

WISCONSIN

EDUCATIONAL NETWORK

Business Case Details



Life



Long



LEARNING



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Wisconsin Distance Education Network Business Case Details

Introduction

As a result of the commissioning of the Wisconsin Educational Network Collaboration Committee (WENCC), a collaborative needs assessment on the value of educational technology for PreK-20 and lifelong learners was conducted to answer legislative questions and provide information to the stakeholders who will make the decisions regarding Public Policy Funding. The information gathered from the following sources was extensive, and the resulting documentation was detailed and comprehensive. Information was gathered from the following sources:

- Eight facilitated focus groups with educators were held between March 7, 2002, and June 6, 2002. Invited were chief information officers (CIOs), technical coordinators, teachers, and network directors from the different geographic areas throughout the state.
- WENCC surveyed teachers in all 426 public PreK-12 school districts and enjoyed a response of 9,036 teacher surveys.
- WENCC incorporated data from the DPI/TEACH survey sent out in spring 2002 to public school administrators and technical coordinators in the 426 public school districts.
- In July and August 2002, WENCC interviewed state agencies regarding current and planned use of distance education technology including video conferencing for meetings and training.
- In August, WENCC surveyed a group from the deaf and hard of hearing community who work for state government, the technical college system and the UW System.

Results of the Needs Assessment

Over the past nine months, the Wisconsin Educational Network Collaboration Committee (WENCC) has gathered a significant amount of information regarding current and projected use of videoconferencing and other distance education media in Wisconsin. This process included facilitated sessions with eight focus groups throughout the state, surveys sent to teachers, administrators, technology coordinators, and network directors, and interviews of state agencies and the hearing impaired community in state government as representatives of special interest groups. The objective was to learn participants' needs regarding the next-generation, distance education network.

The committee studied hundreds of pages of information and met numerous times to discuss the information. Through a professionally facilitated session, WENCC came to a consensus regarding the most significant documented common themes from the focus groups, surveys and interviews. Using those themes, the group agreed on conclusions and wrote recommendations and an action plan.

Following are the major themes identified as crucial to Wisconsin's next generation educational network along with each theme's conclusion and recommendation:

Theme: A Standards-Based Network with Adequate Bandwidth

- A statewide Wisconsin Educational Network is required. The enterprise network solution must be based on a standard platform capable of supporting current and emerging educational and administrative technology applications.
- The network must provide seamless connectivity between all Wisconsin educational institutions, libraries, and municipal governments. In addition, the state should consider the benefits of allowing non-profit and community organizations to use this network as well as allowing private sector use for training. Interoperability between all these entities is paramount.
- All users must be on a common standards-based platform. The technology should be ubiquitous and flexible, support accessibility anywhere, anytime, and provide sufficient bandwidth for future needs/growth.
- The State of Wisconsin must continue to support the existing high quality video distance educational classroom application used by the 450-video distance education classrooms functioning today.
- The Wisconsin Educational Network must be affordable.

Conclusion:

Wisconsin needs a standards-based, affordable network with adequate bandwidth that can support multiple applications and provide universal connectivity is critical to accommodate increasing demand as use of the Wisconsin Educational Network continues to grow. The network must be scaled at implementation to meet these bandwidth needs.

Recommendation:

Procure a standards-based Wisconsin Educational Network with adequate bandwidth to support curriculum/training and administrative needs of educational institutions including libraries, state and

municipal governments, as well as the private sector, non-profit and community organizations for training and education. The network should be extended to the building level or a primary distribution point in each district or campus.

The new educational network should provide seamless connectivity between all Wisconsin educational institutions, libraries, and municipal governments. All users should have access to a common platform. The technology chosen must serve educational needs, be ubiquitous, and flexible.

Theme: Equity

- Equity of access for all students regardless of age, geography or economic status is needed. Rural areas are more dependent than urban areas on video distance education to provide classes to meet their basic educational mission. As intended through programs funded by the Legislature, educational technologies break down the barriers of time, distance and course availability providing equity to students in geographic areas that offer fewer class options. Wisconsin has made a good start in its goal to provide equity to all students, but it must continue forward or that mission is not complete.
- The Wisconsin Association of Distance Educational Networks (WADEN) survey provides many examples of equity statements. It should be noted educators feel progress is being made in attaining equity, but more is needed. *(For additional information see Document III, Wisconsin Educational Network Business Case Appendix.)*
- All services must be provided in an equitable manner regardless of where one resides in the state or economic status.

Conclusion:

The quality of education in Wisconsin should not depend on economics or geography. Legislative funding of telecommunications access programs has made it possible to connect the 426 public school districts and 441 public libraries in Wisconsin to the Internet with an affordable basic level of service. The UW System, technical colleges, and private colleges and universities are connected to the Internet via high-speed lines. The first milestone—getting schools connected as directed by the Executive Branch and Legislature—is complete.

However, until there is access to each school building, whether rural or urban, PreK-12 or higher education, the state cannot achieve the ultimate goal of fully maximizing educational technology in all instruction, at any grade level. Educational technology investments made thus far in Wisconsin have narrowed the educational equity gap. The narrowing and eventual closing of the gap will be accomplished with sustained and future funding.

Information obtained for the needs analysis identified the strides made to improve educational equity statewide, but Wisconsin still has not achieved complete equity. Focus groups identified many non- and under-served groups of people, traditional and non-traditional students who will be served by furthering educational technology, which in turn is a catalyst for economic development.

Recommendation:

Continue to support expansion of access to educational technology in order to enhance equitable educational learning opportunities for all Wisconsin residents regardless of where they live, their age or economic status.

Theme: Professional Development (training for effective use of instructional technology incorporated in the teaching/learning process)

While WENCC's charge did not include professional development, data gathered indicates that this issue needs to be addressed by the Executive Collaboration Committee. Reinforcement of statewide guidelines regarding instructional technology training for teachers is paramount. The issue goes beyond merely training teachers, instructors, librarians, students, citizens, and other users on how to operate the network. Digital technologies are fundamentally changing the way we create, access, store, and communicate information, which is directly related to the success of continued improvement and utilization of technology in teaching.

The following is specific feedback on this theme from the WENCC focus group and the WENCC Teacher Survey:

- Teachers have learned to make increasing use of technology.
- The need for more instructional technology training, access to instructional technology training, payment for technical training, and administrative issues associated with instructional technology training were identified as needing substantial change.
- Sufficient instructional technology education for teachers relative to quality and PI34 is needed.

Conclusion:

Professional development for teachers in the effective use of instructional technology and its incorporation into curriculum is critical to maximize the investment in educational technology by increasing competency and comfort in its use.

Of the 9,036 teachers who responded to WENCC's teacher survey, 52.5% cited teacher training as the second most important issue of the nine targeted inhibitors that limit use of technology. Survey results indicate the following statistics:

- Fifteen point one percent (15.1%) responded that lack of training precludes them from using technology at all.
- Teachers are aware of the value of technology with 33.5% saying it is very valuable in preparing for class, 43.5% saying it is somewhat valuable, and only 23% saying it is of little or no value at all.
- Of the teachers surveyed, 65% find technology somewhat or very valuable in generating lesson plans and 78.4% stated technology is valuable to use during classroom instruction.

Focus groups stated there are local issues that impact their ability to attend training. These include:

- required in-class time with their students;
- administrative policy;
- willingness of school administrators to hire substitutes to enable teachers to attend training;

- availability of substitutes;
- conflicting in-service dates;
- lack of a statewide uniform calendar; and
- unclear guidelines on funding for training; i.e., is it the responsibility of the school district or the teacher.

All of the Focus Groups talked about the need for professional development in the use of educational technology. To WENCC's question, "What is your vision of instructional technology for 2010?" the response was that administration will support the use of technology and the need for teachers to be trained, have preparation time for using technology, and teachers and other staff will be better trained in technology in general.

For the past four years, DPI and TEACH Wisconsin have administered a School District Technology Survey. Each year the survey asks, "In what areas are your greatest needs for technical assistance?" In all four years, districts have ranked professional development (helping teachers use technology effectively) as the number one need.

Recommendation:

This recommendation is twofold:

- 1) Appoint a Wisconsin Educational Network Professional Development/Instructional Technology Training Collaboration Committee to conduct a needs analysis to improve instructional technology training and report recommendations back to the Executive Collaboration Committee.
- 2) Encourage instructors, professors, librarians, etc., to be competent in the use of instructional technology.

Theme: Educators Need To Retain Current Applications

- Educational technology and educational telecommunications access services are widely used by educators at all levels today.
- Wisconsin educators have made significant investments in educational technology.
- PreK-20 Educators that use the BadgerNet Video Network distance educational classrooms (approximately 450 sites, 62% of the public school districts and 70 technical college sites) need continued support for this specific application.
- Educators want to retain current technology but also to be able to have the capability to incorporate new technologies as they evolve.
- As decision-makers look to the future of distance education technology, it is important that they not strand the considerable investment already made in educational technology. For example, TEACH has invested \$309,346,300 thus far (see itemization of figures below).

Following is the State's investment to date for distance education via public policy funding (TEACH) for educational technology/training from 1998 - 2002:

\$167,000,000	Purchase Technology
\$14,000,000	Professional Development
\$88,000,000	Wiring Schools
<u>\$40,346,300</u>	<u>Video and Access</u>
\$309,346,300	Total

Following is the State's Investment for FY 2002/2003:

\$35,000,000	Purchasing Technology
\$4,000,000	Professional Development
<u>\$14,700,000</u>	<u>Video and Access</u>
\$53,761,000	Total

Note: Individual PreK-20 entity investment is not included.

Conclusion:

PreK-20 educators and librarians that use the BadgerNet Video Network distance educational classrooms, approximately 450 sites, will need continued support for this specific application.

Continued functionality of the video network is essential, as is continued functionality of the data network applications including expanded bandwidth requirements. It is essential to retain the functionality of the digital educational technology classrooms and institutional applications currently operating. The next generation distance education network must be compatible with existing classroom equipment.

Recommendation:

Implement a Wisconsin Educational Network capable of supporting the current BadgerNet Video Network application with its 450 sites and support future applications on a common platform facilitating PreK-20 and library collaboration.

Theme: State Investment

- The State of Wisconsin must continue to provide funding for the current and future educational technology and for educational telecommunications access. Access relates to connection services to the Internet and any network platform involved with transporting educational data. Educational data includes educational content, learning system access, voice, data, and video educational and administrative data. Statewide, national and global connectivity is needed.
- State involvement and financing is critical. Without state funding support, there will be no enterprise distance education network, as schools, especially PreK-12, will not have the funding to connect to Wisconsin's Educational Network, thus creating a lack of equity.
- The State must continue to provide and manage a backbone network for the Wisconsin Educational Network.

- The state must implement procurement strategies that ensure affordable technology is available to the Wisconsin educational community, including libraries and municipal government, for instructional and administrative use.

Conclusion:

Continued state investment and funding is essential. Schools, especially PreK-12, and libraries, can not support budgets to build and connect to a statewide network to provide distance education opportunities to Wisconsin's student population. If the state does not fund the backbone and subsidize connectivity to the end points, Wisconsin cannot achieve educational equity for all its students including lifelong learners.

Recommendation:

Sustain State of Wisconsin educational technology funding (public policy educational funding) and seek and allow other revenue options to maintain and expand the system.

Theme: Progress toward Enhanced Learning Objectives Needs to be Maintained

- Collaboration among agencies, institutions, governments, organizations, community, and business should become a common every day educational process. Access to global resources is critical to expanded learning opportunities.
- Teachers not only want, but also need, technology to continue to improve education and to support expanded learning opportunities. Teachers responding to the survey project the future world will be smaller and more accessible, with a wealth of knowledge ubiquitously available. As one WENCC member wrote during the facilitated session, "It is all about improving communication, which is at the heart of learning!"
- Educational technology helps overcome diverse learning and teaching styles, and this must continue to enhance opportunities for student achievement to be maximized to gain the 21st century skills required to compete in a global economy.
- Access is needed to content providers and the emerging learning system applications.
- Integration of technology into the curriculum will continue with more educational materials delivered via distance educational technologies.

Conclusion:

A network must be installed that will provide access to learners of all ages throughout the state and open the world and a host of content providers to each and every learner. This network will provide teachers, librarians, instructors, etc., with the tools to help their students obtain the best education possible and obtain 21st century skills in a global economy.

Recommendation:

Design a network that is flexible, affordable, and scalable and can support future education and administrative applications that will meet distance education and administrative goals.

Theme: The Evolution to Lifelong Learning Needs Significant Planning

Libraries and other educators express the need to develop learning systems to facilitate and support lifelong learning. The need to increase public awareness of opportunities available for lifelong learning is keenly important.

Conclusion:

Lifelong learning will provide a skilled workforce for statewide economic development as Wisconsin competes in a global economy. Lifelong learning serves all Wisconsin's citizens and enhances their quality of life. A Wisconsin Educational Network will support access to virtual learning communities.

Recommendation:

Continue the advancement of lifelong learning initiatives via educational technology to improve Wisconsin opportunities, quality of life, and position to compete globally in the 21st century. Include increased state agencies' use of Wisconsin's Educational Network to save money on meetings, training, and travel.

Increased use of the network will allow greater participation by tapping into geographically diverse intellectual resources enabling a global competitive edge, contribution to economic development, and continued leadership in the use of educational technology. It is imperative that we provide a distance education network to learners around the state, regardless of age or location, that delivers education without limits!

History of Distance Education in Wisconsin

Wisconsin has a long-standing history of utilizing many types of distance education applications and technologies to support its students. Unlike other states that take a fragmented approach, Wisconsin set the precedent of utilizing a cooperative approach to building and managing networks that try to accommodate the entire state. For example, the Wisconsin Association of Distance Education Networks (WADEN) brings together the managers from the regional video networks from all around the state. Together, they collaborate and schedule classes for students via the BadgerNet Video Network. Students at Superior high school could share an English class with students from DeForest, Green Bay, and Milwaukee.

Following are numerous examples of Wisconsin's early adoption of distance education as a means to provide a superior education to students of all ages in all geographic areas:

- In the 1920s, WHA-AM radio delivered programs to schools.
- In the 1950s and 1960s, students in first through eighth grade who attended one-room, rural public schools had music and art instruction brought to them by a state AM Network.
- The University of Wisconsin was a leader in implementing correspondence courses for students.
- A dedicated, bridged, audio network managed by UW-Extension at Radio Hall was offered in 1965.
- Audio graphics such as WiscView were offered in the 1970s and 1980s.
- CESA/WTCS audio networks were established in the 1980s.
- The 1980s brought the Instructional Television Fixed System (ITFS) with one-way video instruction servicing thousands of Wisconsin students.
- The late 1970s/early 1980s brought early Interactive Television (ITV) Networks, with local governance and local partnerships, to public school districts, technical colleges and the universities.
- The UW-Extension has used the Education Telephone Network (ETN) for student instruction for more than 36 years beginning in November 1965, until it was retired on May 30, 2002.
- The mid-1990s also saw the implementation of public switched network compressed video throughout the UW System and colleges.
- By the mid-1990s, there were approximately 113 PreK-12 video classrooms installed and at least one at every main technical college campus location. These classrooms were installed with several different proprietary platforms, which did not allow them to communicate with each other.

It was clear that video distance education had become a powerful and much needed educational tool, especially in small, rural school districts fighting to survive as viable educational entities in a changing world. Consequently, these school districts found creative ways to install video systems, despite their exorbitant costs. These systems allowed the districts to share classes within their closed network groups, which, in turn, enabled them to provide a basic level of quality education for their students.

The technical colleges found ways to take fiduciary leadership to help the local public schools and some private PreK-12 partners implement video network services. Independent colleges such as St. Norbert College also supported the formation of an early video network. The visionary entities that brought the concept of video distance education to the level reached by the mid-1990s called themselves the Video Distance Education "Pioneers" of Wisconsin.

It is estimated that by 1994, the "Pioneers" had invested in excess of \$35,000,000 in the Tektronix proprietary, full-motion video platform, which represented the bulk of video sites installed at that time. Other Pioneers on other video platforms also spent several million dollars to establish the JEDI, KSCADE, and Project Circuit educational networks.

In the early-to-mid-1990s, the Department of Administration implemented seven major procurements associated with its long-term, enterprise, IT strategic plan:

- long distance telephone service;
- a statewide SONET backbone network;
- a new microwave system for the Educational Communications Board (ECB);
- data access line services;
- video services;
- local telephone service; and
- network management center contract.

Preparation for these procurements began in the late 1980s to early 1990s with a several million-dollar investment with the Ernst and Young Consulting firm leading the Information Technology (IT) planning process. All state agencies participated in this process, which also led to the birth of the Department of Administration's (DOA) Division of Information Technology (Info Tech) and the centralization of the state's mainframe agency computing services under the current computing utility.

As the project leader for the procurements, DOA determined that the status of national and international standards for voice, data and video networking platforms such as ATM switching, MPEG protocols for compressed video, etc., were very unstable and undefined. This influenced the decision to conduct seven independent procurements.

Equally important was concern that blending extremely high bandwidth for video intensive data transmissions along with voice and critical state agency data transactions on the same network transport pipes would jeopardize state agency data transactions. Because of the risk involved at that time, it was sound logic to procure separate networks for each of these critical services with an eye on more stable standards being developed prior to the next procurement in the 21st century. It is important to note that the TEACH Wisconsin Ad-Hoc Committee comprised of members from the Executive Collaboration Committee published a report in late 1999 that agreed with and validated DOA's decisions regarding the network procurements.

In late 1996 and early 1997, DOA issued an RFI and a subsequent RFP for a statewide video conference network with specifications requiring compatibility with the existing Tektronix platform. DOA also issued a separate RFP for (Internet) data access lines.

In fall 1997, a Letter of Intent was issued to the Wisconsin BadgerNet Access Alliance (WBAA), a vendor consortium with Ameritech as the primary contractor and Access Wisconsin representing Wisconsin's independent phone companies, Norlight, GTE, and Tektronix as its subcontractors. The contract was also awarded to Ameritech/WBAA for the data access lines. Both were seven-year contracts with three, one-year options for extension.

There were vendor appeals and significant controversy over the proposed video contract award. TEACH Board members were concerned that JPEG technology was an outdated architecture. The TEACH Board wanted assurances that the Tektronix equipment, which was proprietary system, would, in fact, have an upgrade path to an ATM, standards-based service as was assured in WBAA's response to the RFP.

At the TEACH Board meeting on August 28, 1998, both Ameritech and Tektronix argued that concern about the obsolescence of this technology was not an issue. WBAA/Tektronix made a PowerPoint presentation to the TEACH Board about their research and development commitment and plan for migration of their platform to ATM/MPEG technology. WBAA also committed to full contractual support in all areas of concern for the complete duration of the contract, which expires December 5, 2005.

In January 2000, TEACH staff requested reconfirmation of WBAA's commitment to support JPEG technology because there were rumors Tektronix was going to discontinue production of its proprietary JPEG video equipment. Ameritech/WBAA again certified in writing its commitment to JPEG technology and assured DOA and TEACH that the State would be given at least 2 years' notification prior to the equipment's discontinuance. In addition, WBAA assured its customers that the JPEG platform would be seamlessly migrated to the next generation Tektronix-MPEG platform, as WBAA's response to the RFP had promised.

In November 2000, Ameritech/WBAA informed DOA that Tektronix had unexpectedly announced manufacturer discontinuation of not only the JPEG technology but also its entire proprietary Tektronix full-motion video platform—a line of equipment that was extraordinarily reliable. Tektronix abandoned the upgrade plan and left not only the State but also its vendor partners in the lurch, with no solutions or options for the long-term support of the existing network.

To manage this difficult situation as best it could, DOA negotiated a plan to purchase its best estimate of a sufficient inventory of JPEG products to support an expected minimal growth for the remainder of the contract; and WBAA stayed committed to servicing previously installed equipment until the end of the contract.

Though this agreement between the state and the vendor solved immediate problems, the long-term prognosis was not good. The action by Tektronix diminished the ability of the state to add additional sites for two reasons: 1) a shrinking inventory of JPEG equipment that could not be replaced and 2) increasing installation costs because of the short time remaining on the contract.

On January 16, 2001, the TEACH Board passed a resolution to work cooperatively with DOA, Division of Technology Services, soon to become the Department of Electronic Government (DEG), to begin looking for an alternative to replace the JPEG video network solution.

Financial Information

On September 17, 2001, the TEACH Board staff, under the direction of Executive Director Doris Hanson, made a presentation to the Executive Collaboration Committee and the Department of Administration. The purpose was to define the scope of the investment made to date in the video network, identify the number of users, and propose an action plan to implement a strategic planning process to address the video contract termination date of December 5, 2005.

The Executive Collaboration Committee was provided the following investment figures for Wisconsin's Full-motion Video Education Network(s). The totals are accurate as of September 2001, although some costs are estimated because there is no central record keeping for independent school districts.

TEACH Investment	\$56,000,000
<u>Legacy PreK-16 Investment</u>	<u>\$63,000,000</u>
Total	\$119,000,000

Video Classrooms:

PreK-12	282 classrooms
Private PreK-12/University	16 classrooms
Technical College	89 classrooms
UW System	11 classrooms
<u>CESA</u>	<u>9 classrooms</u>
Total	407 classrooms

- Approximately \$19,000,000 is invested in video classroom equipment owned by the schools.
- Approximately \$100,000 has been paid to telephone companies for video service costs.
- The BadgerNet video contract expires December 5, 2005. (This concludes the initial 7-year contract period.)
- The manufacturer of the current proprietary JPEG technology platform discontinued manufacture in January 2001. As a result, there is no migration or upgrade path for the existing system.
- The BadgerNet Video Network is used six days a week from approximately 7 a.m. to 10 p.m. at night.
- Twenty-five distance education consortia depend upon these video services for semester-long classes that would not otherwise be available to their students.
- A subset of approximately 15 other consortia conduct education, training, professional development, and administrative business on the video network.
- All full-motion video sites in the state can connect to each other.
- The network provides statewide, national, and global video connectivity.
- The network provides Internet access to the districts.

