

A Ten-Year Retrospective on the Uses of Videoconferencing in Support of the Distance Learning Mission at an Agricultural Research Center a Center within a Land-grant University System

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ABSTRACT

There has been a national trend toward uses of remote facilities by universities to increase distance-learning enrollments. This has resulted in mission-shift for a number of traditional university assets such as research and extension centers. These relatively remote centers have seen university credit courses increase at a time when agricultural research dollars have diminished. Since 1992 the Texas A&M University System has provided infrastructure, bridging and scheduling support for all of its campuses and centers through the Trans Texas Video Network (TTVN). This oral history case study compares 1997 findings and 2005 findings regarding the use of interactive television at the Texas A&M Agricultural Research and Extension Center in Weslaco, Texas. Scientific researchers were using TTVN less and in different ways, extension and scientific research staff were using substitute technologies, and universities were developing new course offerings in efforts to increase enrollment.

Introduction

This article provides an analysis of the changing mission of a land-grant university system's research and extension center and its effects on the selection and use of communication and distance learning technologies utilized by extension, scientific and teaching faculty and staff members. It also examines a decade of videoconferencing applications implemented to fulfill the research, teaching and public service missions of the university system. Changing needs at the center have created new missions that will be examined in this study. Land-grant universities such as Texas A&M University and

Prairie View A&M University that form the nucleus of The Texas A&M University System were funded initially by the enabling legislation of the Morrill Acts of 1862 and 1890. The Hatch Act of 1877 established research and experimentation as a fundamental role of the university. The Smith-Lever Act of 1917 established the extension outreach mission of the university for the dissemination of research findings. (National Association of State Universities and Land Grant Colleges, 2005, August 5)

The Texas A&M University System (TAMUS) first recognized as a system including Texas A&M College, Prairie View A&M College and Tarleton State College. In 1989 several South Texas universities were added and in 1990 further additions were made. The last two additions was part of an initiative by state of Texas to establish greater articulation and coordination of a vast higher education network and to increase the participation of Hispanic serving universities within major university systems (The Texas A&M University System, 2005, August 5; Chenault, 2002, March 8).

The land-grant university mission set the tone for greater articulation and inter-agency collaboration among the universities and centers of TAMUS. The Texas A&M Agricultural Research and Extension Center in Weslaco, Texas is an example of this collaboration. In 2005 two different universities were teaching classes in horticulture, engineering and educational leadership at the Center by means of the Trans Texas Video Network (TTVN) a videoconferencing network initiated by TAMUS in 1992 to promote greater uses of distance learning and collaboration. Some classes at the Center originated at Texas A&M University College Station (TAMU) and some originated at Texas A&M University Kingsville (TAMUK).

Dr. Jose Amador has led the Center through significant change during the past decade. One of dramatic mission shifts occurring at the Center during his tenure was the increased emphasis on providing classroom space for distance learning students taking courses at TAMU and TAMUK. Previously the mission focus had been almost entirely agricultural research and extension services to the people of the Rio Grande Valley, a historically agricultural region with a high economically disadvantaged Hispanic population.

Evolution of the Citrus Center

The Texas A&M University System Agricultural Research & Extension Center at Weslaco, Texas was established in 1923 as the Valley Experiment Station under the auspices of Texas A&M College. The Citrus Center was established in the mid-1940's as a part of Texas A&I University. Since 1992 when Texas A&I University became Texas A&M University at Kingsville both Centers have been affiliated with the Texas A&M University System sharing a central administration. The Weslaco Center vision has been to improve the lives of people in South Texas through regional, national and international programs in research, education and extension. (Garza, 2005, February 10)

“The mission of the center is to greatly impact the production of agriculture; the availability of a safe, wholesome, and affordable supply of agricultural products and value added processing; environmental stewardship, health science and education; youth and adult life skills; and community development.” (Texas A&M University System Agricultural Experiment and Extension Center at Weslaco (2000). The Weslaco Research Center has graduate students and post-doctoral students working in conjunction

with graduate faculty from Texas A&M University, The Weslaco Center and Texas A&M University Kingsville.

Because the Weslaco Center is remote from Texas A&M University Kingsville and Texas A&M University in College Station, the TTVN has played a major role in ensuring that technology transfer through scientific collaboration, extension and teaching occur and will continue to occur (Hiel & Herrington, 1997; The Texas A&M University System Agricultural Research and Extension Center at Weslaco, 2000). During the years 1999, 2000, and 2002 the Weslaco Center was cited as the most reliable TTVN site within the Texas A&M University System registering more than 200 sessions each year.

