point of confusion among administrators and faculty who use this system is the manner in which the transfer of credit and student contact hours are tabulated. The majority of the courses (65%) offered over the system are cross-listed while 24% are given through an unofficial course exchange where a discipline shares the teaching load by offering a course at the other institution. For example, in the two landscape architecture programs at WSU and the UI, landscape architecture history is taught over the system by WSU and professional practice is taught conventionally by the UI in an unofficial course exchange agreement.

Most faculty do not have a clue as to whether or not they receive credit for the total amount of students taught and even some of the administrators also appear to be in the dark. According to the survey, 45% of those who responded thought that total student credit hours are calculated from both institutions while 40% calculate this figure using the transmitting classroom numbers only. In general, however, at the department level faculty can and do receive full credit for the total amount of students taught at both institutions. However, once this figure reaches the college and university level faculty received credit only for those students enrolled in the course within their own university system, ie. those students who are actually paying for the credit.

Credit for student contact hours is handled in a confusing manner. There is a discrepancy in evaluating total student credit hours per faculty. This discrepancy is viewed with dismay by administrators and is a point of contention on the part of faculty because it does not reflect the real teaching load nor the true visibility a course may be receiving.

Unconventional Teaching Tools

There are several tools that the system offers to instructors which can make teaching via telecommunications creative and challenging. The most unconventional teaching tools are the video camera and television monitor. Since these two electronic devices are the backbone of the telecommunications operation, they need to be explored and respected in the development of instructional material. Script lecture writing, a study guide and a workbook are conventional teaching aids in programmed instruction which can make teaching through the camera a more enjoyable experience. With the addition of the electronic character generator (ECG) and the telefact, course development and communication over distances is eased.

Use of the Tools

The provision for instructional innovation through the use of the electronic devices of the ITV system can be stimulating and challenging. The most obvious challenge to instruction over the system includes the sometimes painful requirement of lecturing into a television camera and having to view it over a television monitor. In order to be an effective and stimulating instructor, it is important to develop some television communication skills. One method that seems to help communication is lecture script writing. The script coordinates visual and verbal aspects of the lecture and cues the technicians who are behind the scenes. The script allows the instructor to highlight the lecture content with essential points and leaves options in the mainipulation of other teaching tools for the clarification of points. The instructor needs to speak clearly and directly into the camera and occasionally

Fig. 5 Use of Teaching Tools

Teaching Tools Utilized
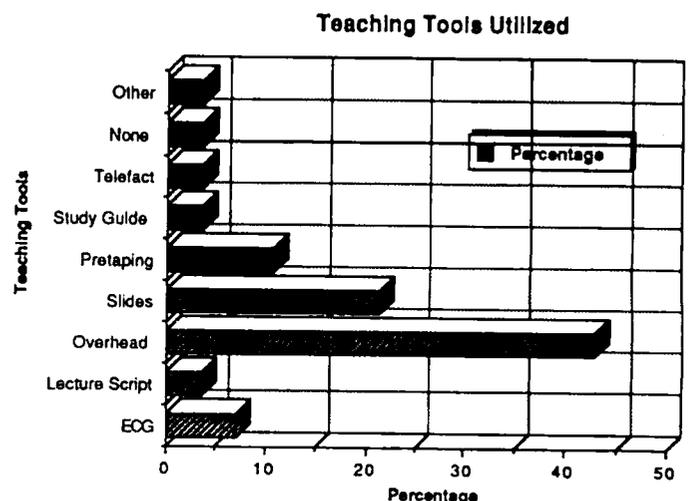
scan the transmitting classroom in order to retain contact with those students who are watching a "live" lecture.

Survey results indicated that only 4% of those who responded use script writing as a teaching technique. It is true that this kind of instructional aid requires a greater amount of preparation time. However, once the script is developed, it can be used over and over again with some minor adjustments to update information.

The development of a workbook and/or study guide can be useful tools in teaching not only over a telecommunications systems, but in the conventional classroom as well. The workbook and/or study guide format leads the student through instructional material offering short tutorials that reinforce the knowledge base. These devices allows the instructor to organize the course material into logical sequence which holds the flow of the course together. Combined with the video capabilities of a telecommunications system, the beginnings of a programmed instructional package can be quickly achieved. According to the survey, only 4% of those who responded use the workbook and study guide methods for instructional organization.

The ECG is a word processor that allows text to be projected on screen. Title slides can be interjected into the lecture format or reading assignments, important vocabulary and formulas can be displayed through the ECG. Few survey respondents (7%) indicated that they use the ECG at all. One use of the ECG that can be used in instruction is the development of tutorials which can be pretaped, used as tests and examinations, or used for tutorials. The survey results show that while 12% of the faculty do use the pretaping capacity of the system via video, they are not using the ECG to its full potential. Examinations are still being given through conventional means.

The most popular teaching tools are the video overhead camera (43%), the use of slides (22%), and the use of video (12%) for pretaping lectures and for taping student presentations for later self analysis. The telefact machine which can relay text and graphic images between the two institutions via telephone cable lines has experienced limited use (4%). In addition, 4% of the respondents do not perceive themselves as using any unconventional teaching tools at all which leads one to wonder about how these faculty view their activity in this highly unusual classroom setup.

Assessment

Benefits to Students, Faculty and Administrators

Administrators are the most optimistic regarding instructional use of the system. Faculty tend to be less enthusiastic mainly because of the discrepancies in the evaluation of their innovative and pioneering teaching activities. Students, however, are perceived as being the ones who benefit the most from the system mainly because of greater opportunities in education and decreased travel time.

The most beneficial aspects of the system for students are increased educational opportunities (33%), reduced travel time (29%) and the availability of taped lectures (29%). Students, however, do find the electronic classroom environment stimulating (6%). They have to overcome an initial estrangement in communicating over the system. The fact that lectures can be taped is viewed as the most useful aspect of the system because it allows students who missed class to conveniently review lectures which are systemically kept for a period of two weeks after each lecture is given.

Faculty see little real benefit from teaching over the system (46%). Very little assistance or recognition for their pioneering teaching over the system has been recognized. In general, teaching and technical assistance (10%) is made available only if the course merits it according to student contact hours or graduate level instruction. Some attention has been given to increased merit rating (10%) during the annual review process. Apparently there is no decrease in the teaching load of system user faculty (4%), and there is no evidence of recognition by administration of the increased teaching prep time or outside class student contact hours which is the norm for faculty who use the system (2%).

Administrators are by far the most optimistic regarding the ITV system. They see that students numbers will increase (25%) and that their department will receive greater visibility (33%) through encouraging instruction over the ITV system. They view the reduction in travel time on the part of students and faculty as yielding some cost benefits (14%). While there is some slight increase initially in the cost of the course (11%), in the long run this cost is seen to balance out with other benefits derived from the system. Administrators seem to think that faculty actually use less teaching time (16%) when they use the system. This is an erroneously perceived notion.

Disadvantages to Students, Faculty and Administrators

The major disadvantage to students regarding instruction through telecommunications is a lack of personal interaction with the faculty (37%). Also, students tend to be inhibited by the technology (22%) that surrounds them which interferes with the interactive capabilities the system was designed for. This inhibition further negates the communication that might occur over the system. As a result of these problems, students and faculty compensate by increasing the cmount of outside class contact hours. Otherwise, students receive no real disadvantage from being taught over the system (37%).

Faculty become burdened (35%) by the extra amount of contact hours that they engage in to compensate for the above-mentioned limitations of teaching via telecommunications. Often faculty will consult students via telephone, or set up special sessions outside of class hours. In the current atmosphere of the university where the value of research