Groundwork for the Creation of WENCC

The TEACH Board created the TEACH Ad Hoc Video (Distance Education) Technology Evaluation Committee, which met from November 1998 through June 2000, to review the technology in place for the BadgerNet Video Network. Committee members were:

- Doris Hanson, TEACH, Committee Chairperson
- Mr. Jonathan Barry, TEACH Board
- Mr. John Beck, St. Norbert College (representing Wisconsin Association of Independent Colleges & Universities)
- Mr. James Bowen, TEACH Board
- Ms. Neah Lohr, DPI
- Mr. Ed Meachen, UW System
- Ms. Jennifer Reinert, DOA
- Ms. Pamela Wegner, Alliant Energy Corp.

The Committee stated that the issue of future standards is critical and recommended that the issue of standards is critical and must be taken into consideration for long-term strategic planning. In addition, the committee recommended that end user functional needs must be the basis for making future decisions.

The committee identified three action items:

1. Develop agreed upon strategies to increase the exposure of students and educators who will benefit directly from the enterprise BadgerNet Video Network.
2. Partner in the development of the BadgerNet Network so that multiple technologies can be supported over a common network.
3. Research emerging technologies and conduct pilot projects that can become cost effective, scalable models for PreK-20 and Lifelong Learning education.

In August 1999, Associate Vice President Ed Meachen and the UW System (UWS) Educational Media Technology Council (EMTC) recommended that more comprehensive input be sought from the various councils in the university system. These councils were concerned with delivering and enhancing teaching and learning using technology, particularly in the area of distance learning technologies. The UW System distance education study group (DESG) was formed in November 1999 in response to this request.

The following conclusions emerged from the first meeting of the DESG on December 13, 1999:

- A focus on teaching and learning is essential.
- Clarification of the working group's mission and goals is essential.
- The process must address instructional technology in general, not just instruction via video conferencing.
- Criteria for system-wide strategic investments in distance education are important and should be addressed.

Executive Collaboration Committee Meeting Summary

The TEACH and UW study committees each independently arrived at the same basic conclusions in their reports. Executive Director Hanson recommended that all these committees come together as one, working in conjunction with DEG to facilitate development and implementation of a plan to address the December 5, 2005 deadline. The committee would work under the following guidelines:

- The committee shall be named the Wisconsin Educational Network Collaboration Committee (WENCC).
- Each Collaboration Committee Executive shall appoint a representative to this committee to represent his or her education sector.
- A Cooperative Educational Service Agency (CESA) representative will be invited to participate.
- The WENCC team will report its findings to the Executive Committee Sponsors.
- The WENCC team will develop, by September 2002, a business case to support the WENCC mission, vision, and principles based upon the findings of a needs analysis.
- The WENCC team will work in cooperation with the Department of Electronic Government to procure and implement a distance educational network by December 5, 2004.
- TEACH will provide project leadership for the first part of the project, including conducting the needs assessment and writing the business case.
- DEG will provide project leadership for the second part of the project - to procure and implement the new system.

Process

For the first segment of the project, WENCC, with TEACH as project leader, would spend 10 months obtaining the information for the development of a business plan to present to the Legislature. During that time, WENCC would:

- Develop the process to obtain the necessary information.
- Gather the information to do a needs assessment.
- Write a business case using the information gathered.

For the second segment of the project, WENCC, with DEG as project leader, would spend approximately 15 months to write a Request for Information (RFI) and a Request for Proposal (RFP) and then 18 months for implementation once the contract is awarded.

The data gathering would use facilitated focus groups, surveys, a Request for Information (RFI) and interviews to target a number of audiences as listed below:

- Facilitate focus groups with a variety of PreK-20 end users including public and private K-12, higher education institutions including the technical colleges, UW System and private universities and colleges.
- Facilitate focus group with education special interest groups.
- Facilitate focus group with representatives of Wisconsin public library systems.
- Send a survey from DPI and TEACH to all 426 public school districts (to be completed by administrators and technology coordinators).
- Submit a request for information from the Wisconsin Association of Distance Education Networks (WADEN), the directors of which manage the 40 regional networks around the state.
- Send a survey created by WENCC to teachers in all 426 public school districts requesting a response from the classroom educators in Wisconsin.
- Interview state government agencies regarding their current and planned use of distance education technology.
- Survey representatives from deaf and hard of hearing state, university and technical college employees.

Focus Groups

To ensure it would get comprehensive information on educational and administrative needs at every level, WENCC included every functional position within the educational structure in the focus groups. The following were invited to facilitated focus groups held from March 7, 2002, through June 6, 2002:

- Administrators: PreK-12 District Administrators and Superintendents, Business Managers, Principals, Technical College Presidents, Private College Presidents, UW System Chancellors, CESA Administrators, Library System Presidents, CEOs, Wisconsin Education Industry PreK-20 education sectors;
- Classroom Instructors: Teachers, professors, curriculum specialists, curriculum integrators; and
- Technology Managers: Higher Education Chief Information Officers, PreK-12 Technology Managers, CESA Technology Integration Specialists, DPI technology consultants, IT managers

Focus Group Process

Each Focus Group met in a professionally facilitated session. Sessions began at 9:00 a.m. and concluded by 3:00 p.m. During the day, attendees had the opportunity to participate in large and small group facilitated exercises. All groups were asked the same seven questions:

- 1) What digital technologies are you currently using to deliver instruction at a distance or support instruction in a classroom?
- 2) How effective are these technologies serving your teachers and learners?
 - a) How do you measure this effectiveness?
- 3) How critical are these technologies to achieving your learning objectives?
- 4) What are the five most important educational needs for which digital technology could provide a solution?
- 5) What audiences are you not able to serve adequately now and what audiences do you see emerging whose needs cannot be met through traditional classroom/campus delivery methods?
 - a) How do you know?
- 6) What does instructional delivery look like in 2010?
- 7) What digital technologies are needed to provide access to information and opportunities for life-long learning to all Wisconsin citizens?

The findings of each session were documented, and WENCC analyzed and summarized the documentation from all sessions. These findings have been incorporated into the Themes, Conclusions, and Recommendations included in this business case. (*For additional information see Document III, Wisconsin Educational Network Business Case Appendix.*) Following is the list of the Focus Groups:

- Milwaukee Education Community (March 7, 2002):
This group represented CESA 1 and PreK-20 institutions from all educational sectors in the Milwaukee area. WENCC saw this as a unique area with specific collaborative issues that primarily pertained to this region. Private colleges and universities, PreK-12, library systems, technical colleges, classroom educators, administrators, and technology managers participated.
- CESA Information Technology Service Integrators (CITSI) and Chief Information Officer Group (April 18, 2002):
This group was comprised of statewide educational technology managers. Each CESA was represented and CIO's from the Technical College System, University of Wisconsin Campuses, and Private Colleges and Universities comprised this group. Their specialties are educational technology, professional development programs, and educational technology curriculum integration.
- Library Focus Group (April 15, 2002):
This group was comprised of Library System managers, technology managers, and administrators. All library systems and the libraries they support and manage were represented. DPI personnel, who interface with the libraries, also attended this focus group meeting.
- Teacher Focus Groups (April 22, April 26, May 3, 2002):
PreK-20 classroom educators were invited and attended any one of three regional focus group meetings held in Baraboo, Chippewa Falls, and Green Bay.
- Video Distance Education Network Managers (WADEN) Focus Group (June 5, 2002):
This group was comprised of the video distance education network managers who manage the majority of the independent video distance education networks identified in the Wisconsin Association of Distance Education Networks (WADEN) survey response section of this business case. Many individuals in this group are Wisconsin's distance education "pioneers". They manage the delivery of educational content to the 400 plus video classrooms in the state as well as several other distance education delivery systems.
- Northwest Educators Focus Group (June 6, 2002):
This group represented PreK-20 institutions from throughout the northwest portion of Wisconsin. Like Milwaukee, WENCC saw this part of Wisconsin as a unique area with specific collaborative issues that primarily pertained to this region. Private colleges and universities, PreK-12, library systems, technical colleges, classroom educators, administrators, and technology managers participated.

Information gathered from the focus groups is extremely important for numerous reasons:

- The expressed need for continued support of the installed, dedicated video classroom, which is probably the most expensive and data intensive application, must continue to function with a high degree of quality of support in the next generation Wisconsin Distance Educational Network.
- Video technology is an emerging technology. It changes rapidly, and there are still no international industry standards for equipment. In addition, transport technology continues to change rapidly. These rapidly changing options make choosing the right technology for future growth difficult at best.
- There is much concern about the current costs and the perceived limited use by the Wisconsin student population who benefit from the service.

- There has never been a complete analysis or documentation about the use and value of the current statewide video network service at the IT planning and state executive management level. As a result, there is considerable confusion and possibly unwarranted negative perceptions at the stakeholder decision-making level about the current video network.
- This analysis was designed to obtain the facts about use and value to provide the stakeholders access to unbiased facts for their decision-making purposes.

Summary of Focus Group Responses

The Wisconsin Educational Network Collaboration Committee conducted eight focus groups between March 7, 2002, and June 6, 2002. Focus groups were held in Milwaukee at the Milwaukee Area Technical College, at Waukesha Technical College, CESA 10, CESA 7, UW-Baraboo, Stevens Point, Rice Lake, and the South Central Library System Offices. Following are summaries of responses to the seven questions asked at each of the eight focus groups (numbers in parentheses report how many of those groups gave a similar response)

1. What digital technologies are you currently using to deliver instruction or support instruction in the classroom?

Two-way videoconferencing

- Distance education labs (7) supporting either advanced courses, meetings, conference, or job interviews;
- Technologies supporting these included DS3 (6), ISDN (6) and IP (4);
- Desktop videoconferencing (3);
- Voice over IP (4), phone or audio conferencing (4); and
- ATM(1), IP multicast (1), and audio-graphics (1).

Web resources

- Web use to find resources (8);
- Professional development resource (3), including for facilitated online learning communities (1);
- Reference tool, noting the Badger link database (2), online library catalog (2) and calling it a virtual reference (1) or library (1); and
- Web conferencing or document sharing (2).

Web courses

- Web courses (7) on platforms like Blackboard or WebCT; and

- Virtual school and virtual classes on the Web (5) with blended courses of both Web and classroom formats (2).

Video resources

- Video (6) whether on cable TV (4), video or film (3), DVDs (3), or streaming video (3);
- Access to digital television (HDTV & DTV) (2), video servers or other in-house distribution (2), and T1 video (1); and
- ITFS satellite video (4), telecourses (2), and laser discs (1).

Functionality

- Email (7);
- Digital cameras and digital editing (7), and video or TV production (3);
- Software (5);
- Technology for virtual field trips (2), Web page design (2), and programs like the Jason project (1); and
- TDD for the hearing-impaired (1).

Equipment

- Computers in classes and labs (3), projectors (4), laptops (3), and smartboards (3).

Portable equipment

- PDAs (6);
- Wireless tools (6) such as LANs, laptops or wireless labs; and
- Satellite Internet used on bookmobiles (2).

Administration

- Learning management systems for course administration (4) along with the use of record keeping systems for grades, etc. (3); and
- ILS or library automation systems.

Connectivity

- LANs (3), virtual private networks (VPN) (1), firewalls (1), and such connections as DSL, cable modem, T1 or OC3.

Library group focus

- Their responses tended to focus on distance education labs, computer availability, functionality (such as email, software, and digital cameras), the Web as a resource or database, connectivity issues, automated library systems, and portable equipment (PDA and wireless).

2. How effective are these technologies?

The focus groups that responded to this question seemed to take different directions in answering the question. Some rated the various technologies while others used descriptors to illustrate the positives or negatives.

Effective Technologies

- Full-motion video (5), ISDN (5), and Internet applications (5) were by far the most common technologies rated as effective for distance education. T-1 video (3) and various other telecommunication systems (3) were also rated as effective.
- Satellite, ITFS, webs conferencing, digital video production, software (Blackboard, etc.) were mentioned equally (2) in the focus groups.
- Others mentioned as a single time were streaming video, wireless technologies and in-house distribution.

Feedback mechanisms

- In this area the most common methods of attaining feedback included course evaluation (2), evaluations of teaching and learning (2), number of people and programs served (3), and the faculty and student perceptions.

Effectiveness of the technology depends on:

- Training and time to prepare to use the technology (6) were the most important factors in the effectiveness of the technologies according to the focus groups.
- Secondly, ease of use (2), and equipment reliability and quality (3) were also very important to the effective use of the technology.
- Other factors relating to effectiveness of the technologies included bandwidth, scheduling, elimination of fear of technology, and instructional design.
- Other factors mentioned by the groups included time savings, effective cost (3), equity, and the ability to do new things (2).

How do you measure this effectiveness?

The groups identified the measurements as surveys, course enrollments, availability at multiple sites, number of conferences, student outcomes as measured by job placement, and amount of traffic on the network. Only two (2) groups answered this question.

How critical are these technologies?

Focus group participants appear to have interpreted this question differently—some identifying critical technologies and others giving reasons why previously mentioned technologies or outcomes they enable are critical, so there are fewer common responses. This summary includes some of each of these types of responses.

Platforms

- Many (6) said interactive television (whether over DS3, ISDN, or IP) was critical; the value of distance education labs was also noted (3).
- The Internet was also seen as critical (5) with libraries noting their service of providing Internet access available to the public.
- Media distribution systems (i.e. video servers, streaming video, cable, other video formats) were also seen as critical (2). LANs & WANs were also noted (2).
- Also mentioned were streaming video (1), wireless (1), access anytime, anywhere (1), classroom support technologies (i.e. computers, projectors, digital camera, etc.) (1), cell phones (1), and the satellite Internet access used by library bookmobiles (1).

Content

- Both the expanded learning opportunities made possible by technology (3) and tools like Blackboard & WebCT (4) were often noted as critical. Access to virtual libraries or the systems that supported these was also critical (3).
- Also noted was content such as that from virtual schools (1), NOVA Net (1), virtual field trips (1), programs like Jason Project, Webquests, etc. (1) and computer science courses (1).

Functions

- Email was often seen as critical (4) as was online research (2) and digital content and video production (2). Telephone conferencing was also noted (3).
- Other functions noted as critical were Web page design (1), and Web conferencing (1).

Other school goals

- The role of technologies in reaching rural communities was seen as critical (2).
- Other school goals greatly assisted by technology included professional development (2), accounting and financial functions (2), online student services and student records (2), and data management (1).

3. Comments on why technologies are critical

These comments from the WADEN focus group are indicative of comments also made by other focus groups in response to this question:

- Increased educational opportunities and access for AP/Advanced classes, foreign language classes, unique “niche” classes (ground level, vet science, astronomy), and technical college classes for H.S. and tech college students.
- Levels playing field for all schools with statewide access to same classes.
- Enhances technology literacy of graduates.
- Broadens cultural perspective of students through interaction with other schools.
- Teachers have increased professional development right in the classroom.

4. What are the five primary needs for which digital technology could provide a solution?

Learning opportunities

- Technology was commonly seen as a way to link people and communities for lifelong learning - connecting diverse populations (7). It could also provide learners with access to content and course offerings and expanded educational opportunities (including real life situations and global connections) (7).
- Technologies are seen as able to help meet learners’ various personal needs and respond to their learning styles (5).

Learning support

- Technology was seen as assisting with assessment (4) as well as administration (3) and resource management (1).

Access

- Equitable access to technology was seen as a key need by every group (8).
- 24/7 access to resources by students was seen as a way technology could help (4).

Accountability

- Technology was seen as supportive of accountability in its ability to measure effectiveness in learning (2) and offering cost-effective approaches through collaboration and the sharing of resources (5).
- Technology was seen as contributing to the economic development of the state (1).

Professional development

- Nearly everyone cited the use of technology in helping with professional development (7).
- They also noted the need for funding for technology, tech support and the training of teachers (4) as well as noting that teachers needed time to learn and prepare for classes using technology (4).

Connectivity

- Groups saw technology as able to help by providing a bigger pipe (6). One example noted being able to tie in more than 4 groups via distance learning classrooms.
- Interoperability and the use of standards were also common (4) along with a need for the system to be user-friendly (3). Librarians saw that as a key to sharing digitized collections (1). Standards were also seen as a key to creating a user-friendly architecture (2).

Library group focus

- Librarians focused on the linking of communities, expanding educational opportunities, interoperable systems with a lot of bandwidth, equitable access on a 24/7 basis by learners, and the use of technology for administration and resource management. Preserving intellectual freedom was also noted.

5. What audiences are not being served and what are the potential audiences?

The list of groups not being served or listed as potential is extensive covering almost all entities that are not part of the public school network today.

- Government agencies (8) such as prisons, local governments, special schools, and students with foreign heritage (8) were the most common groups mentioned.
- Among student related groups, home-schooled (6), parents (4), homebound (5), private schools (3), expelled/dropouts/suspended students (4), and other educational institutions outside of Wisconsin were the most common.
- Among adults, lifelong learners (4), military (2), senior citizens (5), community members (5), technophobes (4), teachers and staff (3), advanced degree seekers (4), and those already employed (4) were most often mentioned.
- Other categories included business and industry (5), dislocated workers (1), lower economic levels (1), and visual/hearing impaired (2).

6. What is your vision of instructional technology for 2010?

Principles

- Instructional technology is seen as being more personal and permitting student-centered learning (7); although it is technology it still retains a human touch (5) (i.e. libraries will still be a place in the community with ‘hard goods’, etc.).
- Learning will be done in new ways (more facilitative, etc.) (4) with more recognition of the different learning styles (3) (perhaps via individual educational plans – IEPs – for everyone (2)).

Access

- Technology will provide more access in a more equitable fashion (7) whether a learner is homebound, hospitalized, jailed or in a remote area.
- Access will be wireless (5) and often handhelds (6) (one user-friendly device).
- The equipment will be more reliable (5) with a computer for each student and teacher (3), with plenty of library workstations (1). Access will be transparent and widely available (3).
- This access may be the result of one large network—with greater bandwidth (3), perhaps broadband (3) or Internet 2 (1). There will be smart classrooms (1) or large distance learning rooms (1) or wireless interactive TV in every classroom (2). These could be made available year-round for use by other segments of the community as well (2).
- Key components will be interoperability (2), open source (2) and a standards-based design (2).

Educational opportunities and content

- Technology can make possible virtual community and collaboration cross-generational (7).
- Content will be interactive, rigorous, engaging with a great deal of functionality (4).
- Directories will make searches simple (3), supported by the real life services of librarians who specialize in information (1).
- Classes will be hybrid in format, combined with the web (3); courses will adapt to available technology (1); and the content will be driven not just by business needs and pressures, but by community values and goals (2).
- Content will be on-demand (2), offering global information and connections (4) (sister schools as one example), authentic real-world information (2), access to experts (1), and authentic assessment (3).
- More distance learning is available (3) and can support team teaching and there is access to content from libraries, museums, government agencies, etc. (2).
- Education in 2010 supports lifelong learning (1), technology that supports critical and creative thinking (1) and can use ‘push’ technology to give learners what they need (1).
- Students will have access to online registration (1) and technology-based open enrollment programs (1).

Professional development

- Technology will provide job-embedded, professional development (4), giving teachers access to tips on using technology as well as current research on learning.
- Administration will support the use of technology and the need for teachers to be trained and have preparation time for using technology (3).
- Teachers and other staff will be better trained in technology (2), learn better in pre-service training (1), use E-portfolios of their work (1), and technology will expand the teacher pool (1).

Functionality

- Technology in 2010 will offer voice recognition (5) and easier assistive technology (4).
- It will be easier to use (2) and adaptable from simple to complex needs of users (2).
- Specifics included flat plasma screens (1), smart cards for accessing data (1), and batteries capable of supporting next generation uses (1).

Security issues

- Needs for security, firewalls, and filters will be addressed (2).
- Privacy will cover data like records, financial information, etc. (2).
- Coordinated ID authorization and access will be provided (3), such as in statewide library card systems (1).

Affordability

- Technology will be affordable (4), supported by statewide and regional purchasing programs.
- New funding models will be needed (3), including collaborations to jointly develop programs and manage costs; the effectiveness of technology will be evaluated (1).
- Funding models may be supported by commitments by the State of Wisconsin to keep schools current with technology (1), partnerships of private and public groups (2), and business driven initiatives (1), possibly with more corporate schools.
- Some saw technology in 2010 as deeper and broader (1) with others saying its use may be less with fewer dollars available (2).

Library group focus

- Librarians were concerned with keeping the human element amidst change, having more learner-centered approaches, developing new collaborative funding models, having more reliable technology with more equitable access, having better assistive technology and ID authorization, and virtual learning communities with easier access to on-demand content.

7. What do we need for life-long learning?

- The most sensitive points seemed to be advertising and awareness of the potential for life-long learning (5) and the need for real-life applications (4).
- The groups seemed to feel that the potential is certainly there but there is a strong need to educate the public that these services are available and that there is an application to the real world.
- Other items included easy to use technology (2) adult instructional methods (2), low or no cost (2), perceived high value (2), reliable technology (2), maintain and improve technical skills (2).
- Also included were items such as user-friendly, more technical resources, subsidy for low income, portability of the technology, access and opportunities, and removal of roadblocks like distance, paperwork, and location of sites.

WENCC Teacher Survey

Summary

- **The total number of survey responses received was 9,123. Of them, 9,036 surveys contained valid data and were analyzed in this report. This represents 17% of the PreK-12 teaching community. According to the UW Survey Center – this is an unprecedented achievement.**
- Over 97% of the teachers surveyed indicate that students, faculty and administrators have access to computers and the Internet.
- Over 87% of teachers report they would like to expand their knowledge of computers and technology.
- Teachers report heavy use of the computers and technology - 82% for gathering material for class; 80% for administrative work; 65% for communication with parents, administrators and students.
- Almost half the teachers surveyed report using technology during classroom instruction time, while nearly 70% of the teachers said they would LIKE to be able to use technology to deliver their classes.
- The report indicates that over 77% of students who have access to computers spend 1-5 hours a week using them.
- Teachers report the barriers that limit their use of computers include teacher training, money, availability to equipment, access to curriculum-related material, and access to technology (including the Internet).
- Only 26.3% of teachers report they contact a subject matter expert to enhance their classroom experience, but 86.6% report they would LIKE to contact a subject matter expert with distance education technology.
- Approximately 10% of teachers report using an interactive video service like BadgerNet, but almost 50% indicate they would like to use a video service.