Focus of Inquiry

By 1996 many intended TTVN usage patterns at the Center had emerged and I wanted to find whether those patterns had persisted as late as 2005. This study is a retrospective look at the Weslaco Center comparing the intended usage patterns that Ed Hiel and I found in 1997 with those noted in 2005. During the previous study of the Center (Hiel & Herrington, 1997) the focus of inquiry was on the usage patterns, logistical problems and acceptance of technology by Center staff. The current study examined whether improvements in videoconferencing technology had contributed to changes in usage patterns for TTVN or whether simpler or more advanced substitute technologies had supplanting initial uses of the TTVN. Especially of interest was whether the extension staff had overcome resistance to the videoconferencing technology or whether the scientific staff had expanded or modified its “brown bag lunch” sessions with other researchers to share information and research. The final piece of this study was to examine trends and make projections about the future uses of the videoconferencing technology at the Weslaco Center.

Methodology

The data were collected from interviews of key individuals at the Center and at originating sites for university classes. The TTVN schedule log at the Weslaco Center also provided insights into usage patterns. The primary uses of TTVN were identified and each scheduled session was coded according to the user identity. “Intended uses” applies because the schedule log does not record whether or not the session was successfully initiated or completed. However it is important because any entry in the schedule log be noted because each entry encumbers time that might otherwise be available for other users.)

Previous Findings

In Table I data are presented as they were coded in 1997. During the four years represented between 1993 and 1996 some things became obvious.

1. Prior to 1994 there was no usage of the Center for university credit course offerings, but in subsequent years university credit courses quickly became the dominant user of TTVN at the Center.

2. Prior to 1994 administrative use of TTVN at the Center remained moderate but relatively steady throughout the first four years.
3. Extension (TAEX) and scientific (TAES) uses of the TTVN at the Center were very light during the first four years (1993-1996).
4. Staff development and continuing education were heaviest during the first year (1993) but dropped off significantly in subsequent years. (Hiel & Herrington, 1997)

Table I provides a summary of the findings reported in Hiel & Herrington (1997):

Table I

Scheduled TTVN Sessions at the Texas A&M Agricultural Experiment and Extension Station in Weslaco, Texas during First Four Years of Service (1993 to 1996)

Videoconference Application	1993	1994	1995	1996
University Credit Courses	0	250	227	235
Continuing Education/ Development	141	90	24	45 Staff
Administrative Activity	42	33	43	53
TAEX Extension	5	2	27	27
TAES Scientific	6	0	9	13
Public Special Interest	11	17	13	15
TOTAL	205	392	343	338

At the time of the initial inquiry, we were interested in seeing to what extent extension staff was using videoconferencing technology compared to other users. We were surprised in 1996 to find less use of TTVN by extension staff than by the research or teaching. ITV seemed the perfect medium for outreach to remote agricultural locations. In 1996 the extension staff of the Weslaco Center expressed skepticism that the technology was reliable enough to support the kinds of activities that they normally engaged in with clients. (Willie, 1996, December 12; Garza, 1996, December 12) Listed at that time were the difficulty finding a time slot in multiple locations that would serve all of their audiences, the lack of support staff at remote sites, concerns about loss of face-to-face intensity of interactions, and the limited time slots available for conferences once all other applications had been scheduled (Hiel & Herrington, 1997).

The scientific research faculty found some early applications helpful in communicating around the state emergent problems with plant diseases. This was the case with the “melon group” supported by TTVN and listservs. (Miller, (1996, December 11). However the numbers during the first four years did not reflect that this was a frequently used application. No reservations were expressed at the time regarding the usefulness or value of videoconferencing. None were noted regarding the services provided by TTVN although scheduling of multiple sites was proving to be a challenge. (Miller, 1996, December 11; Willie, 1996, December 12, Garza, 1996, December 12).

In 1996 the Texas A&M University Kingsville Citrus Center was one of the more active users on the academic side of university usage. Most courses taught at the Weslaco

Center from January 1994 to December 1996 originated from TAMUK. Because the focus of inquiry at that time was on extension activities, we did not examine in greater detail the academic uses of TTVN at the Weslaco Center. At the time of the initial inquiry academic applications seemed to the researchers to be an encroachment on the normal activities of the Weslaco Center -- scientific research and demonstration.

That bias on our part was dispelled in December 1996 by the director of the Weslaco Center Dr. Jose Amador who explained that this new technology of compressed video was here for anyone to use who wanted to do so. There was not a directive that any entity at the Center use videoconferencing technology. It was after all a "demonstration technology:"

"The videoconferencing technology at the Center is like a demonstration technology very much like in the days when the telephone was first introduced to various neighborhoods. Not everybody had a telephone in his home. Not everyone used the telephone. But the neighbors would come to the home that had the phone and began using it. Over time, as the public became more accustomed to the convenience of having the telephones and the expense was not so great, they felt that they too use it. At that point the telephone came to be a necessity for them. When this happened the technology spread. So the Center is a demonstration site for this new technology. Here at the Center the classroom has been set up with the appropriate technology to support distance learning through videoconferencing and we will see how it is used in coming years" (p. 1)

In 1996 it was our interest to see how the extension staff and scientists were responding to the novelty of videoconferencing in their midst. In a sense, the Weslaco Center was going to be an informal experiment to determine what uses of videoconferencing technology would emerge and what resistance would work against adoption of the technology.