Survey Process

WENCC was interested in determining the needs of as many Wisconsin educational institution and training organization educators, and distance learners as possible before the RFI/RFP procurement process begins. This is important so that the next network procurement will meet the needs of as many users as possible.

One of those groups is the classroom teacher. As the end-user and integrator of technology into the classroom experience, the classroom teacher's opinion is extremely important. WENCC was interested to know and understand what types of technology the teachers currently have, what types of technology they would like to have, and how valuable a role technology plays in educating the next generation. (*For additional information, see Document III, Wisconsin Educational Network Business Case Appendix.*)

UW Survey Center Involvement

In March of 2002, the WENCC committee's Survey Team visited the UW Survey Center to ask for assistance in designing, analyzing and reporting the Teacher Survey. After the team defined the project scope, Mr. Matt Sloan, Project Director, was assigned to assist with the project. Mr. Sloan worked on the UW System Survey of Technology Resources (2001) and has extensive experience working with surveys in the field of education. It was tremendously helpful to have the benefit of Mr. Sloan's experience and expertise as he guided the development of the teacher needs assessment survey. Mr. Sloan also had practical information about formatting the survey and tips on increasing the number of responses we would receive. His input was invaluable to us in all stages of this survey.

Mr. Sloan first began with a review question for us: What were trying to determine? At a high level, we knew we wanted to assess the needs of classroom teachers so we could design a network to meet those needs. However, that description, while accurate, proved too vague to design a study. We needed to refine the questions to garner what we really wanted to know. The following are the three questions to be answered:

1. Are teachers currently using technology in the classroom?
2. What would teachers like to be able to do both administratively and in the classroom – this may or may not include current technology usage (so that we can focus on what technology can assist them)?
3. What do they find valuable in current and future technology (so we could focus on those needs)?

Additionally, we were interested in assessing the attitudes of the teachers themselves. It is very important to WENCC that the technology with the best fit be purchased and deployed, but we wanted to know if the teachers agreed with that concept. We were also interested to see if rural teachers' answers were significantly differently from their urban and suburban counterparts.

The Survey Design

The survey was designed in six sections:

1. Computer and Internet Use
2. Current Classroom Practices
3. Interest in Technology in the Classroom
4. Technology Barriers
5. Value of Technology in the Classroom
6. Professional Development

It was our intent to assess the availability and use of computers and the Internet for classroom teachers as well as teachers' attitudes toward computer use. We wanted to see how much teachers are using computers, how they rate their skills, and whether they see the need for additional training. The WENCC survey mailing roughly corresponded to the Department of Public Instruction/TEACH survey, which asks some similar questions of the school administrator and technology coordinator. (*For additional information, see Document III, Wisconsin Educational Network Business Case Appendix.*)

Sections 2, 3, and 5 of the survey contain many similar questions asked slightly differently. This was done to assess what teachers are doing today, what they would LIKE to be able to do if the technology could support it, and what they see as valuable. We wanted to see if teachers were interested in doing

things that they are not currently doing. We also felt it was important to explore the question of ‘value’ in the teaching experience.

The survey was designed, reviewed and mailed to 426 school districts on April 29, 2002. We also created a web-based survey that classroom teachers could complete on-line if they chose. We accepted responses on the survey until June 14, 2002. We received 9,123 completed surveys, which represents 17% of all classroom teachers.

Survey Results

Computer and Internet Use

In the first section of the survey, we asked some questions regarding computer and Internet use to establish how students as well as teachers are using them. Establishing current use was the first step in assessing needs, especially when we were not sure what the common practices are in the education community. We wanted to establish how often students had access to computers to address the issue of computer availability.

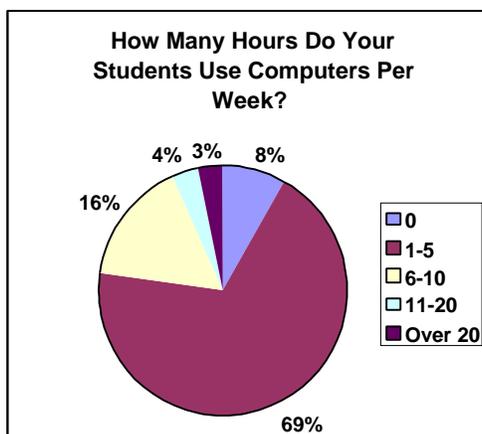
We also wanted to know if students were learning about computers for their own sake, or if the computers were used as a tool to learn about other things. Our assessment of teachers probed their uses too. We wanted to know if computers were assisting them administratively with lesson preparation, delivery of coursework, and assessment and evaluation of students. The components of these practices lie with the computer and Internet.

Student Use of Computers

Hours of Student Use of Computers

We asked teachers: On the average, how many hours per week do your students use computers. We understand this is an estimate, but we feel the classroom teachers are in a better position to answer this question than technology coordinators or administrators.

Students are estimated by their teachers to use computers in school 1-5 hours a week (68.7%), which initially seemed low to us. That perception, in part, is due to the number of hours per week we spend on our computers. To keep this in perspective, students appear to have at least one hour a week on a computer and might have as much as one hour per day. Without knowing how many computers are available, it is possible there are not enough computers to meet student needs. It is positive to note that students DO have access and use computers in school.



How Students Use Computers

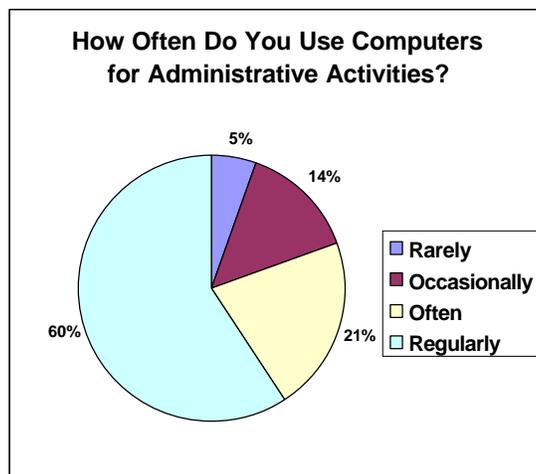
We were very pleased with the results of question 104 that asked teachers in what settings students use computers. They responded that 72.6% of the time, students are using computers during classes primarily devoted to developing skills other than technology skills but using a computer to help them. Examples of ‘other skills’ include writing, practice tests, and research. This response indicates students are using the computer as a tool to advance their knowledge in other academic areas. While learning specifically about computers for their own sake is an endeavor with merit, it is important to note that computers are also used as a tool for other learning. Having a better idea what students use computers for, we wanted to know how teachers used their computers.

We asked a cluster of questions to assess for what teachers are using their computers. Specifically, we wanted to know if they used their computers for administrative tasks, instructional preparation, communication with administration, staff, parents and students, or just surfing the web. We were surprised by the teachers’ responses. We thought we would hear that teachers were using their computers to automate their routine administrative tasks, enhance their preparations by effectively using the Internet, and ease communication with parents and administrators. The results indicate far more utilization than we anticipated.

Teachers’ Use of Computers

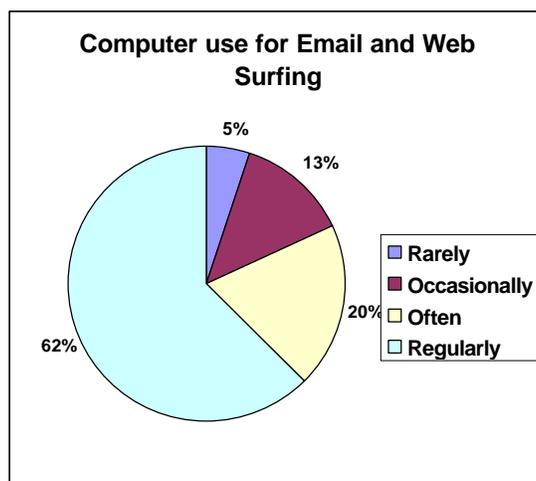
Administrative tasks

We asked teachers how often they used their computers for administrative tasks and found unexpected results. When we combine the results of categories ‘often’ and ‘regularly’, we find teachers using their computers 80.6% of time. We expected to see a lower number since the majority of survey respondents have more than 11 years teaching experience. Perhaps it is unfair to assume that more established educators would be slower to adopt new techniques, like the use of the computer. The data indicates that assumption was completely wrong. It is clear that teachers are using their computers, even educators with years of teaching experience, to automate their daily routines.



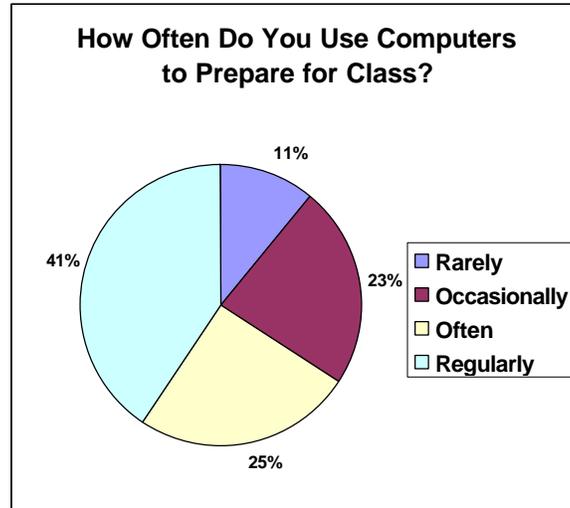
Teachers' Use of Computers for Email and Web Surfing

We asked teachers to tell us how often they used a computer to “surf” the Internet and send email. These are basic computer skills that can be self-taught, but we wanted to be sure the PreK-12 educational community embraced these activities like the general public. The results indicate they certainly have. More than 60% of teachers surveyed report using the computer for email and web surfing regularly. If we combine the ‘regularly’ category with the ‘often’ category, the result exceeds 80%.



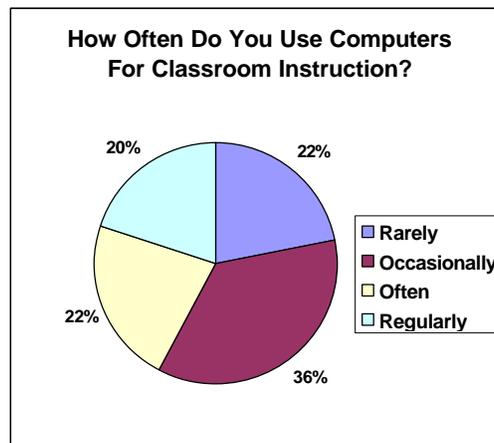
Preparation for Class

We asked teachers how often they used computers for classroom preparation, including gathering materials and generating lesson plans. We combined the results from categories ‘often’ and ‘regularly’ for a combined 65.9% or two-thirds of teachers responding. We were unaware how embedded this computer is to the preparation and development of lessons. Based on these results, it is clear how valuable the computer has become to the teachers as they prepare to deliver their daily classes.



Using Computers during Classroom Instruction

To properly prepare an accurate needs assessment, we wanted to fully understand how technology is being used in classrooms during instruction time. We have already explored the use of computers for classroom preparation and administrative activity. Now we wanted the teachers’ perspective on how often computers are used during class. The graphic below depicts the results of that question. Teachers report they occasionally use computers about one-third of the time. If you combine the ‘often’ and ‘regularly’ categories, the report shows computer use at 42%.

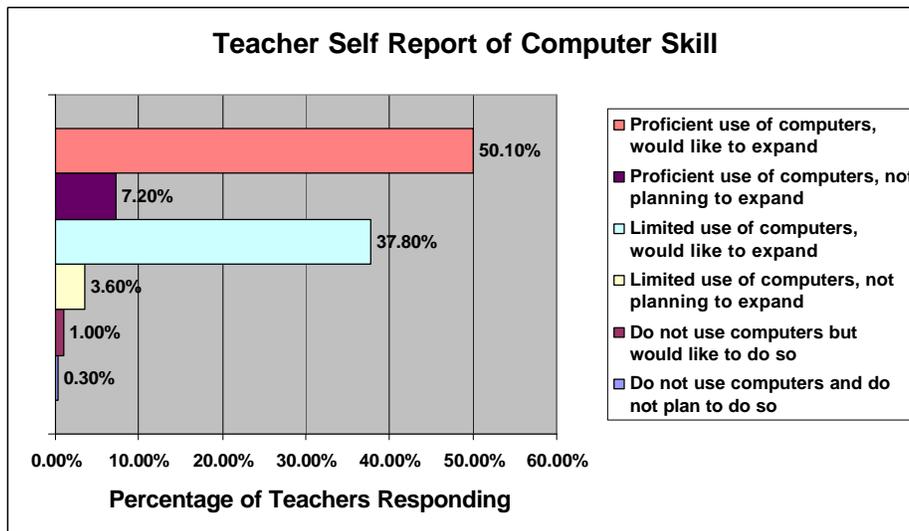


Teachers’ Self Report of Computer Skills

We asked a two-part question about teachers’ sense of computer proficiency and desire to acquire more computer knowledge. We wanted to see how teachers perceive themselves as technology users. Technology is advancing at an extremely rapid pace, so it is important to know if we are overwhelming teachers with so much new information they cannot keep up. This is a concern in areas outside education as well. The answers we received on both parts of this question intrigued us.

More than half the teachers indicated they were ‘proficient’ users of technology, which indicates they are very comfortable with the educational application of technology. When we combined the ‘limited’ and ‘proficient’ use categories, we find 87.9% of teachers indicate they would like to expand their knowledge. This is a strong sign of teacher willingness to understand and incorporate technology, specifically the

computer, into their classroom routines. This information should be satisfying to those who provide funding for educational technology.



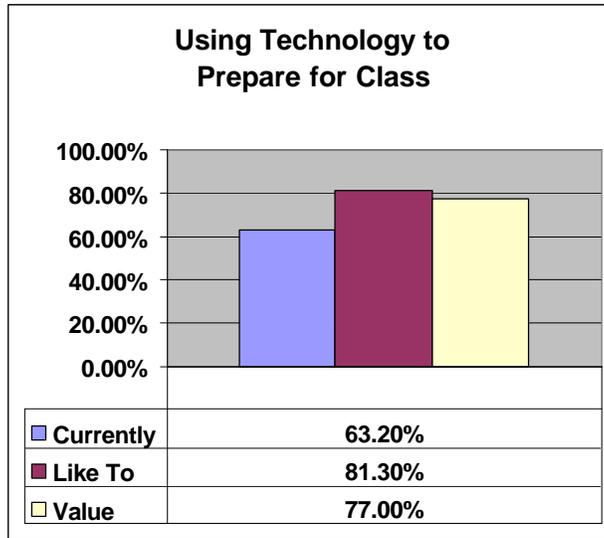
Preparation and Delivery of Instruction Using Technology

There are several questions that, when clustered together, give us picture of teachers' current preparation activities and delivery of content using technology. We were pleased to see so many teachers preparing for class using the technology available to them. The following examples bear this observation out. Question 201 asked teachers how many classes they prepare for using technology. Question 301 asked teachers how many classes they would LIKE to prepare for using technology. Question 501 asked teachers how VALUABLE is it to prepare for classes using technology.

Using Technology to Prepare for Class

The graph below shows 63.2% of teachers say the use technology to prepare for 'some' or 'many' of their classes using technology indicating they are getting good use of the technology available to them. When asked how many classes teachers would LIKE to prepare for using technology, 81.3% reported 'some' or 'many' indicating a desire to use technology more frequently than they do. The difference between these two responses is nearly 20 percentage points. The analysis of section 4 provided insight into the reasons teachers would like to use technology more than they report actually using it.

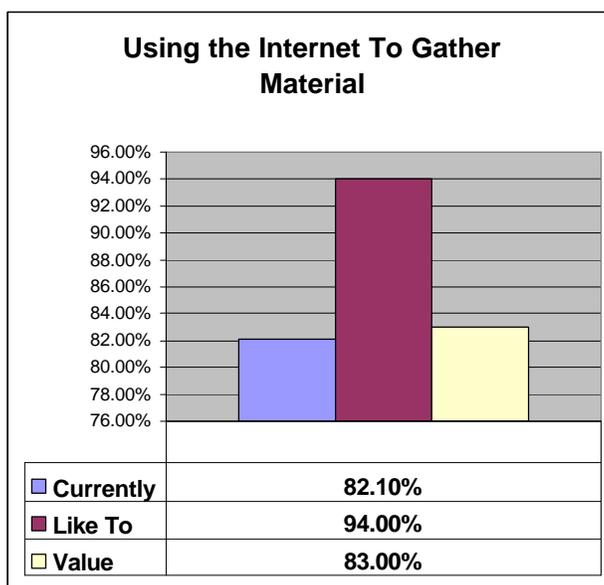
Finally, we asked teachers how valuable it was to prepare for class using technology. In this case that which the teachers would like to do is also what they find as valuable.



Using the Internet to Prepare for Class

We also asked teachers specifically about using the Internet to prepare for classes. Using the same format, we asked how often teachers are currently using the Internet to gather material for their classes. Teachers report overwhelmingly (82.1% ‘occasionally’ or ‘often’) they use the Internet as an integral part of their class work preparations.

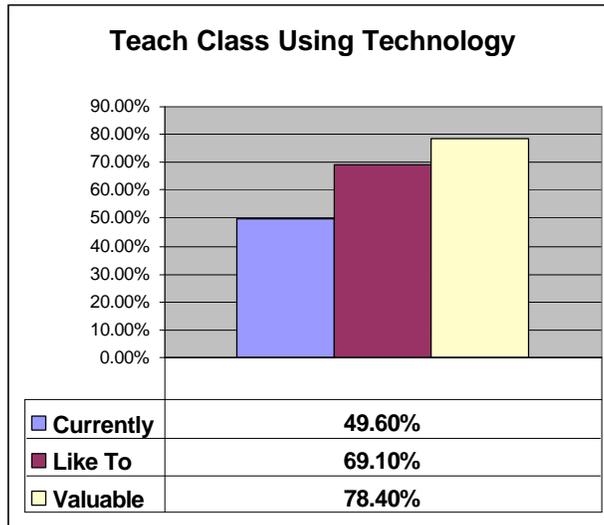
A separate question asked how often teachers would LIKE to use the Internet to gather material for their classes. We found that teachers want to use the Internet nearly all the time (94% ‘occasionally’ or ‘often’) indicating teachers can find what they need most effectively using the Internet as medium to gather it. Finally, we asked how valuable is it to use the Internet to gather material for their classes and found a correspondingly high value. In this case, 90% of teachers reported using the Internet as ‘somewhat’ or ‘very’ valuable to gather material for class. This question alone indicates how important using the Internet has become to teachers based on the their own reports of usage and value.



Teaching Class Using Technology

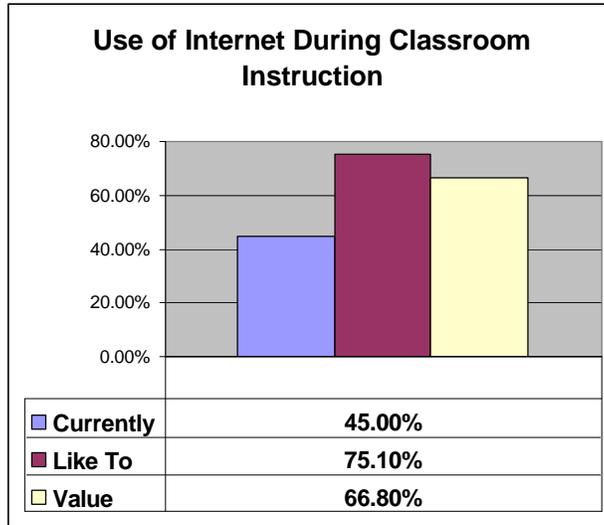
In addition to classroom preparations, we asked a cluster of questions surrounding the delivery of instruction using technology. It seems a logical progression to move from gathering material and creating lessons plans using technology as an aid, to delivering the course material with technology. The results we found indicate teachers are using technology far more often to deliver coursework than initially anticipated.

When we asked teachers how often do you teach class using technology, we were surprised to see that 49.6% of teachers reported ‘some’ or ‘many’ of their classes were delivered using technology. More than two thirds of teachers (69.1%) indicate they would like to deliver their classes using technology and 78.4% say it is valuable to them to deliver classes using technology. We expected these numbers to be much smaller. Such a large percentage indicates teachers are adopting new techniques to deliver classroom material, and they are doing it faster than expected. Data from the DPI survey indicates that the deployment of classroom technology (specifically computers) is a relatively recent effort. Based on these results, the recent deployment of technology is being utilized well.



Using the Internet during Classroom Instruction

The second cluster of questions specifically addresses the Internet as part of classroom instruction. We anticipated teachers would be more cautious with the use of the Internet during class time, but the results do not support our assumptions. In section 2, teachers were asked how often they currently use the Internet during classroom instruction. Nearly half the teachers (45%) indicated they use the Internet ‘occasionally’ or ‘often’ during classroom instruction. When asked how much they would LIKE to be able to use the Internet, we were shocked to see that three quarters (75.1%) indicated they would like to ‘occasionally’ or ‘often’ be able to use the Internet. Finally, when we asked teachers how much they value using the Internet to deliver course work, 66.8% indicated it was ‘somewhat’ or ‘very’ valuable. As indicated previously, we anticipated teachers to be more conservative than these results indicate. In this case, it is good to be wrong, especially since the adoption of new techniques using technology could significantly affect the learning experience for the next generation of students.

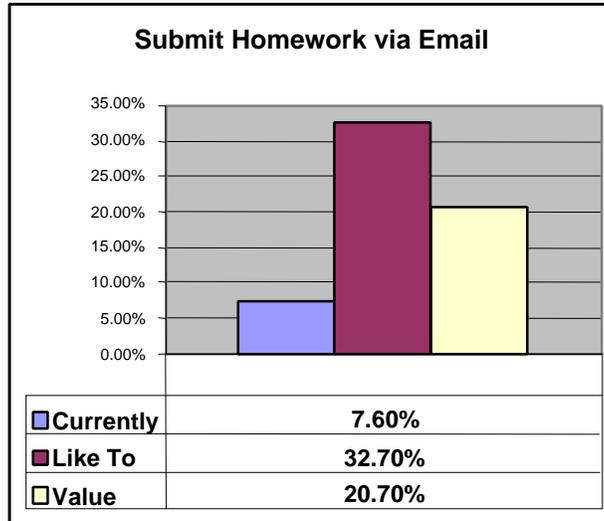


Non-traditional Uses of Educational Technology

In our assessment of PreK-12 teachers, we wanted to see how much creativity exists using technology as a tool. To do this we asked some questions about what we considered common uses of technology in the business environment that may not be common yet in education. We recognize some elements of business technology are best suited to business, but we were still curious to see what education found useful or would like to try.

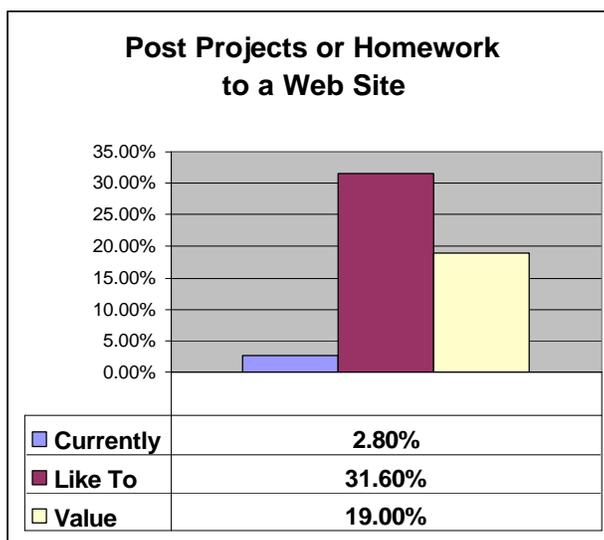
Submitting Homework via Email

We know based, on teachers' responses in Section 1, that email is commonly used for communication between teachers and administrators, staff, and students (81% report 'often' or 'regular' use). If teachers use email to communicate, we wanted to know if it was a medium they would be willing to use to accept homework. The responses we receive show only 7.6% of teachers have 'some' or 'many' students who submit their homework via email. While email seems to be used regularly for communication, it is not been embraced as an alternate way to submit homework today. However, when teachers were asked how many students they would like to have submit homework electronically, 32.7% indicated 'some' or 'many,' which is greater than 25 percentage points difference. The gap between current behavior and desired behavior leads us to believe some factor we have not yet considered is impeding progress. Drawing on the *availability* argument explored in Section 4 - Barriers to Technology Use, it is quite possible that computer availability at home may play a role here. It is also possible that teachers are more comfortable with the traditional job of grading papers with a red pen.



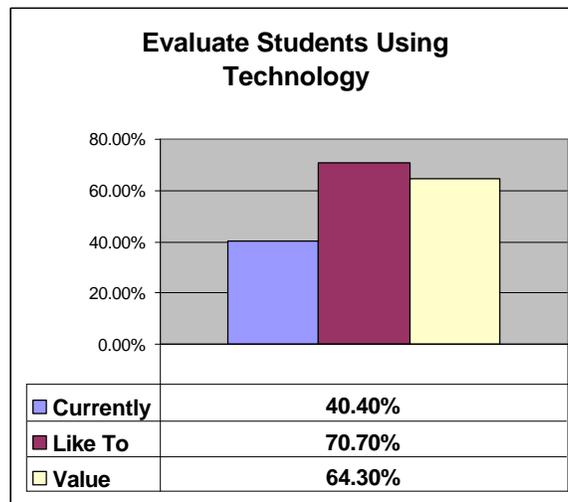
Posting Projects or Homework to a Web Site

We found a greater gap in current behavior and desired behavior when we asked teachers about submitting homework and projects to web sites. A current document-management trend in business today discourages sending email attachments because every mail server that message is sent to then has a copy of the document in the mail. Instead of one document, dozens might exist, sometimes in the same organization, department, or work group. A more efficient practice stores the document in a single place and sends links to everyone required to access it. While it seems unlikely the education sector would be too concerned about document management, we were interested in asking the question anyway. It was not surprising to find that only 2.8% of students post their projects or homework to a web site for the teacher or others to download. However, we were very surprised to see teachers reporting they would LIKE to have ‘some’ or ‘many’ of their students post projects or homework to a web site. As with the question of submitting homework electronically, a gap of 28.8% indicates a teacher desire that is not being met. Of course we can speculate why this is the case (or even follow up with another survey), but it is interesting to note the gap exists. We anticipate the trend of students submitting homework or projects electronically will increase drastically in the next few years because teachers would like it to be that way.



Evaluating Students Using Technology

In Section 1, it was interesting to see how many teachers used technology for administrative purposes (81%), which was higher than we expected. To continue this line of questions, we asked teachers specifically about evaluating students using technology. In Section 2, question 207 asked teachers how many classes they used technology to *evaluate* the students. They replied that 40.4% of the time, ‘some’ or ‘many’ of their classes were evaluated using technology. The follow-up question: how many classes they would LIKE to use technology, produced a 30% point difference. Teachers said 70.7% of the time they would LIKE to use technology to evaluate students. The gap between what they are currently doing and what they would LIKE to do is significant enough to speculate why this is the case. We know from the DPI survey that teachers have access to computers, and we know they often use them for administrative purposes as well as to gather material to prepare for classes. Both of these activities can be self-taught, so we assume the software applications designed for evaluation are not user-friendly enough for the teachers to master. Section 4 - Barriers to Technology Use indicates teacher training is often cited as a reason technology is not utilized as fully as it could be (those themes are explored more fully in that Barriers to Technology Use section).



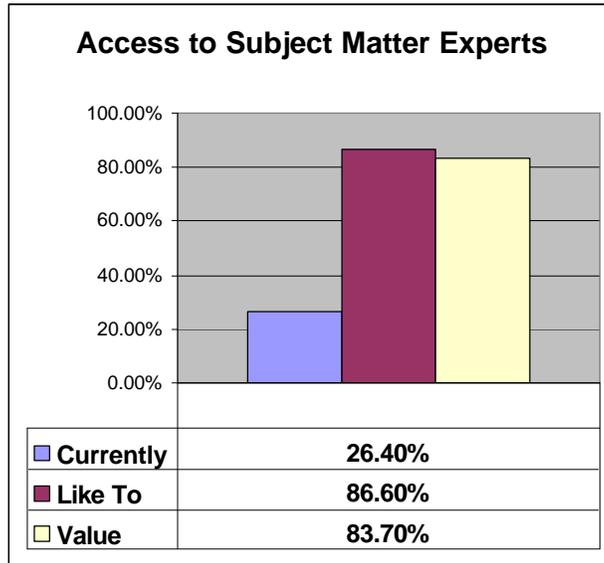
Outside Influences in the Classroom

A traditional classroom usually brings 1 to 30 students from a small geographic area together for the learning experience. This arrangement lasts all year long during the entire 12 years of pre-college education. In our conversations with educators, we often heard about enhancing the classroom experience by including people who would not traditionally be involved with those students. For example, when educators discuss video distance learning, they often site bringing rural students together with urban students as intrinsically valuable. Another common example is contacting a subject matter expert to provide deeper insight into a particular topic like politics, science, or literature. The ability to reach those outside influences on a regular or ad hoc basis is an important need that we wanted to be sure we captured.

Access to Subject Matter Experts

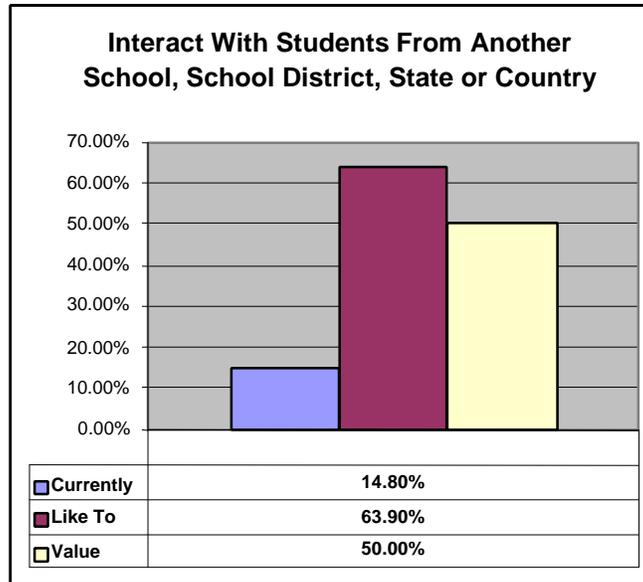
The results of this cluster of questions show compellingly how important teachers feel it is to have access to experts in the fields in which they are teaching students. We asked teachers in their current arrangements how often they contact a subject matter expert (scientist, politician, doctor, etc.) to enhance their class. While it was good to see that teachers responded ‘occasionally’ or ‘often’ 26.4% of the time,

the gap between current practice and what they would like to do is staggering. The graph below indicates the teachers would like to contact a subject matter expert ‘occasionally’ or ‘often’ 86.6% of the time. This indicates that the value of having an expert opinion in the classroom on an ad hoc basis is extremely important. For this particular question, teachers reported this is significantly valuable to them as a resource. The primary purpose of the WENCC committee, which commissioned this study, is to report the needs of the educational community to those who will procure the next network. This is an integral need and must not be overlooked when the next network is procured.



Interaction with Students from another school, school district, state or country

Our informal conversations indicated how important it was for students to interact with others who are not so geographically similar. In this case, the data supports this need. We asked teachers how much they currently interact with students from another school, school district, state or country and received a relatively low mark of 14.8% who do ‘occasionally’ or ‘often’. As in the subject matter expert question, we see a jump of nearly 50 percentage points when we asked teachers how often they would LIKE to have those interactions. As you can see from the chart, teachers replied at the rate of 63.9% that they would like to interact with outside students ‘occasionally’ or ‘often’. If the desire to have this interaction is so high and the actual numbers currently interacting are so low, we conclude a serious barrier exists restricting the teachers from achieving this desire. This is another example of a clearly stated educational need that must be addressed when the next Distance Education Network is designed and implemented.

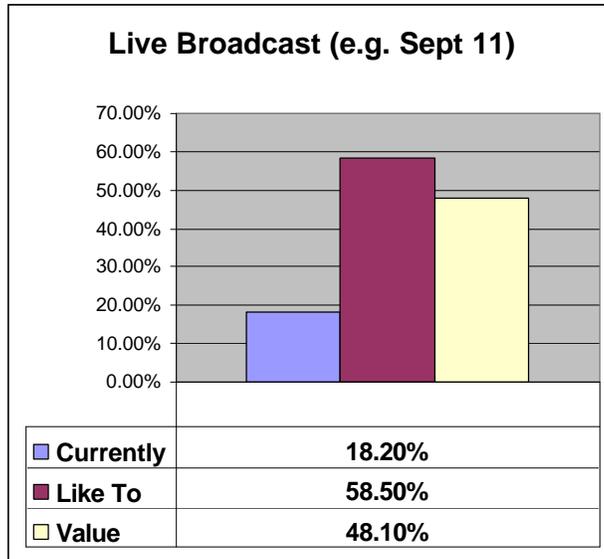


Video requirements in the Classroom

The BadgerNet Video Network that will have to be replaced with a distance education network in December of 2005 primarily serves broadband interactive video users today. There are other types of video that a new network could carry such as pre-recorded video (streaming) and live news broadcasts (web multi-cast). These applications are different from today's network video because neither is interactive and one is not even live. To assess the needs of the classroom teacher, we asked a cluster of questions regarding live, broadcast video, pre-recorded video, and interactive video.

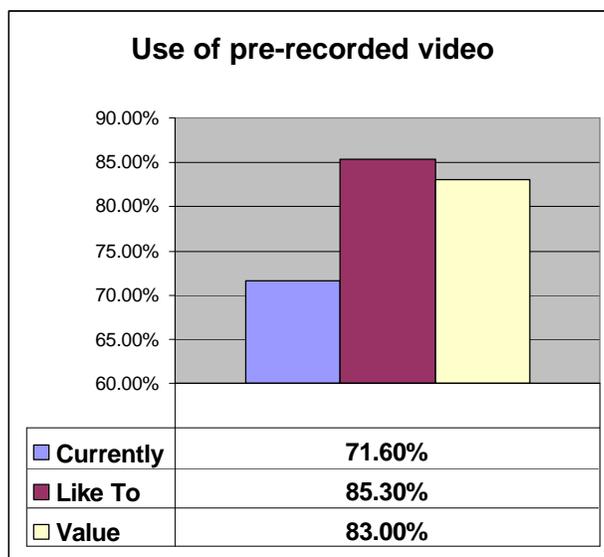
Live news broadcasts

Live news broadcasts often give students some of the most memorable classroom experiences of their lives. Many of us personally remember the Challenger Space Shuttle disaster in January of 1986, which classes in colleges, high schools, etc. watched live. One of the people responsible for this survey was in college at the time. His class convinced its education professor, John McDonnell, to turn the newscast on as a way to emulate what our classroom experiences as teachers might be like. Like September 11th on a smaller scale, we had a memory forever linked to our classroom experience. Our question to teachers specifically mentioned September 11th, "How often do you show a live news broadcast to your students (e.g. Sept 11th)?" Only 18.2% indicated they showed live news broadcasts 'occasionally' or 'often' to their students. We did see an impressive jump when we asked how often they would LIKE to show live broadcasts to their students. Teachers reported they would be willing to use live video 58.5% on a more regular basis. The difference between what is currently in use and what teachers would like to do is over 40 percent. Our next network should be designed such that live broadcasts, from CNN for example, can be introduced at a single point in the network and made available for all classrooms on the network.



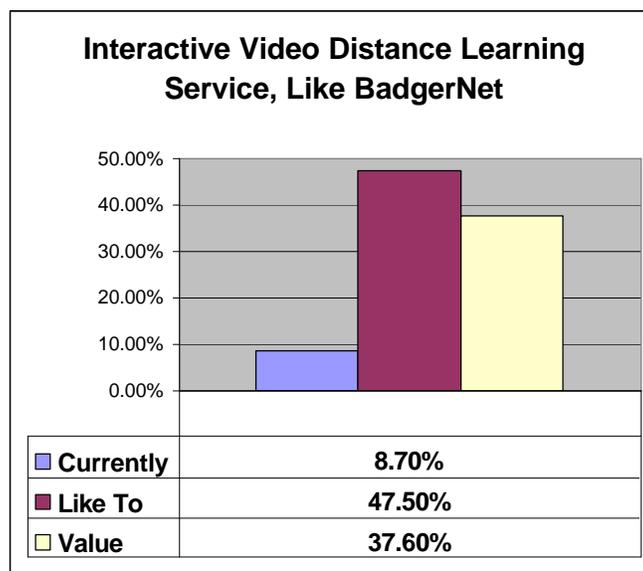
Pre-recorded video

It may be important for our next distance education network to be able to support different types of video. The current network handles broadband, full-motion, interactive video very well, but will only transport pre-recorded video. Our assessment required us to look carefully at pre-recorded video to see what classroom teachers need. When we asked teachers how often they used pre-recorded video using a VCR, CD-ROM or Internet, we got a strong response of 71.6% of teachers who said they use video ‘occasionally’ or ‘often’. We see it as a sign that with more than two-thirds of the teacher population using video often, the next network must be flexible enough to handle as many types of pre-recorded video as possible. When asked how much they would LIKE to use pre-recorded video, over 85% gave a positive indication. It seems that teachers use non-interactive video often and want to use it even more to enhance their classrooms.



Interactive Video Distance Learning Service, Like BadgerNet

One of the areas this report needs to seriously explore is the use of interactive video. The two previous clusters of questions dealt with one-way video, but the current video distance learning network has an embedded base of nearly 400 schools. Whatever recommendations WENCC makes for the procurement of a new video network, the functionality of the existing users must be maintained. In this cluster of questions, we asked teachers how often they used an interactive video distance learning service, like BadgerNet. We expected to see a report near 10%, and teachers confirmed that they ‘occasionally’ or ‘often’ used a video service 8.7% of the time. However, when asked how often they would LIKE to use a video service, nearly half (47.5%) indicate they would like to use interactive video more regularly and see the value of using such a service. We understand that TEACH Wisconsin, the government agency that subsidizes BadgerNet services, can only finance one video link per school district by statute. Teachers indicate they would LIKE to use this service much more than they do based on the results of this section. We recommend that the next network have greater capacity to handle this type of video session.

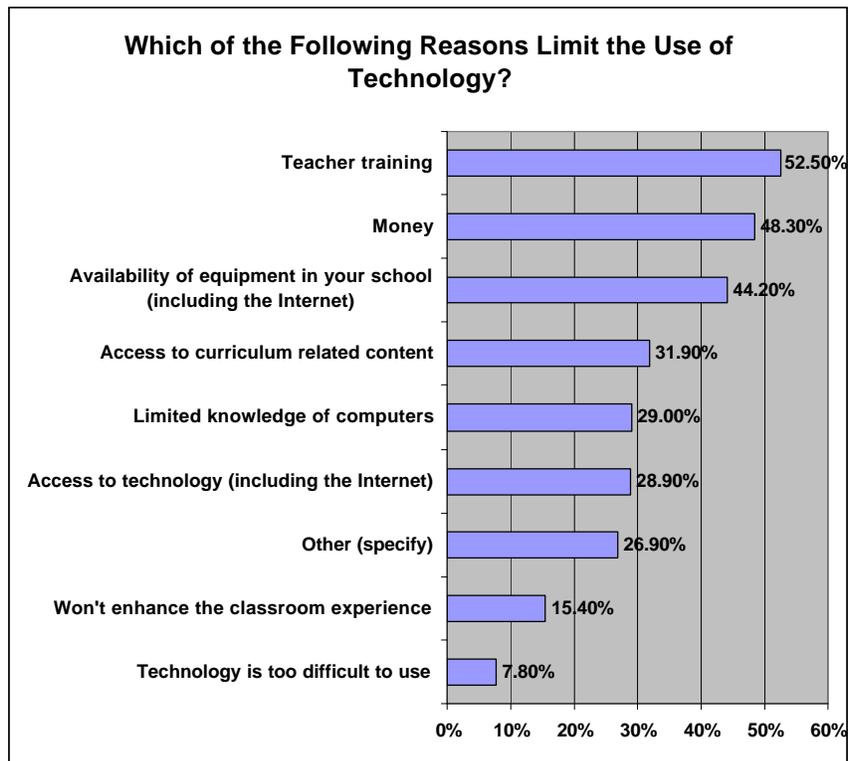


Barriers to Technology

The majority of this survey focuses on the current uses and future needs of classroom teachers in the PreK-12 community. While it is important to know what teachers are doing and what they would LIKE to do, it is also important to understand what they cannot do). Section 4 - Barriers to Technology Use attempts to understand with what teachers are confronted when they try to use technology.

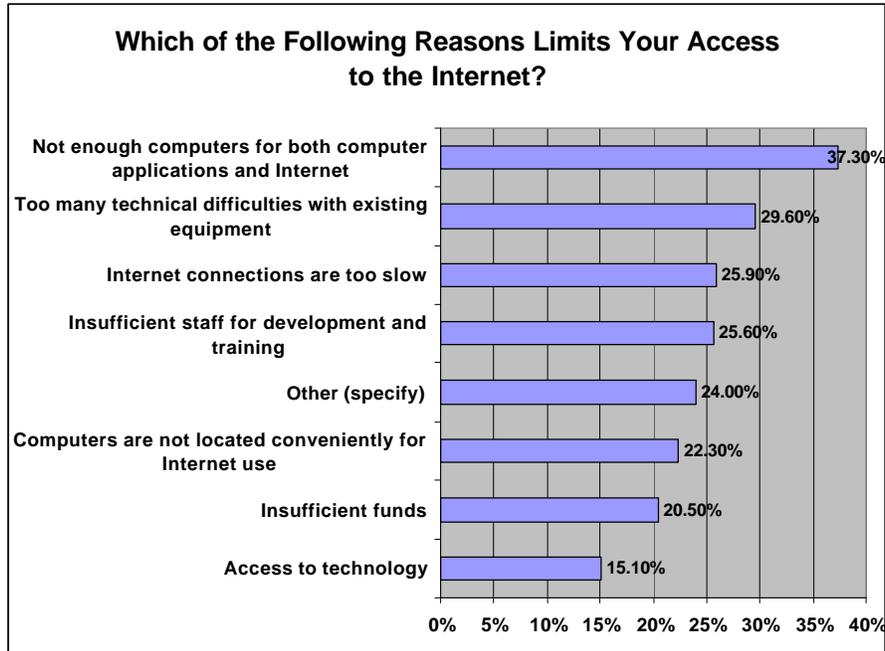
Which of the Following Limits the Use of the Technology?

Based on information we received from focus groups we interviewed around the state, we incorporated the most common and generic responses to this question. The instructions for this question allowed teachers to check all the categories that applied to them. When we asked teachers what limited their use of the technology, they reported teacher training as the major concern over 50% of the time. This supports the focus group concerns we consistently heard throughout the state. Rounding out the top three reasons were money (48.3%) and availability of the equipment (44.2%). In a second question, we asked the teachers to choose the primary reason that limited their use of the computer. The same responses made the top three again, but the rank order was different. When listing the primary reason, teachers selected availability of the equipment most often followed by teacher training and money.



Which of the Following Reasons Limit Access to the Internet?