Weslaco Center 2000 Strategic Plan

By 2000 it was becoming clear that with the help of videoconferencing capabilities, the Center was undergoing a transformation from primarily research and public service center toward one with an elevated the role of teaching and learning for university credit. This in turn has increased the demand for TTVN and other web-based distance learning technologies at the Center. The 2000 vision statement emphasized the teaching mission of the Center. This included future uses of distance learning technologies and collaboration with various universities. These goals included:

1. Position the Weslaco Center, through the use of contact and distance education, to continue its leading role in education through affiliation with other South Texas universities...

2. Become an international center for studies on...issues between the United States, Mexico and other countries in the hemisphere while developing joint degrees in international trade and commerce with universities on both sides of the border...
3. The faculty at the Weslaco Center is committed to increase student activities. Previously, the emphasis has been centered in assisting students with their research. With distance education facilities, both the course work and the research can now be done at Weslaco Center...
4. Develop and implement mechanisms (such as tenure) to allow recognition of faculty involvement in education.
5. Upgrade the video networking facilities and continue the successful interactive courses to increase their appeal to attract larger classes; develop web-based curricula. Develop mechanisms for recruitment, retention and exchange.
6. Increase the opportunity of offering joint degrees between the Universities...
7. Encourage more South Texas universities to include some horticulture curricula, possibly in cooperation with the Center. (Texas A&M University System Agricultural Experiment and Extension Center at Weslaco, 2000, pp.5, 6)

From the above context it is clear that the Weslaco Center of the 21st Century was viewed increasingly as a center for university teaching and learning. By 2000 distance learning for university credit had grown beyond a demonstration technology to assume a more prominent role in the life of the Center in 2005. This change of focus was generated by the university campuses rather than by the Center.

The infrequent use of the TTVN by the TAES (Texas Agricultural Experiment Station) from 1993 to 1996 was due the fact that other means of collaboration already existed for scientists. Videoconferencing at the Center had not provided the richest or most convenient medium for their collaborations. (Miller, 1996, December 11). The 2000 vision for research at the Weslaco Center addressed collaboration with non-traditional partners, commodity groups and industry but it did not address the uses of TTVN or any other specific technology for collaboration. (Texas A&M University System Agricultural Experiment and Extension Center at Weslaco, 2000, pp.5, 6) There was no directive within the Center to use that videoconferencing technology. Extension staff was free to use substitute technologies for communicating with various constituencies.

Alternative technologies such as email, telephone, and other electronic communication formats were used by scientific and research staff. Videoconferencing was seldom used by the scientific research faculty except for statewide meetings, Texas A&M University System trainings, or dissertation hearings. (Miller, February 7). Table I shows that the scientific and extension staff used TTVN resources rather sparingly during 1993 and 1994.

Ten-Year Comparison

Table II shows a comparison of the scheduled videoconferences from 1993-1994 and 2003-2004. The following observations can be made:

1. From 1994 to 2004 the number of scheduled conferences for university classes are not significantly different and are consistent with other years reported in Table I. (In 1993 the TTVN resources at the Center were new and not included in university scheduling. In 1994, one of two rooms at the Center was not in use for part of the year. Table III shows the areas of decreased university uses.)
2. The Extension uses of TTVN have increased over time but not significantly.
3. The Scientific Collaboration continues as before but on a much lower level than other uses of the TTVN.
4. Administrative uses of the TTVN have continued to shrink relative to other uses.

Table II

Scheduled TTVN Sessions at the Texas A&M Agricultural Experiment and Extension Station Ten Years Later (1993, 1994, 2003, 2004)

Videoconference Application	1993	1994	2003	2004
University Credit Courses	0	250	557	266
Continuing Education/ Staff Development	141	90	41	13
Administrative Activity	42	33	38	16
TAEX Extension	5	2	18	28
TAEX Scientific	6	0	7	9
Public Special Interest	11	17	16	6
TOTAL	205	392	677	338

The decrease in university use of the TTVN in 2004 was not due primarily to lack of capacity at the Weslaco. (Gautreaux, 2005, February 7). Consistent with the findings in Table III Cynthia Farias, administrative assistant in charge of scheduling courses at the Weslaco Center for Texas A&M University-Kingsville indicated in February 8, 2005 that the Weslaco Center was an important part of the distance learning initiative at TAMUK. She noted that in addition to the Weslaco Center TAMUK also offers courses in the Rio Grande Valley at videoconference rooms at the Region I Education Service Center in Edinburg and South Texas Community College in McAllen. This has alleviated some of the demand on resources at the Weslaco Center.