As with most questions in this survey, we followed up one question with a similar one. We assumed that teachers were using computers and the Internet (as it turns out, they used them more than we thought) in their daily routines. We also wanted to know what impeded teachers specifically from using the Internet. When we asked question 403, “Which of the following reasons limits your access to the Internet,” teachers were asked to check all answers that applied. Again, we see the number of computers available to use as the top reason (37.3%), followed by too many technical difficulties with older computers (29.6%) and speed of the Internet connection (25.9%). Recommendations stemming from this report need to include newer, faster computers and faster Internet connections.



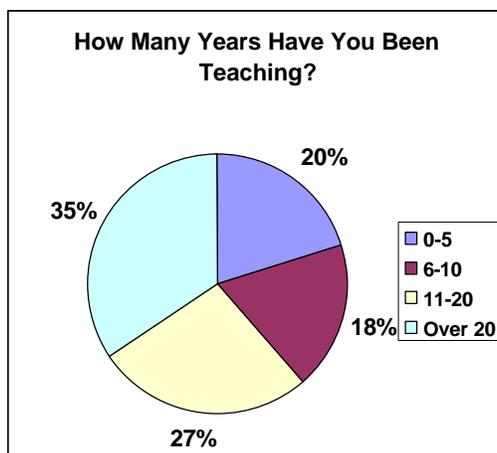
Information on Teachers in this Survey

The request to participate in this survey was sent through the US Postal service to each school district. In addition, TEACH Wisconsin sent an email to teachers with a link to the on-line survey and invited them to participate. A combined total of 9,123 surveys were sent directly to the on-line survey page or through the mail. Of those surveys received, 9,036 contained usable data. The totals received were much higher than we expected and represent nearly 20% of the Wisconsin K-12 teaching community.

How long have you been teaching?

One of the questions we asked educators was, "How many years have you been teaching?" We expected to see a high ratio of new, less experienced teachers and a lower representation of teachers with greater teaching experience. We expected to see this because our guess was that more experienced teachers, on the whole, would be 'set in their ways' and much less likely to adopt technology into their daily teaching routine. We wanted our survey to accurately reflect the PreK-12 teaching community, and a high ratio of less experienced teachers could skew our results. The results we received did not support these assumptions.

When we asked teachers, "How many years have you been teaching?" we expected to see the 0-5 year category most heavily represented. We were surprised to see that only 20% of the teachers responding had less than 5 years experience. We were equally surprised to see the high representation came from teachers with more than 20 years of experience. Many times in analysis of this survey, we combine the results of two categories. In this case, when we look at teachers responding to this survey with more than 11 years experience (combined categories '11-20' and 'Over 20') we see a response over 60%. It is safe to say that this survey has representation of more experienced teachers.



Differences Between Rural and Urban Teachers

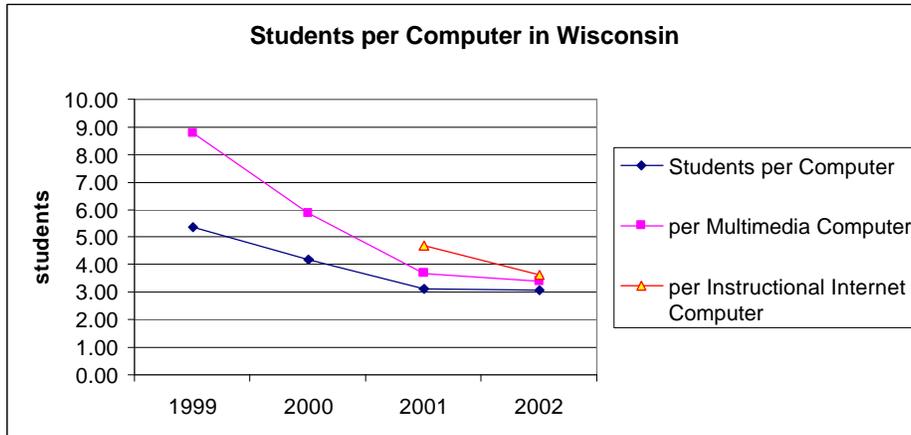
From the onset, we were interested to see if there was any difference between rural and urban school teachers' reports of technology use. In section six, we asked teachers to report their schools' zip codes so we could code them as rural or urban. Using the Federal E-rate classifications, we categorized 3,750 (41.5%) responses as rural responses, 4,961 (54.9%) as urban responses, and 325 (3.6%) without valid zip codes (most were only partially keyed, but some had all five digits but the zip code did not exist). We carefully reviewed the surveys to learn what differences could be seen.

The survey has six parts with a total of 73 questions. Each question has multiple choices giving us a total of 315 answers to review for differences in rural versus urban teacher reports. Any score that varied by more than five percentage points from rural to urban was considered significant. However, our results revealed only 9 answers out of 315 total questions (2.9%) that had more than five percentage points in variation. Of the nine variant answers, none of them were greater than 10 percentage points difference. With such a small percentage of variant answers (2.9%) and a range of variation of only 5-10%, we conclude that there is no significant difference between the scores of rural versus urban schoolteachers.

DPI/TEACH Wisconsin School District Technology Survey

Highlights

We are making steady progress in installing technology in our schools. Computers, multimedia computers and Internet computers are now at or near the ratio recommended in the Wisconsin Educational Technology PreK-12 Plan in 1996.



	1999	2000	2001	2002
Students per Computer	5.36	4.20	3.12	3.07
per Multimedia Computer	8.75	5.88	3.66	3.40
per Instructional Internet Computer			4.70	3.62

Over 90% of classrooms in Wisconsin have Internet access, and over 95% are wired with high-speed connections. The most common response to the open-ended question looking at predictions for the classroom in 2010, however, suggest that we will be providing devices with wireless access to all students and teachers.

While full-motion video distance education is available in over half of school districts, only 15% of school buildings (283 of 1687) report having a distance education lab. The factors identified precluding schools from meeting their distance learning needs were, first, lack of finances and, second, lack of perceived need on both the building and district technology surveys.

Over 1/3 of districts responding to the survey have already integrated technology into the four core curricular areas, and most other districts are working on accomplishing this. Only 13 districts reported not have done this or being in the process. Both building principals and district technology coordinators list help with integrating the Information and Technology Literacy Standards into their curriculum as their second greatest need for assistance.

Even though principals rate their “typical teacher” at an intermediate level or above on all technology skill levels, both principal and technology coordinators list professional development and helping teachers

use technology effectively as their highest need for assistance. It might be noted that funding was not one of the choices on this question, although several funding-related needs such as technical support, sufficient computers, and help with grant writing were listed. Over 70% of school districts formally assess teachers with a variety of self-reporting measures, but few have stringent requirements regarding technology skills.

When estimating how often students use technology in various ways, the most frequent use rated by both principals and technology coordinators was using productivity tools with principal rating it at about once a week and technology coordinators at once every 2 or 3 days. Next, Internet research was rated near weekly. The other applications were rated as monthly or less frequent. When asked if students were formally assessed on technology skills at the district level over 80% answered “no.” The new No Child Left Behind Act of 2001 will require this at 8th grade in 2006.

Highlights of Open-Ended “WENCC” Questions on District and School Technology Survey

On both the district and building level technology surveys, the following optional, open-ended question was asked specifically for this needs assessment:

1. In your opinion, what are the technologies that will be needed in classrooms in the year 2010 and what infrastructure should the state provide to support these technologies?

In over 390 responses, several common themes emerged. The most frequent response (92) mentioned wireless access to the network. Ninety-one responses dealt with increasing the number of computers, laptops and PDA’s. Seventy-two people thought all students should have laptop or PDA, 22 would provide increased access with mobile labs, and 20 would put a projection system in each room so all could see.

Fifty-eight responses expressed the expectation of distance learning with interactive video and where the level of access was mentioned, 14 thought it should go to the desktop level, 15 to the classroom level, and 14 to the building level.

Thirty-six responses mentioned the need for professional development as key, even though it was not specifically asked about. Twenty-five mentioned the need for curricular resources on the web and 14 the possibility of connections to home, parents, or the community.

As to the role that the state should play, two main themes emerged: 1) help with funding (78) and 2) providing bandwidth via a statewide infrastructure (34). Not surprisingly, district technology coordinators were more likely than building principals to list the statewide infrastructure as a role for the state.

In a second question we asked:

2. *Please give at least one example or anecdote of a particularly effective use of technology in instruction in your school/district.*

The results to this question varied greatly. While we did classify the responses into Using Software (142), Internet and Web Sites (118), Digital Video and Imaging (48), Computers (47), Communication (24), and Distance Learning (19). A few listed are below. (*For additional information, see Document III, Wisconsin Educational Network Business Case Appendix.*)

“Our Elementary Art teacher documents with digital cameras K-6 students and their art projects throughout each year, then produces PowerPoint presentations incorporated with music. At the end of the year, families and community are invited to a magnificent art show. She uses three projectors and computers to simultaneously project pictures of proud students and their art. Our elementary Music teacher also incorporates technology with teaching her students through special computer programs and digital music. She also produces a wonderful music program each year and is excited about how useful technology is in teaching music. Her students have made great strides.” (Boscobel Area School District)

“Several teachers are using image processing software in science classes, health classes, math classes, and Ag classes to study bone structure, land formations and structure, and other related principles.” (Holmen School District)

“The planning, preparation, and presentation of multimedia projects and research has been implemented here at the Waupaca Middle School and has culminated in a rich learning experience integrating language arts, science, social studies and technology. Students study the migration pattern of Neotropical birds, gather data for Excel projects, and create a multimedia presentation using PowerPoint and iMovie.” (Waupaca School District)

“Trowbridge Elementary and Hamilton High have used technology to build a partnership. This joint effort has helped our young students to meet and work one on one with the high school students while making technology strides. The teachers have also been able to meet and exchange ideas.” (Milwaukee Public Schools)

The entire DPI/Teach Wisconsin Technology Surveys with results are available on the Internet at the following URL: <http://www.dpi.state.wi.us/dpi/dltcl/imt/index.html>.

WADEN Response to the Wisconsin Educational Network Collaboration Committee Request for Information

WADEN Request For Information (RFI)

While the who, what, when, where, and why of the value and benefit of video distance education are recognized by those who use it—the teachers, students and school administrators—until now, there has never been collaborative documentation at the state strategic planning level about the value of these services or the needs they support. The BadgerNet Video Network has grown 300 percent in the past four years since the advent of TEACH Wisconsin. (WENCC primary purpose for creating the WADEN RFI Survey)

The Wisconsin Association of Distance Education Networks (WADEN) is an organization consisting of the state's primary users of the BadgerNet Video Network. As such, WENCC thought it extremely important to obtain input specifically from this group. Substantial public policy funding has been committed to Wisconsin video education networks. The Legislature needs facts about the value of video distance education in order to make funding decisions.

WADEN was established in 1997 and consists of regional and statewide video distance education networks. Its members are from diverse geographical and academic backgrounds. WADEN's mission is to work collaboratively to advance and improve distance education opportunities for all learners in Wisconsin.

WADEN consists of the following networks:

CADENC	Chippewa Area Distance Education Network Consortium
CMN	College of Menomonee Nation
CWETN	Central Wisconsin Educational Telecommunications Network
DADE	Dodge Area Distance Education
ERVING	Embarrass River Instructional Networking Group
FACET	Fond du Lac Area Consortium for Educational Technology
FVTC	Fox Valley Technical College
CESA #7/ILS	CESA #7 Interactive Learning Services
KSCADE	K-12 Schools/College Alliance for Distance Education
LTC	Lakeshore Technical College
MATC	Madison Area Technical College (also Milwaukee)
MPS	Milwaukee Public Schools
MSTC	Mid-State Technical College
NATC	Nicole Area Technical College
NDEN	Nicolet Distance Education Network
NLN	Northern Lights Network
NTC	Northcentral Technical College
NWECS	Northwest Wisconsin Educational Communication System
SCING	South Central Instructional Network Group
SRTNC	Southwest Rural Telecommunications Network Consortium
TRITON	Three River Instructional Telecommunications Operational Network
WADEN	Wisconsin Association of Distance Education Networks
WENCC	Wisconsin Education Network Collaboration Committee
WIN	Wisconsin Indianhead Network

WITC	Wisconsin Indianhead Technical College
WONDER	Wisconsin Overlay Network for Distance Education Resources
WTCN	Wisconsin Technical College Network
WTCS	Wisconsin Technical College System
WWLEARN	Western Wisconsin Linked Education and Resource Network
WWTC	Western Wisconsin Technical College

Introduction

One crucial component of the distance education network needs analysis is obtaining input from every one of the existing video networks in the state. The key to this effort was the development and execution of a cooperative project between the Wisconsin Educational Network Collaboration Committee (WENCC) and the Wisconsin Association of Distance Education Networks (WADEN). *(For additional information see Document III Wisconsin Educational Network Business Case Appendix)*

WADEN is considered the most important and influential video distance education network organization in the State of Wisconsin. WADEN was established in 1997 and has membership of over 30 regional and statewide video distance education networks totaling 375+ classrooms. The association includes network members from a diverse geographical and academic background, including large and small rural and urban PreK-12 school districts, Technical Colleges, and the University of Wisconsin four-year institutions. WADEN's mission is to work collaboratively to advance and improve distance education opportunities for all learners in Wisconsin.

It was anticipated that the outcome of the WADEN analysis would be extremely important with respect to the future educational network plan. It was also expected the analysis would give WENCC a better understanding of the value of what has been done to date and the additional educational technology needs that will require future support. To initiate this needs assessment effort, WENCC developed a series of questions in the form of a Request for Information (RFI) and asked WADEN to respond with a full analysis. The RFI focused on the following areas:

- current video network environment;
- future education network environment;
- wide area networking; and
- summary questions

In response to WENCC's RFI, WADEN filed a comprehensive report reflecting the current state of the networks that specifically focused on:

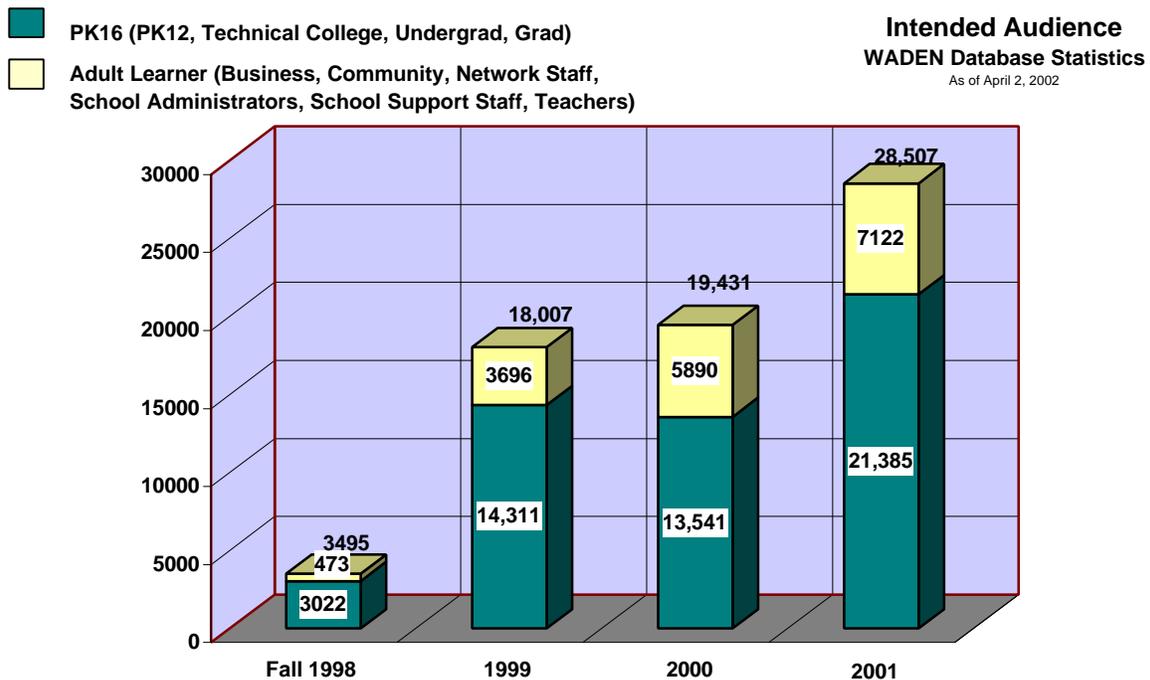
- academic application needs;
- needs of classroom educators;
- educational institution needs for support in their mission;
- requirements to facilitate K-16 collaboration at and between all levels of Wisconsin Education Institutions;

- needs requirements for national and international global educational collaboration;
- educational access for students outside the walls of the traditional classroom;
- documenting the current educational technology needs that are adequately supported today; and
- plan to support current and emerging educational telecommunications applications.

Some Interesting Statistics and Numbers

Prior to 1997, very few records were kept on the number of students of being taught via the pioneer video education networks.

For the period of August 1998 through December 2001, more accurate student enrollment records were kept due to requests from the TEACH Board, with breakdowns including total number and student type.



In its report WADEN advocates strongly that distance education networks level the playing field so that no matter where a student is lives in Wisconsin, she or he has access to state resources. Schools appreciate the “just in time, at their place” resources to preserve teaching time, travel, and substitute teacher expenses.

WADEN states studies have shown that when students teach each other and learn through application of the concepts presented, they retain 90% of what they have learned as compared to 5-10% when they are taught by teacher lecture only. Video conferencing allows teachers and students to go beyond classroom walls, to be involved in authentic learning experiences, to collaborate and cooperate with each other, and to connect their learning with the real world and, in many cases learn how they can make a difference with their actions.

Summary of WADEN Report

The full WADEN Report is a very detailed, comprehensive and insightful document containing many anecdotes, testimonials, and examples. What follows is a summary of the WADEN report to WENCC. The response references in parentheses correspond to the number of the question in the RFI to which WADEN is responding. The complete WADEN report is included as an appendix. (*For additional information see Document III Wisconsin Educational Network Business Case Appendix*)

Academic Application Needs and the Needs of Classroom Educators

Sharing Classroom Resources

(A5) Sixty-five percent (65%) of the 426 public school districts currently have a dedicated video classroom; and network directors estimate that in some cases, more than 50% of their member school districts and other institutions depend heavily on the use of their dedicated video distance education classroom to meet their teaching mission. The vast majority of school districts that have video classrooms view them as an essential component of their technological capability along with computers, access to the Internet, media rich classrooms, and other learning enabling technologies. In addition to the PreK-12 school districts, all 16 technical colleges rely heavily on their ITV rooms.

(A2) Video classrooms allow districts to share teaching resources because schools can access classes they cannot offer themselves. In addition to sharing teachers between districts, staff development programs and community educational offerings are provided by connecting schools to agencies and organizations throughout the state.

Without access to distance learning, schools would be unable to provide the wide variety of course offerings necessary to prepare students. Districts cited tight budgets that force them to cut classes with small enrollment, lack of access to qualified staff, and long distances as problems that are solved with distance learning technologies.

PreK-12 school districts, Technical Colleges, the UW system, and Private schools are all using the distance learning classrooms very successfully to deliver a wide variety of courses to their students. The video classroom is also used extensively for Staff Development/Community Sessions.

Needs of the Dedicated Classroom

(A1) The common opinion within the WADEN member community is that PreK-12 schools need the dedicated video classroom to facilitate meeting curriculum requirements. Without it, their educational mission of providing students a complete education that will prepare them to be contributing citizens in a truly global society, this mission would be made much more difficult to achieve.

Without access to distance learning, schools would be unable to provide the wide variety of course offerings necessary to prepare students. Districts cited tight budgets that force them to cut classes with small enrollment, lack of access to qualified staff, and long distances from area colleges that often prevent students from taking advantage of Youth Options offerings. Video classrooms allow districts to share teaching resources so that schools can have access to classes that they cannot offer themselves.

Today school districts are using the distance learning classrooms to deliver a wide variety of courses to their students including:

- AP courses in all areas including math, history, science, Psychology, and English;
- additional literature electives;
- additional foreign language electives such as German, French, Spanish and Japanese
- advanced math and science electives;
- American sign language;
- music appreciation (and in some schools, music lessons!);
- social studies electives - Sociology, Psychology, Current Events;
- dual credit technical college courses – Criminal Justice, Correctional Procedures Business Law;
- career development courses such as daycare certification, medical terminology introduction to criminal justice, and nursing assistant classes that help alleviate the health care worker shortage;
- agriculture electives such as vet science, animal science and dairy herd management;
- computer science courses such as JavaScript writing; and
- business education courses including introductory and advanced accounting, marketing, International Business, Business Law, Management, and micro and macroeconomics, etc.

In addition to student classes, the video classroom is also used extensively for Staff Development/Community Sessions such as:

- Finance;
- special education seminars;
- Strategies for Integrating Technology into the Classroom;
- graduate level courses;
- Library and Media Specialist Outstanding Books Series;
- Day Care Instruction;
- Master's Degree programs;

- connections to state agencies; i.e., Department of Public Instruction (DPI) provide educators up-to-date training in issues and policies relative to licensure requirements, standards and assessment and access to technology-based resources;
- connections to cultural, historical, environmental, and educational organizations provide teachers with specialized training in integration of instructional resources not found in traditional curricula;
- connections to numerous graduate level courses offered by private and public higher education institutions provide teachers with an efficient means of continuing education and meeting licensure requirements;
- staff development series bringing in nationally recognized presenters to deliver their messages over the network;
- teacher Share Shops after school for like subject instructors to discuss standards and assessments, including teacher share shops for ITV instructors;
- introductory and advanced training for ITV instructors and others who wish to learn how to use ITV effectively;
- environmental education integration training for elementary and middle school teachers;
- DPI's Special Education Department provided mandatory training for special education staff from a central location to 25 simultaneous sites;
- legal seminars for district administrators; and
- introductory sign language instruction for teachers, parents and friends of deaf and hard of hearing students.

Typical Technical College classes include:

- Business – International Business, Business Law, Management, Marketing, Accounting;
- Nursing – LPN, CAN;
- Technical Math;
- Law Enforcement;
- Telecommunications; and
- General Education – Introduction to Sociology, Psychology, Economics, Written Communication.

Typical University classes include:

- English 101-102;
- Intro to Business;
- Astronomy;
- Geology; and
- Theater.

In addition to sharing teachers between district, staff development programs, and community education offerings are provided by connecting schools to agencies and organizations throughout the state.

(A11) As the use of the video classroom has matured, its use has expanded to support educational activities for students and teachers in many ways. These other areas continue to grow as schools and communities realize the potential to bring people together from places around the state, nation, and world. Additional examples of expanded network use include:

- satellite down links;
- virtual field trips;
- connecting rural and urban elementary classrooms;
- graduate courses for teachers working towards a Master's Degree;
- professional development;
- video conferences;
- connecting to DPI, government agencies, legislators, and other resources;
- job interviews;
- community programming; and
- administrative uses.

Types of Teaching

(A8) The type of teaching performed in the video classroom varies by user but is predominantly lecture-type with a high degree of interaction. The ITV classroom is an excellent delivery system for this type of teaching because it most closely replicates the traditional face-to-face classroom. It enables teachers and students, literally separated by hundreds of miles, to interact as if they were physically right in front of each other.

Types of Learners

(B5) WADEN network directors have identified the following types of learners who participate in distance education courses:

- elementary, middle and high school students;
- higher education students;
- teachers and professors;
- librarians;
- county and town groups;
- service organizations—Scouts, Special Olympics, etc.;
- county extension program participants;
- WI retirement system members;
- Police, Fire, EMT;
- bartenders, hotel and restaurant managers;
- school food service staff;
- real estate and insurance agents;
- farmers;
- child care providers;
- EAA/NASA program participants;
- special education students and staff—IEP meetings with school for the visually impaired and School for the Deaf; and
- prison inmates.

Survey Results

(A15) In a recent WADEN survey, 60% of the respondents revealed that student learning is effective in remote video distance-education classrooms. The other 40% said that it is not for all students, and to be effective the student needs to be matched to the course. Fully 100% of the respondents said that learning is very effective if the students are motivated and independent learners.

Surveys, Teacher

(A16) When asked if teachers like teaching in a video distance education classroom, WADEN found that the general consensus is most teachers who select to teach in the video classroom like the experience.

- They enjoy working with students from other districts.
- The disparate bell schedules and calendars are always a problem and present their biggest challenge.
- The longer they teach on the system, the more they like it.
- Teachers enjoy the challenge and opportunity to teach over the network.
- They feel that the distance between originating and remote sites becomes less of a barrier as they become more accustomed to teaching on the network.
- Teachers like the technical resources that are always available in the ITV classroom.
- Many teachers feel the rewards far outweigh the challenges.

As ITV has become more commonplace and accepted as just another alternative for teaching, faculty attitudes toward teaching on ITV have also positively changed. ITV teaching in the past was often viewed with fear or suspicion. Today the growth of the network, acceptance of ITV as the closest to traditional classroom teaching of any of the currently popular alternative delivery options in use, and training on the use of the ITV equipment has helped to eliminate the “fear factor” of teaching on the network.

As faculties have become more comfortable in using the technology, they have also become more creative in finding new ways to use the technology. Some faculty members have actually been reinvigorated by the ability to use new equipment and teaching in new ways.

Surveys, Student

(A18) Student surveys filled out at year-end reveal the following general consensus relative to likes and dislikes:

Likes:

- ability to take classes;
- expanded opportunity to take more courses than what is offered in-house;
- receiving college credits;
- facilities;
- a chance to connect with and meet students from other schools;
- new learning challenges of distance education and tougher classes;

- freedom and responsibility for their own learning;
- not having to physically go to another location for a course;
- working with the technology;
- convenience of staying close to home; and
- the ability to connect people across the state which has made the state smaller.

Dislikes:

- interruptions;
- repeating course information;
- technical problems – audio;
- conflicts with school schedules;
- extra requirements;
- problems communicating with instructors;
- lack of in-the-room teacher help;
- not getting to know classmates;
- room is too cold or hot, or the chairs are not comfortable; and
- teachers who are confused by the technology or technology that appears to be inferior.

Educational Institution Needs to Support their Mission

Success Examples

(A19) There are numerous success examples in which students were able to continue their education because, as cited in the WADEN report, they had the opportunity to use the video classroom. Many PreK-12 students have jump started their college and/or vocational schooling by earning credits toward degrees when their own schools were not able to offer any AP classes.

For example, Elizabeth Waukau, a College of Menominee Nation student enrolled in a class from UW-Eau Claire states, “The distance education room at the College of Menominee Nation has made my dream of becoming a teacher reality. We used to have to travel 80 miles daily to another distance education facility, and this took time away from our studying as well as our families because of travel time.”

Other descriptions of students who were successful, in part, because of learning opportunities available through a distance education network include one from CESA 9, which reports, “Many

students have gotten their college and vocational schooling off to a jump start by earning varying amounts of credit toward their degrees.”

An educator at Almond Bancroft School District of the SCING Network stated, “At least 5 of our students have earned credit for technical college, specifically in Criminal Justice. They will begin their college life with 6-12 credits ahead of many other of the incoming students.”

Examples of success stories among TRITON students include students taking AP courses, which enables them to earn college credit when their local high school is not offering AP classes. Students can take a foreign language not offered by their school; or after taking one or two years of a language in their school, they can complete language studies by taking a third or fourth year of a foreign language via a video conference class.

Factors Preventing More Use of the BadgerNet Video Network

(B6) The most commonly reported factors preventing existing video sites from using the BadgerNet Video Network even more are:

- availability of more distance instructors;
- access in more classrooms;
- access to laptop computers;
- access to more variety of classes;
- adequate funding to provide tuition-bearing higher education courses to high school students;
- resolving challenges in scheduling across the networks (inter-network scheduling);
- limitations imposed by heavily scheduled inter-cluster links;
- need for lower costs;
- common bell schedule;
- time to develop more programming; and
- more incentives to use the service more.

Future Needs

(A21) The WADEN Technical Committee reported that, from the viewpoint of teachers, overall the video classrooms function quite well. However, there are numerous improvements that are needed or could be made in the current dedicated video classrooms to improve teaching and learning and should not be overlooked. This include:

- more network capabilities;
- larger screens;
- more classrooms;
- easier accessibility to VCRs;
- portable classrooms;
- ability to schedule more students into more classrooms;
- eliminate/minimize scheduling conflicts;
- continuous view from more than 3 sites;
- dedicated classroom monitors;
- cameras that would allow the instructor to more easily move the camera to certain students or other areas of the classroom;
- continuous audio from all sites in the session;
- improved video quality;
- improved data display quality;
- internet access in more classrooms;
- greater ease in “customizing” classroom technology setups;
- additional funding to upgrade and keep all facilities current;
- additional support/tech staff ;
- teacher presentation computers; and
- student computers in the video classroom.

Future Network

(A24) The consensus of WADEN is that the vast majority of sites will continue the use the full-motion video classroom in addition to using any new technology [such as quality Internet Protocol (IP) video to the desktop and other flexible video educational applications] that comes along.

The WADEN Technical Committee reports that, at the PreK-12 level, there will always be an overwhelming need for 2-way, interactive, multiple-site video systems. The current system works very well as an extend classroom. WADEN members want to keep the capability they

have today and be able to blend in new technologies that are affordable and easy to use. Depending on how technology advances in the next few years, most schools would probably drop their existing video contracts *IF* they could receive the *SAME* level of quality and service through IP or any another type of network transport. However, WADEN feels that simply migrating to another technology that may not be as good as what they have today would be devastating to distance learning in the State of Wisconsin.

(B3) In terms of educational telecommunications access issues that should be considered in order to support teaching needs from December 2005 through 2010 and possibly 2015, WADEN has identified the following:

- access – plenty of it;
- interconnectivity – easy to connect to other networks and systems;
- bandwidth adequacy – there must be enough of it;
- reliability – Networks and systems that do not fail;
- cost effectiveness – networks and systems that are affordable;
- interoperability – equipment provided by more than one manufacturer;
- standards – capable of worldwide connections ;
- flexibility – able to be adapted to specific needs;
- equity – affordable to ALL;
- multiple technologies – able to use current and future hardware and software;
- compatibility – networks and systems will work with each other;
- high quality of service – acceptable quality for image, motion and sound;
- migration path allowing upgrades that would not financially and functionally cripple many of the educational entities that are connected to it; and
- end user equipment must not be obsolete in just a couple of years. Protect school's investment.

Requirements to Facilitate PreK-20 Collaboration at and Between All Levels of Wisconsin Education Institutions

Collaboration

(A10) Today, the video classroom serves as a focal point for a wide variety of collaborative activities between PreK-12 and higher education institutions. Many school districts collaborate with each other to offer advanced levels of French, German, Japanese, and Spanish, and other

advanced courses such as Calculus and History. Higher education institutions collaborate with PreK-12 school districts to offer youth options and advanced placement courses in addition to professional development opportunities. Higher education institutions also collaborate with each other to offer programs such as Dental Hygiene and Fire Science across the state. Specific examples are given in the WADEN Report.

(A30) If every PreK-16 school and college were on a common ITV platform, the enhanced collaboration possibilities could be limitless. Faculty in the PreK-12 schools, technical colleges, private and the UW system would all benefit from offerings from the UW Colleges of Education. In addition, the ability to share the expertise among all schools could provide pockets of expertise in a wide variety of areas. National and international global connectivity is another area where educational collaboration could be enhanced.

(A33) Additional potential capabilities and opportunities for schools also include collaborating with the community. For example:

- Use technology for interaction between schools and the social services providers.
- Use technology to involve parents more in schools; e.g., a web site that will tell parents the homework assignments for their children.
- Community organizations and governmental agencies hold meetings, providing community updates, and training their staff.
- Hold adult education—both credit and non-credit options.
- Open computer labs so that community members have access to the technology available.

Educational Access for Students Outside the Walls of the Traditional Classroom

Negative impact of no network

(A6) It is the consensus of WADEN members that the educational mission of the network member institutions would be negatively affected if there were no video distance education network.

Video Limitations that Prohibit Educational Applications

(A22) When asked what limitations exist today with the full-motion video network that prohibits additional educational applications from being implemented, WADEN noted the following areas:

- Schools that are heavily committed to distance learning are looking for additional rooms per link without having to incur the full monthly cost of the second video link.
- Lack of access to the network. The next generation network must support a greater number of simultaneous synchronous as well as asynchronous applications.

- A lack of additional bandwidth is preventing more use of the networks. More bandwidth with more efficient technologies would greatly expand teaching and learning capabilities.
- Connections to sites outside of the proprietary networks are difficult and seldom done.
- Lack of adequate funding. Without subsidies, the PK/12 schools that need ITV the most are the least able to afford it. A lower cost system would enable schools to have more ITV classrooms and make better use of the technology.

Extended Resources

(B13) There are many other resources existing in-state and out-of-state, which are being used for instruction, research, and dissemination to students and institutions. It will be most important to have access to these resources via distance education. These resources include, but are not limited to:

- Taking field trips and other enrichment activities presented by non-traditional educational partners.
- Taking virtual visits to museums, legislature, business, medical facilities, other government sources, news media, state parks, recreation areas, environmental areas, Ice Age Center, national parks, zoos, nature centers, field research stations, aquariums, state agencies; e.g., DNR, DOT, Corrections, county government, local government, professional people, musical events, individual artists, historical sites, cemeteries, archeological digs, farms, laboratories, industries, chat with experts, community based organizations, sports resources – Packers, Brewers, Bucks, Admirals, Badgers; and any other sites that can serve as a learning resource to students, etc.
- Down linking special featured satellite programs and transmitting them out to the schools on the distance learning network is another resource for great educational programs for students of all ages.

(B14) Many of these resources are available now while others would require new methods of access. The statewide network needs to be increasingly open to a variety of technologies from IP to ISDN to other new methods of easily delivering video and audio that are developed in the future, whenever and wherever they are needed.

Blended Technologies

(B10) WADEN acknowledges there is a need to offer PreK-12 distance education courses and or instruction in ways that are not just dependent upon a dedicated video network but utilize a blending of technologies. Recognizing that students learn in various ways, not all delivery systems will be appropriate for all students. PreK-12 schools should be offered web-based courses that can be accessible at any time to a small number of interested students. With an eight-period day, schools tend to use their distance learning classroom to meet high number needs. Online courses, which are well matched to the learner styles, could help support the more unique student needs. The ability to take an asynchronous course would be beneficial to many students, including the home schooled. However, student responses on evaluation surveys, indicate that most PreK-12 students will still need that real-time, face-to-face connection that full-motion video distance education provides.

For many adults, balancing work, families, and school is difficult. Being able to stay at home and complete course work when it is convenient for them would be a great option. Internet courses seem to be most effective when used with mature learners who are very self-motivated and goal directed, such as those working on advanced degrees or certification.

It is important to provide a variety of learning opportunities and methods of delivery to meet the needs of a wide variety of learning styles. Non-interactive distance learning courses (or minimally interactive courses) are very useful for homebound students, correspondence-type classes, and as supplements to the regular curriculum.

The Current Educational Technology Needs that are Adequately Supported Today

Effectiveness of Distance Education via Video

(A14) WADEN feels that teaching in a video distance education classroom is very effective.

Of 15 administrators responding from CADENC, CWETN, Project Circuit, and WIN, 66% said that video teaching is VERY effective. The other 33% said that it is equal to a regular classroom and is as effective as the teacher quality. Of 13 teachers/facilitators responding, 100% said that it is effective and depends upon an appropriate match of students to the course.

There is evidence at Wisconsin Indianhead Technical College that when students have received the same course content presented on ITV and in a traditional class, the ITV students performed equivalent to or better than the face-to-face students in terms of course grade. In addition, Wisconsin Technical College System statistics for statewide retention reflect that ITV courses have the highest completion rate of the four alternative delivery methods. In 2001, ITV had an 80.2% passing rate, telecourses had 57.3%, computer classes had 62.7%, and print-based had 47.2%.

Teacher and administrator comments support these findings:

- “Just like everything else, it depends on the teacher. If the teacher is well organized and is good with kids, I do not think the learning suffers to a great degree. The only things missing are the human contact and the ability to access a teacher’s help anytime you want.”
(Administrator in CESA 10 area)
- “Good teachers have always found ways to be good in any situation by overcoming obstacles. The fact of the matter is that our instructors say that the challenge causes them to become better teachers. They need to be better prepared for each class as well as develop creative ways to teach each lesson. They are more “in tune” with each student, as they need to make sure they have the attention of the students in all the sites. As much as there are some undesirable things that come along with distance learning, there are many things that have enhanced their teaching.” (Broadhead Administrator)
- “Teaching in ANY classroom is only as good and effective as the teacher – enough said.”
(Administrator in CESA 10 area)

- “It is like any other component in school. A well managed, well supervised, well taught program is very effective.” (Northern Lights Network teacher)
- “The effectiveness of the teaching depends even more on the individual teacher more than it does in the normal classroom setting.” (TRITON network teacher)

There Needs to be a Plan to Support Current and Emerging Educational Telecommunications Applications

Cost Savings

(A4) When asked if it is possible to quantify the statewide impact of cost savings attributed to sharing teaching resources via video distance education, the WADEN response was that the simple answer to this question is: “no, but.” One cannot determine the statewide impact of cost savings without establishing a value of the services provided by the statewide network. The challenge comes in establishing the “value” of the service provided because it means different things to different people, both in the types of services provided and the amount (volume) of service received.

(A3) Quantifying cost savings is very difficult, if not impossible, because it could be determined in so many different ways. Subsidized schools “save” more than unsubsidized schools. Much information would need to be included in a formula to identify meaningful cost savings. The original intention was not cost savings, but to improve the quality of education to students throughout the state by increasing access, expanding resources, offering a value-added curriculum, and improving equity between school districts. Generally, video courses are seen as a means of helping low enrollment classes and also cutting down on the amount of traveling by students and sometimes, teachers. Many ask, “What is the cost of not offering the course?” It is an investment in our students.

The WONDER consortium has always been aware that network cost calculations are not meaningful without a reference, such as the cost of building, equipping, and staffing a "bricks and mortar" classroom for face to face instruction for a certain number of students on a per year basis. So the determination of "savings" is difficult to quantify.

As a result, it is difficult to standardize a "savings" figure without either a baseline reference for site costs or a comparative cost for face-to-face instruction (or for courses delivered in an asynchronous mode).

Then there are the intangible savings to students who are able to take classes, and in some cases entire programs that end with a certificate or degree, without leaving their community. How does one place a value on providing greater access to learning for citizens throughout the state?

Therefore, while there are many examples of courses that have saved schools money, it is extremely difficult to quantify the actual savings on a statewide basis.

Subsidization of the Network

(A7) If there is not a state plan to subsidize video distance education, or the plan to subsidize it stopped in December 2005, there are two ways institutions would respond to this situation. Simply put, in light of today’s economic concerns, the loss of subsidized plans would be

devastating! It would likely translate to discontinuing the service. Many schools that need the service and opportunities that video networks provide would find it extremely difficult to continue to support distance learning and would choose not to participate, which would hurt the education of many students. Not having subsidization from the state would only serve to widen the gap between the “haves” and the “have-nots” in the state, as well as widening the achievement gap.

(A27) However, it is estimated by WADEN that if more video education options become available and video becomes a common classroom educational tool from the desktop or portable video systems that can be moved from room to room, very few, if any, would leave the dedicated video classroom because most schools believe there is room for both educational tools. In fact, for those that already have a dedicated classroom, the addition of a portable classroom would allow for greater flexibility of use, provided the bandwidth was adequate to support increased usage.

(B1) To insure public PreK-12 schools have adequate, affordable access to support a rich portfolio of distance education applications, of which the video classroom is only one, the state should continue its support of distance learning. State funding has been vital in the growth of distance learning in the State of Wisconsin, providing schools with an affordable, high-quality statewide infrastructure needed for ITV. Without such a program, many schools would not be able to participate in full-motion video distance learning.

As the state looks towards a technology for distance learning that will take us to 2010 and beyond, the network must be affordable, flexible, and robust. There must also be available and affordable bandwidth.

The state must also be mindful that, in addition to the network, the capital equipment (classroom technology) needs to be amortized and replaced over a reasonable life cycle. Total cost of ownership not only includes the network itself but also the replacement of classroom equipment.

Five Emerging Technologies

(B11) WADEN offers these five emerging technologies as having the most promise for the classroom:

- IP video;
- web tools; i.e., web based management systems – Blackboard, WebCT;
- video streaming;
- virtual reality; and
- file sharing.

However it must be remembered, many in the PreK-12 community will only embrace technologies that prove themselves to be reasonably priced, are easily used by teachers and have low ongoing maintenance costs. High end, expensive technologies that require the schools to hire additional technical staff will meet with great resistance.

Current and Emerging Applications

(B8) WADEN predicts the following will continue to grow or emerge as new useful educational applications:

- more use of distance learning for middle and elementary aged students for access to experts and necessary educational resources;
- more sharing will take place between districts thereby expanding the isolated classroom to include learners from different schools;
- additional ITV classrooms in the elementary, middle and high schools;
- expansion of hours by extending the school day and the school year;
- more inter-network activities occurring at all grade levels;
- community education will continue to grow;
- increased educational opportunities for the gifted and talented, and the students needing remedial instruction;
- increased programming to homebound, home schooled, and migrant workers;
- increased programming to the incarcerated;
- increased access to non-traditional types of educational opportunities, such as access to professionals rather than trained educators for some situations;
- IP video applications in the distance education classroom and to the computer desktop when the Internet becomes robust enough to handle the volume of traffic and the bandwidth required for quality video;
- more integration of Web resources via Internet; and
- hand-held devices such as PDA's and palm computers will probably become more popular.

Video Quality

(B12) In terms of video quality for teaching PreK-12 students; i.e., streaming video, VHS, DVD, the general consensus is that "higher" quality, that of the full-motion networks, is best for PreK-12. Post-secondary students generally will endure lesser video quality if motivated, as long as audio maintains excellent quality. Continuous, multi-site, quality audio is essential for all learners.

Bandwidth Needs

(B2) From an educational technology telecommunication access standpoint, the WADEN Technical Committee and others in WADEN feel the requirements to facilitate full implementation of the current and emerging needs identified in user-developed technology plans

are bandwidth and adequate funding. Everything hinges on having adequate bandwidth at an affordable price.

(B16) It is quite obvious that as more applications, such as virtual reality, collaborative document sharing, desk top IP video, and sharing of IP video files for home and professional development applications become commonplace, they will continue to require more and more bandwidth. As new applications move from use by “early adopters” --those who are willing to put up with the technical and logistical obstacles – into the mainstream of use, that much more bandwidth will be necessary. Network directors feel if they have adequate bandwidth, they will be able make everything else happen.

The common feeling of the distance education network directors is that if there were more capacity, namely more time on the network (i.e., bandwidth) and additional classrooms, there would be an even greater use of video distance learning around the state.

Network of the Future

(B23) Of the question on the network of 2005 and 2010 and whether a standards-based network will be required to mesh with other emerging information technologies, WADEN stated that, from a programming perspective, technology is changing so rapidly it is difficult to picture what lies ahead for distance education. The general assumption is that many technologies will be blended together to provide instruction for our students, teachers, and communities. Hybrid classes that combine face to face instruction, interactive television, and on-line web-based instruction are becoming popular with students. A Virtual High School that provides 10% face to face instruction, 10% ITV instruction, and 80% on-line instruction would help students stay on task, learn in different modes of instruction and complete the course requirements. Blended learning will help us provide more classes to more students in the future.

Blended learning environments will also help address the needs of different learning styles of students. Each student has unique learning needs, so providing a variety of different modes of instruction is best. Technology can help us reach students through ITV classroom settings, individual web based courses, and desktop computer related instruction.

Choices for course delivery through a variety of technologies will be necessary in 2005-2010. Different instructional approaches will help meet the educational needs of our students in the future. The State of Wisconsin needs a reliable network that cost effective and not proprietary. These needs are indicative of a standards based network – one that can accommodate current network applications; i.e., video distance learning and IP, along with any new applications.