Mr. Manuel Gautreaux, staff accountant for the Weslaco Center, explained that one of the two-videoconferencing rooms at the Center recently had been down, temporarily limiting the capacity of the Center for videoconference sessions. The new equipment, a Polycom View Station H- 323 had recently arrived and was still in shipment boxes during our interview on February 8, 2005. It was expected to be available in a

short time. Mr. Gautreaux indicated that the Texas National Guard wanted to make their videoconferencing facilities at the Texas National Guard Armory available to the Center as a public service. It was an underused asset for them at that time. Mr. Gautreaux indicated that he Weslaco Center had not pursued that particular offer as of February 2005.

Some insight into the scant use of the TTVN by the TAES for scientific collaboration was provided by Dr. Marvin Miller, a professor at the Weslaco Center. He indicated that the TTVN worked well for some research collaboration as long as the number of sites was fewer than three or four. He was no longer conducting the “melon group” sessions reported in 1996. Dr. Miller indicated that, for him, email had proven to be a more useful technology for that type of collaboration. He did indicate that he had used the TTVN for graduate student advisement and attending a dissertation presentation. (Miller, 2005, February 8) According the scheduling logs consulted for this study, tenure and promotion meetings were also conducted by TTVN at the Center.

Dr. Bertha Garza, first interviewed in December 1996 regarding Extension uses of the TTVN indicated in February 2005 that videoconferencing had not ever gained the credibility of her staff. They were using an alternate web-based distance learning technology for extension work with clients. The schedule log did, however, show that in 2003 and 2004, Extension staff development had been conducted on numerous occasions including the Better Living for Texas (BLT) program, a product of the Texas Cooperative Extension.

Administrative uses of the TTVN included Texas A&M University System (TAMUS) meetings, position interviews and Southern Association of Colleges and Schools (SACS) meetings. Staff Development included TTVN training, TAMUS Human Resources training, and agro-terrorism training. Public special interest included water meetings, onion growers meetings, cotton growers meetings, and community college meetings.

Table III

TTVN Scheduled Sessions by University Course Offering at the Weslaco Center (2003 – 2004)

University Courses Offered	2003	2004
Educational Administration (TAMUK)	188	90
Environmental Engineering (TAMUK)	105	0
Human Science (TAMUK)	0	20
Horticulture (TAMU)	23	15
Industrial Engineering(TAMUK)	70	79
Plant Science (TAMUK)	54	42
Statistics (TAMUK)	27	20
Chemistry (TAMUK)	38	0
Reserved Time (Unspecified – TAMUK)	52	0
TOTAL	227	266

Table III shows a breakdown of the university credit offerings at the Weslaco Center. Texas A&M University-Kingsville continues to be the primary client of the Center with some courses originating out of Texas A&M University. Two courses not identified in the TTVN schedule log at the Weslaco Center as being offered for university credit originated from Texas A&M University at College Station – Agronomy Seminar (15 sessions) and Functional Food Lab (7 sessions)

Discussion

The following observations can be made regarding the role of TTVN at the Weslaco Center after ten years:

1. The TTVN has supplemented and enriched the ability of the Center to meet its traditional responsibilities to its clients and the state of Texas.
2. The TTVN has substantially changed the mission from research and extension work to an expanded role in the teaching of university classes to a population who previously did not have access to the educational opportunities offered at TAMU or TAMUK.
3. The Weslaco Center has additional ITV sites in the Rio Grande Valley that share the load of videoconference programming for TAMUK; TTVN is no longer the sole provider of bridging and scheduling.
4. Use of TTVN by professors, extension agents, and researchers will be influenced by individual preferences. Videoconferencing will always be an option among several of distance learning media but not necessarily the only option nor the best option.
5. Videoconferencing technology is no longer a demonstration technology. It is a part of the repertoire of extension, scientific and teaching staff of the Weslaco Center.

At this writing the Weslaco Center is in transition. Dr. Amador has retired from the Center, though probably not from public career in agriculture, education and politics. Funding for agricultural scientific research has been scaled back. Texas A&M University at Kingsville continues to grow new programs seeking new sources of students and academic revenues from the Valley. Extension agents and scientists will increasingly use substitute technologies that are more reliable for them and less subject to scheduling issues. It appears likely that the trend toward academic courses will continue to grow and outstrip the original missions of the Weslaco Center. Videoconferencing will continue to be used occasionally by the Center staff for meetings and dissertation advisement. But the greatest use of the TTVN and other ITV sites in the Valley will be university college credit as universities seek to expand enrollment and find new markets.

The complementary nature of distance learning technologies and the historic national mission of the land-grant institution will continue to evolve and the scientific,

extension select substitute technologies and system-wide universities increases utilization of Center classroom spaces and bandwidth for expansion of course offerings to remote student markets.

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