(B24) The network of the future will be required to address the equity issues. In essence, it needs to create and provide a level and equal educational environment. It is very clear that all of our schools do not have equitable access to technology. If you compare what is available to schools in the Milwaukee/Kenosha/Racine area with what is available to those in Door County or in Northern Wisconsin, the differences are huge.

Even with the TEACH program, there are still schools that cannot pay for the classroom equipment costs and, therefore, cannot participate in the current video network.

The need for educational equity statewide is a much broader issue than networks. Until the state funding system for education is changed, educational inequities will persist. Students

in property rich districts currently have access to a greater number of educational opportunities than in poorer districts.

Wide Area Networking

(C1) With regard to the issue of WAN connectivity, users feel it is a problem that needs to be addressed. It is expected that the demand for “Distance Education” and shared video, audio and data resources will increase requiring either more WAN bandwidth or technology for more efficient use of existing bandwidth. If equity is the desired outcome, as indeed it should be, the design of the future distance education network should facilitate the connection of Local Area Networks.

WAN capability must be an option of the next statewide network after 2005. If the goal is to look at a network that incorporates more than one technology for distance learning (such as IP, ATM, etc), then WAN connectivity is a must.

Providing the option for educational network access to every school building in the State of Wisconsin is of significant importance in the new network. In fact, the 2001 Addendum to the 1996 PreK-12 Technology Plan for DPI recommends that every school building should have at least one video classroom.

ISP Services

(D1) Currently, the video network arrangement makes it difficult for users to select an ISP of individual choice.

- Many users feel there should be several good ISP choices available for them to choose.
- Some users feel they should have the ability to support their local telephone and cable companies.
- All users feel high ISP costs are a growing concern, and it will be important for the state to make sure that the Internet charges are competitive.
- Users want ISP decisions made at the local level.
- Users cite that growth and demand for more services have far outweighed the ability to budget for it.
- ISP rates for many users are becoming a growing area of concern.
- Affordable ISP rates are critical. Schools understand rates will increase, but the level of increase must be reasonable and also sensitive to school district's limited budgets.

Summary

(E1) WADEN summarized its report by re-emphasizing the following points:

Associated costs. While not an issue raised in the analysis report, it is important to remember the costs associated with any project like this are not “one time” costs. They will be repeating costs. Any subsidized program must recognize that once we turn this on and become dependant on it, we must continue to support it until we can replace it with something better. As an example, with the exception of building wiring, hardware and software purchased with 1998 TEACH funding will undoubtedly need to be replaced by 2005, the last year of the current TEACH funding cycle.

Common Database. As we plan for 2005, it is essential to also plan for a common database that can generate all reports necessary for network operation. Reporting this data is extremely important to everyone involved and benefiting from the video network programming.

The next network technology merits further comment. It cannot be overemphasized that WADEN members want to maintain the capability they have today, have increased bandwidth, and be able to blend in new technologies that are affordable and easy to use. Simply migrating to another technology that may not be as good as what we have would be devastating to distance learning in the State of Wisconsin. Schools should not care about what technology is used – only that it is affordable, dependable, easy-to-use, and meets their needs in supporting their educational missions.

(E2) WADEN highly endorses the concept that an educational technology solution to support the needs identified in this document be procured and financially subsidized by the state.

This planning process is all about increasing access to students – regardless of their definition: high school, college, professional development seekers, non-traditional – to expanded educational opportunities. The cost benefit cannot be quantified to any adequate degree when one considers the intrinsic value of just what services there are to be offered and the multitude of ways they benefit the citizens of the state. Every day people are coming up with new and innovative ways to offer an ever expanding array of educational opportunities that may not always benefit the masses in the short term but can have long lasting benefits. (WADEN)

Networking opportunities should be subsidized to insure affordability and equity in access across the entire state. Interconnection at all levels of education must become a requirement, if Wisconsin is to keep pace with other states providing increased educational opportunities for everyone.

Wisconsin is a recognized leader in supporting the use of technology in education. If we, as citizens, educators and decision makers desire to continue our leadership in providing cutting edge technology to our students throughout the state, then it would be imperative that we continue our work, thanks to the leadership of our legislators and the TEACH program. Students from all around the state, regardless of age or location, have been able to truly experience education without any limits. This needs to continue after 2005 and beyond!

(A34) To accentuate the value of what is being supported today for those individuals who will be making decisions for State funding, WADEN recommends that a plan be recommitted for additional long-term future funding to support current and evolving needs.

WADEN fully supports efforts to continue the planning and funding that has created such an effective and necessary technology infrastructure to serve educational needs of the State of Wisconsin. To do anything other than continue evolving the technology infrastructure on a statewide basis would be a tragic loss of support for education and would impact greatly how we educate our citizens and work force of tomorrow. Distance education will become more important in saving courses and options for students as local districts are forced to cut staff and programs.

We all must recognize the need to accelerate the use of technology to allow students to learn without the barriers of distance and time. But we cannot price the service to a point where schools cannot participate. Funding is a major concern in districts with declining enrollments, and these districts need distance education more than ever.

We need to maintain the thrust that has been developed with the TEACH/BadgerNet initiative. Many thousands of students are being positively impacted by ITV. Many courses are being offered today that would not otherwise be offered because of low enrollments and limited funding. Specialized courses, especially foreign languages are being taught, fulfilling the need for achieving the expectations of a global marketing business environment found here in Wisconsin.

With the investment made in the technology statewide and the potential of even greater connectivity, it is hoped that the state will continue to support quality education for the students of Wisconsin. Based on conversations with network directors located outside Wisconsin, it would be very difficult to top BadgerNet anywhere in the United States.

The value of a system cannot be quantified by measurable cost benefits alone, but it can in the value of access to educational opportunities that have never been possible before the implementation of the statewide network.

Agency Interviews

Agency Interview Process

WENCC's charge from its executive sponsors is to assess the business needs of each potential user of the next educational network in Wisconsin. Focus groups were organized across the state with users and administrators from every educational sector from pre-kindergarten through secondary education to adult lifelong learners. Surveys were sent to school administrators, technology coordinators and classroom teachers. WENCC also recognized the need to talk to state government users to assess their educational needs because of a growing need to cut costs for training and.

Several approaches were used to gather information for this business analysis: focus groups, surveys and written questions and answers. However, the committee felt the best way to assess the needs of state government agencies was an interview held in conversational manner. Each agency assessed received a briefing document with a list of questions to help prepare for the interview, which was scheduled for an hour. As the information was transmitted in conversational fashion, the results are reported the same way. *(For additional information see Document III Wisconsin Educational Network Business Case Appendix)*

WENCC interviewed the state agencies listed below regarding their current and planned use of distance education technologies, including video conferencing. Compiled responses to these interviews follow:

- Courts System
- Department of Employment Relations
- Department of Health and Family Services
- Department of Natural Resources
- Department of Corrections
- Department of Justice
- Department of Transportation
- Department of Public Instruction
- Department of Workforce Development
- Department of Veterans Affairs
- Public Service Commission
- Wisconsin Technical College System Board

Agency Interview Results

1. Is use of video conferencing or other distance education media a part of your agency's strategic IT plan?

Generally, state agencies report having a very comprehensive strategic IT plan, and the WENCC team reviewed a sample of them. The plans range in focus, and many include aspects of desktop support enhancements, adding capacity for Wide Area Networking connections, conversion to a new mainframe access, new storage area networks (SAN), document management, and operating system upgrades. Some of the agencies outline a very specific video application, like the Department of Transportation's Freeway Traffic Management System that uses video for traffic information and control. Most of the agencies indicated they had video technology enumerated either directly or indirectly in their plans. However, the agency IT strategies usually did not have comprehensive or detailed video plans for education or training.

2. Does your agency currently use video conferencing for training and/or meetings?

Most of the agencies interviewed have some experience with video conferencing for training and meetings. Many agencies have compressed video conferencing system manufactured by PictureTel or Vtel. These systems use ISDN lines with which they dial the phone number of the compressed video site at the time they wish to make a call. Unlike the broadband full-motion video network (BadgerNet), no scheduling in advance is necessary because the dial out is over the state's STS system, which is over the public switched network. Although these systems can be connected to multiple points, agencies generally use these types of systems to conference each other in a point-to-point configuration. That is, there are only two sites in the conference; and they connect to each other by dialing a phone number. If more than two sites are required, a Multi-Connection Unit (MCU) can bridge multiple sites together.

There is significant variance when the agencies report on the reliability of compressed ISDN systems. The Public Service Commission (PSC), which uses ISDN video conferencing to host hearings at remote sites, indicates it is often unreliable. Employees at the PSC are reluctant to take testimony from a witness at a remote site because they are never sure if the equipment is going to work.

However, the Department of Corrections (DOC) uses ISDN video conferencing systems for family visitations when inmates are housed out of state. While DOC employees report having trouble too, their impression of the system is far more favorable.

Some of the agencies have experience with IP video, which uses Internet Protocol and a data network connection to transport video signals. This is generally not a two-way transmission; so there is no interaction between or among the users. The video transmission is viewed on a computer screen and does not require a dedicated room or equipment to participate. The reports of reliability and usability vary even more greatly here than with ISDN video conferencing system. More than one agency indicated that users have brought the data network to its knees trying to view a video transmission from the Internet.

The Department of Public Instruction commented that the IP system locks up with such regularity that no one wants to use it. At the other end of the spectrum, the PSC broadcasts its hearing to the entire building using an IP solution. Its experience is that IP is *far* more reliable and user friendly than ISDN. However, less than half of the agencies we spoke to are familiar with or using IP video, while all of them have heard of and occasionally use ISDN video.

There are other web-based video conferencing applications that agencies use. The most common was WebEx, but WENCC also heard about PlaceWare (web conferencing) and Centra (voice over IP). How these applications operate varies product by product, but they all utilize the Internet as their base infrastructure. All of them provide more than IP video. There are only a few pioneer agencies, such as the Department of Natural Resources, the Wisconsin Technical College System Board and the Department of Health and Family Services that are using these applications. These leading edge technologies seem to get good reviews by their early adopters. When used for the proper application, these technologies meet the agency's specific need nicely and play a valuable role for the agencies that use them.

The most common use of the compressed video sites throughout the state government network is for remote conferencing. The concept makes intuitive sense: use video conferencing instead of driving across the state for a face to face meeting. Some of the agencies have done a cost-benefit analysis demonstrating cost savings by using this approach. There is some variance in how those reports were created, but none of them indicate it is less expensive to drive to the meeting. However, some agencies were very clear about when these types of meetings make sense and when they do not.

The Department of Public Instruction noted that longer meetings of four to eight hours are much harder to hold over video than one-to two-hour meetings. Their experience indicates users get distracted and find it hard to pay attention the longer the meeting goes on. The Department of Health and Family Services agrees with the idea of conferencing, just not video for video's sake. Unless they need to see who's in the room, as when they discuss a union grievance, they suggest using a less expensive approach like a traditional conference call.

There were several agencies that indicated they use compressed video to transmit hearings around the state. They've had mixed results using the technology and the general consensus is that it is not as reliable as they would like it or need it to be. However, if compressed systems were as reliable as other technologies, they would be utilized much more regularly. Most of the agencies reported their users did not embrace video conferencing and one interrupted or failed session completely discouraged them. We also heard some interesting uses of video conferencing, such as family visitation over ISDN. The majority of agencies report having a significant need to train their end users and video could be helpful.

3. Does your agency use the video conference facilities available at the Pyle Center?

Most of the agencies were familiar with the Pyle Center and services they provide for video conferencing. However, less than half reported actually using the Pyle Center, and those users indicated their use was minimal.

4. Does your agency plan to increase its use of video conferencing or other distance education media for training and/or meetings?

Almost every agency was aware of the advantages video conferencing could provide. Many agencies cited the budget deficit as a compelling reason to increase their use of video conferencing. Many were even aware of the Governor's desire to see an increase in the use of video conferencing as a way to reduce overall expenses. Most of the agencies did not have specific plans they could reference regarding increased use. A few agencies, such as the Department of Health and Family Services (DHFS), are aggressively marketing their video networking capability to their end users. DHFS is holding a seminar in September 2002, to introduce users to video conferencing and encourage additional use.

5. Do you know about the BadgerNet Video Network for distance education?

The BadgerNet video network is a broadband, full-motion video network. The infrastructure required for this network is DS-3 (45 Mbps) from the originating site through to the terminating site. Bandwidth for this network is significantly greater (45 Mbps vs. 11 Mbps for an ISDN connection). BadgerNet video network sites can only communicate with other BadgerNet video sites. Gateways provide access for BadgerNet sites to communicate with compressed ISDN sites, but the session operates at ISDN speeds. Unlike ISDN, users cannot decide to create a session ad hoc. The site's network director or the inter-network scheduler must schedule a session. The BadgerNet video network is comprised of educational institutions including libraries.

Very few agencies, with the exception of the Wisconsin Technical College System Board and the Department of Public Instruction, knew much about the BadgerNet Video network. During our discussions, many expressed an interest in knowing more about the network to see if they could integrate it into their training. However, the current network uses manufacture discontinued codecs to digitize and compress the video signal and they are in short supply. So agencies would have to use existing link sites and work with a heavily pre-scheduled network to take advantage of the technology.

6. Are there current technologies or services the DEG does not provide that could help you meet your overall distance education goals?

During our conversations with agencies, this question received the shortest responses. Several agencies suggested we acquire more cost-effective bandwidth or improve the speed of our data connections to the Internet and all state agencies.

The Department of Natural Resources suggested we buy some WebEx site licenses and allow agencies to share them. The Department of Public Instruction suggested we focus on security within our network to aid its ability to collect and transmit information to the federal government. The Public Service Commission would like to see multi-cast software deployed in the network so it can broadcast hearings publicly over the Internet. The Department of Transportation suggested we hold training sessions to allow users to become more familiar with the new equipment so the learning curve was not quite so steep.

7. What do you envision for your agency's use of distance education media (video conferencing, streaming video, etc.) in 2010?

The common themes for this question centered on key elements of bigger, easier, faster and more of them. Most agencies felt that, while adequate today, the amount of bandwidth they would need will certainly grow based on increased need in the recent past. Ease of use is often cited as a barrier for video conferencing, and several agencies would like the next network to be more user-friendly. A 'plug and play' system will encourage users to try it and use it more often. We heard frequently that users would like their Internet connections faster than they already are. While most agencies reported they did not experience long delays connecting to the Internet, most felt the future should provide greater speed than what we have today.

We heard some very specific requests that are worth mentioning. The Wisconsin Technical College System Board would like to be able to connect all their sites, including 47 single campus sites, with bigger, faster connections. The Department of Veterans Affairs reported their vision included veterans using a video conferencing connection to apply for a benefit and be able to receive it without having to do anything else. The Department of Natural Resources and the Public Service Commission would like the state network provisioned to support video multi-casts so that hearings could be propagated over the state network and the Internet. The Department of Health and Family Services suggested voice, data and video would converge into a single, high capacity network yielding less expensive service to all users before 2010.

Survey of Deaf and Hard of Hearing State, University and Technical College Employees

Survey Process

To meet the WENCC goal of contacting and communicating with as many potential member groups of the next distance learning network as possible, the deaf and hard of hearing community within state government, the UW System, and the technical colleges was contacted. Jack Cassell, the Department of Electronic Government's Telecommunication Relay Service contract administrator, provided the committee with contact names. Seven of the people identified work for state agencies, one works for the University of Wisconsin-Madison, one works for the University of Wisconsin-Milwaukee, and one works for the Northcentral Technical College.

WENCC submitted questions to this group that were similar to those asked of other groups with the exception that there were some inquiries specific to the use of distance education technology by the deaf and hard of hearing. (*For additional information see Document III Wisconsin Educational Network Business Case Appendix*) WENCC received eight responses to the following open-ended survey questions:

1. Are you currently using videoconferencing?

As with most state agencies, the answer to this question varied. Some users had experience with multiple kinds of video conferencing and some did not have any. Of the types of video conferencing cited, the most common were ISDN and IP video. Most users were familiar with the Video Relay Service and at least some exposure to it. The Video Relay Service is heavily utilized with users from the deaf and hearing impaired community active in that system every day. Those who do use a video conferencing technology do not necessarily use it for training or meetings, based on the survey responses. Other uses include video chat, teaching and one-on-one conversation.

2. Which videoconference technologies do you use; e.g., desktop? Other?

Most of these answers were quite short and included references to NetMeeting, ISDN, desktop video, video to a laptop, and the use of the Pyle Center.

3. How often do you use videoconferencing technologies?

Again we see a wide range of answers from our users. Some do not use video conferencing at all, or very rarely. Others report using it once a week. Some users access some form of video conferencing on a daily basis. These answers are consistent with the rest of the groups we interviewed with heavy use by the early adopters of technology, occasional or little or no use by others.

4. Are you currently using other distance education media?

Most of the answers to this question were consistently negative. Other than a reference to BlackBoard, which is heavily used in web-based education, most users did not have any experience with other distance education media.

5. We know you probably do not have specific figures for the following question. However, we would like to get a sense of how much videoconferencing and other distance education technologies are used

by the hearing-impaired community. In your estimation, what is the percentage of use of video and other distance education media within the hearing impaired community?

The estimates to this question vary from 1% to 35%, however, the narratives to this question generally indicate a sense of very low overall usage. Newer services, such as the Video Relay Service, may make access to education a little easier and, thereby, increase the percentage of use.

6. How has the use of video and other distance education media facilitated training and meeting opportunities for the hearing impaired community?

Generally, the answers to this question were positive. Those who have used video conferencing or NetMeeting find it very effective and recommend their use. Those who have not specifically used other media like the idea and see the potential even though they do not have direct experience. There were no comments from users with experience that reported negatively to this question.

7. Do you know about the BadgerNet Video Network, which is a full-motion, high bandwidth network used primarily by educational institutions in Wisconsin? Have you ever participated in a BadgerNet Video Network session?

The deaf and hearing-impaired community answered this question the same as many state agencies did. They have heard about the BadgerNet Video Network but knew little about it and had no experience using it. We take this as an indication that the next distance education network has a potentially wider audience with more varied uses.

8. Are there current technologies or services the State does not provide that could help you meet your overall goals?

There were many answers to this question. Those responses include:

- close captioning and split screen for a language interpreter;
 - the state should host its own NetMeeting server;
 - training and publicity of existing desktop video applications;
 - desktop video conferencing; and
 - allow agency IT shops to provide web cameras for video conferencing.
9. What do you think distance education technology, including videoconferencing, will look like in 2010?

Of all the questions asked, the answers to this one had the longest responses. Most of the answers included some mention of more flexible captioning and/or interpreter services. And most answers included aspects of responses we received from other groups: smaller, faster, mobile, and more bandwidth. There was also a mention of wireless video conferencing access allowing users to be mobile and still have access to interpreters or other deaf/hard of hearing users. Another suggestion included a device to convert speech to captioning instead of using an interpreter. One response included a suggestion that the cell phone be used to access captioning or interpreter services. All of these suggestions are creative and could work if pursued by manufacturers in the industry.

10. In your estimation, what do you think the impact of future improvements for video and other distance education media will be for the hearing impaired.

Without question, the answers provided by each respondent are positive.

“Future improvement particularly providing communications accessibility such as CC and sign language interpreter along with video and other distance education media, there is no doubt that we would see an increased use within the Deaf Community.” (Jack Cassell, Department of Electronic Government)

What are Other States Doing with Distance Education?

Collaborative Distance Education in Five Other Midwest States: Illinois, Indiana, Iowa, Michigan and Minnesota

Below are some of the collaborative distance education initiatives and funding mechanisms in Illinois, Indiana, Iowa, Michigan, and Minnesota. It is important to note that all the states have individual institutions that seem to offer similar programs under different names, by a different organization or for different groups (PreK-12, college, or citizens in the workforce). This tends to be contrary to promoting collaborative efforts.

Illinois

The *Illinois Online Network* (ION) is a collaboration of 48 community colleges and the University of Illinois working together to advance utilization of Internet-based instruction and service throughout the state of Illinois. The primary mission of the Illinois Online Network is to promote the effective use of networked information technologies to enhance traditional classroom instruction and to build the foundation for developing, delivering, and supporting courses delivered in a completely online format. The URL is <http://illinois.online.uillinois.edu/>.

ION was initially funded through a State of Illinois Higher Education Cooperation Act (HECA) grant. In 2001, Illinois made its funding permanent by folding it into the University of Illinois budget. There are neither member fees nor federal funding. With a small, but very talented staff, they are able to do a lot.

Making the Virtual Classroom a Reality (MVCR), an online training series for online educators, is a related ION program. The MVCR courses are the primary way that faculty is reached (<http://www.mvcr.org>). MVCR is able to teach many sections of the courses using adjunct instructors recruited from those who have taken the courses and demonstrated excellent facilitation skills.

Northwestern University runs the "*Collaboratory Project*" providing consulting, training, technical advice and Web-based resources and services for Illinois K-12 teachers and students. The project is attracting a large and diverse community that is integrating technology into teaching and learning, using technology to achieve Illinois Learning Standards and Goals, integrating technology into the school improvement process, and using technology to help close the gap between low- and high- poverty schools. The URL is <http://collaboratory.nunet.net/cwebdocs/index.html>.

Indiana

The *Indiana College Network* (ICN) is a gateway to distance learning opportunities at Indiana's colleges and universities. The ICN provides access to member institutions' distance education offerings, including more than 70 certificate and degree programs and nearly 1,500 courses per year. A rich web site, a network of more than 60 Learning Centers, and a toll-free hotline provide technology access and strong learner support. By using ICN, students are able to complete a course and have the grade and the course appear on their home institution transcript automatically. Tuition and other fees are set by the home institution.

Members include Ball State University, Indiana State University, Independent Colleges of Indiana (Taylor University), Indiana University, Ivy Tech State College, Purdue University, University of Southern Indiana, and Vincennes University. The URL is <http://www.icn.org/>.

Iowa

Iowa has the *Iowa Learns* catalog. Several years ago the Iowa Coordinating Council for Post High School Education (CCPHSE) established the Advisory Committee on Distance Learning. The Advisory Committee's mission is to look at distance learning in Iowa from a broad, future-oriented perspective. The committee is also charged with assessing, evaluating, and communicating to the education community the greatest needs and markets for distance learning. The Advisory Committee was given the task to oversee the development of a central, web-based catalog of Iowa distance learning resources. The URL is <http://iowalearns.org/>.

Early in the process, Iowa Public Television (IPTV) was identified as an organization that had the capabilities to develop this Web-based catalog. Educational institutions participating in this catalog include public and independent colleges and universities in Iowa. Advisory Committee fosters collaboration on this site with other groups addressing related issues in Iowa. These groups include, but are not limited to Workforce Development and Economic Development.

Michigan

The Michigan Community College Association, with support from the Michigan Virtual University, has created a *Virtual Learning Collaborative* (VLC) among Michigan's community colleges. The collaborative is designed to allow current Michigan community college students to take courses from other member colleges while still receiving support services and maintaining their academic record at their designated home college. The URL is <http://vcampus.mccvlc.org/>.

The *Michigan Virtual High School* (MVHS) lets all schools offer students equal access to diverse courses. MVHS is a way to build technology skills and tools that help them prepare and succeed in a globally competitive future that is integrated with technology and focused on the knowledge economy. MVHS course pricing is similar to tuition-based fees charged by colleges and universities. There is a MVHS membership subscription program for schools. Generally, schools pay the MVHS tuition, but under certain circumstances, part or all of the cost may be passed on to parents. The URL is <http://www.mivhs.org/>.

Minnesota

The *Minnesota Virtual University* (MnVU) is the online learning connection in Minnesota. It connects learners, industry, and education providers as partners to build Minnesota's economic vitality. MnVU is organized to facilitate, coordinate, and promote access, quality, partnerships, and greater efficiency in Minnesota post-secondary education.

MnVU formalized its role in an organization to promote education and employment via the Internet. The signed Joint Powers Agreement (September 2000) formalized the existence of iSeek solutions - a holding organization that currently develops and markets sites that include the Internet System for Education and Employment Knowledge the Minnesota Virtual University and the Career Resource System web sites.

Numerous task teams, consisting of learners, educators, administrators, business representatives, economic developers, private citizens, librarians, as well as many others have worked on the MnVU initiative. Together, they have shaped MnVU; developed policies and evaluation guidelines; worked on opportunities for faculty development; and built partnerships with libraries, communities, K-12 schools, and industry. Also, hundreds of volunteers helped shape MnVU.

MnVU is sponsored by iSeek Solutions, a Minnesota partnership comprised of these organizations:

- Governor's Workforce Development Council
- Minnesota Department of Children, Families, and Learning
- Minnesota Department of Economic Security
- Minnesota Department of Trade and Economic Development
- Minnesota Higher Education Services Office
- Minnesota Office of Technology
- Minnesota Private College Council
- Minnesota State Colleges and Universities
- University of Minnesota

The URL is <http://www.mnvu.org/mnvu/index.jsp>.

Minnesota held its first E-learning Summit in May 2002. Information is located at <http://www.mnvu.org/mnvu/1502.jsp>. Augsburg College is planning a "Classrooms of the Future Conference" in May of 2003, which is described at <http://www.associatedcolleges-tc.org/cof/>.

"Teaching via interactive Television," <http://umrtv.cee.umn.edu/UMITV/index.htm> is designed to serve faculty who plan to teach a course using interactive television (ITV) technology and can connect with other state, national, and international systems linking the University of Minnesota to the developing global distance education network.

Wisconsin Context

With the exception of Minnesota, no where else in the surrounding states is there a distance education project with the all inclusiveness and level of cooperation as has been demonstrated by the Wisconsin Educational Network Collaboration Committee (WENCC).

Other Important Information

Key Issues Legislators Should Know About

- The impact and progress created by the educational technology and telecommunications access investments provided by the Wisconsin Legislature in conjunction with significant investments made directly from institutional budgets.
- The stakeholder information needed to facilitate continued Public Policy funding commitments of emerging educational technologies because: Continued funding is essential to protecting the investments made in the past five years. However, it is imperative to build upon the stable educational technology foundation that has already been built.
- This educational technology foundation continues to produce well educated citizens as one of the primary building blocks of the State of Wisconsin Economic and Business plan currently being implemented to position our State to compete and survive in a global economy.
- The educational and administrative human resource paradigm shift requirements needed to facilitate professional education technology staff development, which will fully accelerate and maximize educational technology use, and, in turn, fully maximize current and future investments.
- A realistic vision about how these educational technology investment commitments will give Wisconsin students and Lifelong Learners a global competitive edge in education and business workplace.

Other Outcomes of the WENCC Study That Legislators Should Know

Other outcomes from the WENCC study provided information for the use of individual Wisconsin educational sectors that were collaborative partners in the process. Information from this analysis will:

- Assist the TEACH Board to evaluate the value of the current Telecommunications Access Programs.
- Assist the TEACH Board in reviewing it is mission for the future.
- Assist the TEACH Board in making decisions relative policy to support future TEACH programs.
- Assist the following education and government sectors make their own internal decisions relative to how their current technology plans are impacted and enhanced by a Wisconsin Education Network.
 - University of Wisconsin System
 - Technical College System
 - Education Communications Board
 - Department of Public Instruction
 - Department of Electronic Government
 - Cooperative Educational Service Agencies
 - Private Colleges and Universities

- Assist individual Wisconsin PreK-12 districts and Library Systems to make strategic business and curricular technology decisions.
- Assist Wisconsin educational institutions and libraries to make decisions relative to how common collaborative objectives can be achieved and ultimately supported on a statewide basis/global basis.

Voices of the Users

Because this business case has been built on information WENCC received from the users of the current statewide networks—the state’s customers, the committee thought it important for Legislators to hear their voices by reading their own words about the importance of continued funding for Wisconsin’s Educational Network. Following is a representative sample of some of the many anecdotal comments received from the focus groups, the Teacher Survey, WADEN, and the DPI/TEACH Survey:

April 22 Teacher Focus Group

A technical college teacher asked a student what she hoped to gain from a particular class that she was taking over the BadgerNet Video Network. The student responded that what she wanted was to get a good enough education that she could support her five-year-old child by working only one job instead of three. The student indicated this would not be possible without the classes she could access over the video network.

Another teacher offered that because of the broad base of classes provided (thus expanding availability to people all over the state), the video network was *“a good deal financially.”*

April 26 Teacher Focus Group

Teacher statement: “It (video) is not as effective as a regular classroom. But given the need for particular classes, it is very effective at delivering that.”

Teacher statement: Need to work on teaching methods for distance learning because it is different. Teachers need time to learn and have adequate training so they are not afraid to use it is very important.

Another teacher talked about an incident when her social studies class connected with Senator Herb Kohl. “We had great technology, but the Feds did not. Kohl was jerky and his lips and voice were out of sync. The kids thought it was very funny that they have great technology but the Feds did not.”

The same teacher also related the following story: After 9/11, students at her school had the opportunity to connect with an American diplomat stationed in Ecuador who gave them global insight into the 9/11 events. The school never could have provided that kind of access opportunity without distance learning technology.

One teacher made a strong recommendation regarding teacher training: “Get the teachers who are doing distance learning well involved with teachers who are learning how to teach using distance learning technology.”

There was also concern voiced that “most of the whiz bang stuff is for the high school and maybe the middle schools.”

June 5 WADEN Focus Group

It was stated that DS3 comes closest to providing actual classroom environment. However, schools need all distance education technologies because each brings something; each has its own benefit. “There is an appropriate technology for what you want to do. The right distance education network will provide the transport for the appropriate technology.”

“Maybe distance education technology can/will transform the way students learn in the future.” (Jane Manske)

“The network should be driven by educational needs, not for profit.” (Jane Manske)

“The network must be living/dynamic and a plan must be in place ahead of time to modify as needed; e.g., gateways should be capable of accepting phone dial-in so students can participate by phone even if they do not have video capability.” (Dan Gross)

Someone stated that Wisconsin is unique in its cooperation between network directors in WADEN. Why? It started as grass roots with regional structure. How can non-education users be integrated into this model to continue cooperation? This is important to the legislature’s definition of organizations that are part of the network.

It was also stated that 426 separate school districts want to maintain their autonomy.

June 6 Northwest Focus Group

Dave Hildebrand of WITC gave an opening statement to the group. He gave some statistics about the number of people per square mile in the northwest part of the state vs. the number of people per square mile in Wisconsin’s urban areas and pointed out that the young people in upper northwest Wisconsin leave in droves after graduating from high school. He said they need economic opportunities to stay. Even when they want to come back to settle down, there are not any jobs to support them. He said they need the same working opportunities as is available in more populous areas, and the legislature should ensure that students in the northwest part of Wisconsin have the same opportunities as students in more populous areas. Dave believes that distance education can bring opportunities and the education to take advantage of those opportunities.

Miscellaneous quotes

“We’re going to try to position Wisconsin to be a leader in education in 2010.”

“The quality of a student’s education should not depend on where the student lives.”

“We need to help better teachers be better learners and embrace technology.”

“We all need to be on the same platform and connect (said regarding video sites in Wisconsin). Financing of technology has to be in the right timeframe; e.g., a new technology is obsolete in five years. Shouldn’t have payoff of 10 years. We have higher skill needs for employment than in the past.”

“Schools should become the community technology resource center and provide access to all learners; e.g., WITC Ladysmith allows the public to use its technology center.”

“Need seamless structure for funding education technology through every level, libraries, etc.”

“Regarding what will technology in 2010 look like, someone noted that trying to design it today is a lot like designing a car based on what a highway looks like right now. What will the highway look like in the future?”

“Other industrialized countries invest more than the U.S. in helping employees advance, improve. Employers need to have an attitude change about the importance of continuing education—its importance and use technology to deliver it.”

“I do not think the folks in Madison realize the cost they could save using distance education technology for meetings. It is 700 miles round trip from Rice Lake. The state needs to be more proactive about using technology so that instead of my being paid to drive those 700 miles, I can attend the meeting right from Rice Lake”

“By 2004, fourth, eight and 12th graders will be required to demonstrate core technical competencies. The technology in our schools should keep up with the core competency requirements (see DPI technology requirements). Rural areas do not have a lot of local expertise, which is a problem.”

Voice of One Who Has Benefited

The original NWECS (E-series video) network was my springboard to achieving an advanced degree—from Milwaukee—without having to leave the Superior area. I began coursework at UW-Superior in the Fall of 1995, and continued receiving ITV instruction from UW-Superior and UW-Eau Claire. These courses were pre-approved for transfer into UW-Milwaukee’s distance learning-based Master of Library and Information Science degree. Eventually my courses became focused at UW-EC, receiving video from UW-M via the WONDER network, or sometimes UW-M faculty came to UW-EC in the summer and taught on site. I received the MLIS in May of 1998.

Without ITV, there is no way I could have achieved a Master’s Degree in my chosen field. As a working mother of three young children, leaving Superior for more than a weekend was not an option. Library schools are located at UW-Madison and UW-Milwaukee, but there is still no graduate level opportunity available to my part of the state, outside of distance learning. I was able to remain in my community and to maintain my employment while pursuing this degree due to ITV technology.

Achieving this degree meant I was able to go from part-time para-professional employment to full-time professional employment. Without ITV technology, I would not be working at WITC today. I was able to pursue my personal and professional goals without having to move and went on to get a great job in my own community.

The technology-based learning experience has, without question, enhanced my skills as a librarian; the skills attained from being an ITV student have also expanded my ability to work with other types of technologies. At WITC, I serve as the Director of Learning Resources, which means I am the administrator of four campus libraries. I also work in a planning and instructional support capacity with the four distance learning networks to which WITC belongs (NWECS, WIN, Northern Lights, WTCN). It is not an exaggeration to say that this technology has profoundly and positively changed my life.

I am grateful for the professional network of colleagues, who are located in other parts of the state, that I now have as a result of participating as a small cadre through the ITV-based courses. I know from mentoring a subsequent graduate of the same program in a totally online environment that her experience was much more isolated and disconnected than mine. She never met her advisor, instructors or any other

students and has not formed the professional contacts in the field that serve as a network of support and mentoring. (Lisa Swanson, WITC)

WADEN Voices

“Statewide, high quality, distance education technology is one of the resources that distinguishes Wisconsin’s educational system as progressive. Its use of new and available technology, organized into educational consortiums, follows the idea of shared revenue resulting in shared teacher resources.” (SCING member district administrator – CESA 5)

“Without a dedicated video classroom ...consolidation of districts would need to be considered, thus shifting cost from network to transportation.” (Northern Lights Network member district administrator – CESA 11)

“The distance learning classrooms are perhaps the most significant step taken toward equalizing education in the state of Wisconsin.” (KSCADE member district administrator)

“Without state financial commitment to distance education, most districts could not offer the diverse curriculum that we now do, plain and simple.” (KSCADE member district administrator)

“We would not be able to offer programming in important areas such as career development (daycare certification, medical terminology, Criminal Justice) without the video network. We would not be able to offer advanced placement and optional foreign languages. We would not be able to offer American Sign Language and other courses that reflect missions toward diversity and tolerance. We could not provide options to elective courses in social studies, history and English. We could not compete with other larger districts that can provide these courses and options and could draw students from our schools under School Choice/Open Enrollment policies.” (DADE-FACET districts – CESA 6)

“Small schools need curricular diversification that is currently restricted by staff certification. Staff strengths, particularly within a distance-learning consortium, need to be shared to get the best and most comprehensive offerings to all students. Distance learning provides this avenue.” (Jerry Smith, Superintendent, Elkhart Lake/Glenbeulah School District)

“At Big Foot High School, our teachers are just beginning to integrate our video distance education lab into their existing curriculum. New technologies take time before they become well integrated into the curriculum; however, it is easy to see how video distance education can help teachers to integrate the Information and Technology Literacy Standards (ITLS) into their curriculums. As a school, we can more easily integrate ITLS performance standards with a dedicated video classroom than we could have without one.” (Tom Schauf, Instructional Technology Coordinator, Big Foot Union School District)

“At Sturgeon Bay High School, and at most small schools I presume, some classes couldn’t be offered because of small enrollments, a lack of staff and/or facility. Distance learning gives us an opportunity to offer such classes to better meet the needs of our students.” (Joe Lewis, Principal, Sturgeon Bay HS – CESA 7)

“In Montello, cost effective uses include research and field trip access for students without liability and cost of leaving districts. The educational mission of the school district is also enhanced by providing professional development opportunities to teachers via the network. Montello District Administrator.

Graduate courses over the network, a common In-service day for our consortium districts, and a summer technology academy are just some of the enhancements that TRITON has brought to its members” (Kaye Lietz, TRITON director – CESA 5)

“In today’s world, technology is paramount as a tool for the future success of our youth. It is the states, and thus the legislature’s duty and obligation to educate those young people...we need to do it in a variety of ways to ensure their ability to compete.” (KSCADE member district principal)

“In a small school setting, the dollars supporting each student become very limited as students reach the highest level classes such as Calculus...budget constraints do not allow small class sizes. Distance learning provides the possibility of allowing several small classes to work together as one.” (KSCADE member district principal)

“Students in smaller school districts would suffer the most because distance learning provides opportunities that are not readily available or require a great reliance on Youth Options initiatives, at a greater cost to the school.” (Principal)

“The world is about options, distance ed opens the door to those options...options which we could not deliver without distance education...delivery of quality education would be severely hindered.” (Principal)

“We would probably have to close the room. We are facing a \$750,000 shortfall now. There is no way we could take on something like this ourselves. It would be a loss. Based on the current budget situation, we would have to eliminate it because we are already cutting classes and curriculum in our district. If this area was not subsidized, we couldn't afford to offer it. In our situation, with declining enrollments and loss of revenue, I do not think we would have a choice but to drop our distance learning program if we lost funding.” (Joe Lewis, Principal, Sturgeon Bay HS)

Additional WADEN Information

DADE’s German curriculum offers three successive years of German instruction to students whose schools do not offer German. These students are able to satisfy college requirements for two years of foreign language and advance beyond with the third year of German III. Most AP students would not have this opportunity without network connections because of no or low enrollments at their home school or no teacher to teach the course. Students enrolled in Youth Options and dual credit courses through higher ed. partners would not have these opportunities due to faculty unavailable/unqualified to teach these specialized, college level courses.

In the four networks managed by CESA 10 (CADENC, CWETN, Project CIRCUIT, AND WIN), half of the seventeen hundred students taking distance learning classes participate in High school to High School classes. Distance classrooms allow district to share specialized classes. Schools offer advanced classes to other local districts where none of the districts could afford to offer them to only their own students. Whitehall, in Project CIRCUIT, and Loyal, in CWETN, teach AP Calculus to four or five of their own students and ten to 15 students at remote sites. Durand teaches AP Psychology to Altoona. A Loyal instructor teaches his specialty, Astronomy and Geology, to non-college bound students at remote sites. These are two of the most popular courses offered in the CWETN network, of which Loyal is a member.

In addition to sharing teachers between districts, staff development programs and community education offerings are provided by connecting schools to agencies and organizations throughout the state. By combining several sites in one session, many students can benefit from the same program. The Northern

Lights Network in northwest Wisconsin offered a series of Teacher Share Shops for instructors of like disciplines to meet on the network after school to discuss best practices, standards, and assessments.

Technical colleges and universities are combining their resources to sponsor programs that they cannot afford to offer by themselves. An example would be the Industrial Engineering Program that students can take the first two years at a tech college and complete the program at UW-Stout. Many of these classes are offered over the distance learning network to provide seamless learning throughout the state.

WITC – Rice Lake was able to offer French II and a combined French III/IV to Ashland High School literally on a moment's notice. Their teacher quit the week before classes started and they had 23 students needing an instructor. The dynamic and flexible nature of this technology allowed them to connect the students with a certified teacher in Rice Lake, and all were served without missing a day of class.

South Shore School District was faced with a 25% faculty layoff due to budget. They are using ITV not only to receive instruction, but also are marketing their offerings as a way to retain teachers in key subject areas. The unique offerings they have make it a real win/win for the whole NWECS network (CESA 7).

The vast majority of school districts that have video classrooms view them as an essential component of their technological capability, along with computers, access to the Internet, media rich classrooms, and other learning enabling technologies. In many districts in CWETN and Project CIRCUIT (CESA 10) distance learning classes are important enough that they register students in those classes first and then build the rest of the schedule around those classes. In a number of cases, even receiving one or two hours of programming each day via interactive television meets 100% of the schools needs.

In the Northern Lights Network (CESA 11) 28 of the 30 members have used their ITV classroom at least half to the day---5 out of 9 periods during the current school year. Next year 28 of 30 members will be offering at least 1 HS credit of instruction for other schools to receive.

CESA 11 actively uses the network for staff development opportunities for teachers after school and state wide meetings during the day hours. They offer approximately 45 evening courses each semester. WITC-Rice Lake and WITC-New Richmond sponsor most of these courses. UW-River Falls and UW-Superior also offer a few courses on the network each semester.

All 11 NDEN (CESA 8) members use the network extensively. This year 3 of their schools are totally dependent on the network for foreign language instruction. Our network is busy from 7 a.m. to 10 p.m. and sometimes on weekends. For small rural school districts in our area the network has been the great equalizer.

The 8 deeply rural school districts in ERVING have thoroughly integrated video distance education into their curriculums for 11 years and need to continue its use to expand resources. Approximately 50% of students in the 8 ERVING districts take a class at a distance during their high school years; many take several classes via the network.

70% of ERVING students are women. Administrators attribute this to the high need for electives for women in rural schools. Few take the Tech Ed courses young men take, Family and Consumer Ed classes draw fewer girls today, and small rural school faculty are often fully committed to core subjects making their time to offer electives limited or nonexistent.

Intercultural Education is greatly enhanced through classes offered by the Menominee Indian School District: Native Issues, Menominee History, and Native American Literature.

This year the SCING network ran 32 courses in which 471 high school students participated, for a total of 51,131 student class hours of instruction over the network. That number divided by 17 SCING high school classrooms equals 3,008 student hours. Keeping in mind that each site has only one classroom, compare this with one traditional high school course with 20 students participating in the class. If the traditional class meets 5 times a week for 36 weeks or 180 hours, the number of student hours for that one class is 3600. 10 of 17 K-12 members have used their ITV classrooms at least half of the day – 4 of 8 periods – or an average of 5.6 hours out of each day for the 2001-2002 school year.

All 16 technical colleges rely heavily on their ITV rooms. Every technical college has at least 2 video classrooms. The number of video classrooms in each district ranges from 2 to 13. Most technical colleges also belong to more than one ITV network. Since the technical colleges are only subsidized for one of these ITV rooms, they have determined that this medium is important enough to their mission to pay BadgerNet retail for the additional rooms. The technical colleges have made a very large investment in this technology. The use of these rooms reflects that as well.

From WITC's perspective, there is no question that the missions of all of their network partners would be irreparably damaged if there were no video distance education networks. In Northwest Wisconsin it is the means by which vast geographical regions and diverse missions are woven together and connected. The networks serve as a lifeline between partners to communicate, collaborate, and share content.

The mission of College of Menominee Nation (WONDER member institution) – to reach out to communities and teach Menominee values – would be greatly hampered without ITV. Among other things, there is a large population of Menominee people in the Milwaukee area and also spread throughout the United States. It is their hope that they can develop distance education to reach all of these people.

Because of the severe budget restraints in the PreK-12 arena, most of the districts in the NLN would not be able to continue to belong to a video distance learning network. \$30,000 per year would not be an affordable price for just the network transmission.

In the Milwaukee Public Schools, the video room is used as a regular multimedia or presentation classroom through interactive courses and activities. It is used for targeted topic modules, sharing presenters and field trip experiences, and for student oral communication skills.

The majority of the type of teaching conducted in a WTCN ITV classroom is lecture. However, the creativity of teachers is amazing as they develop interactive activities to link the sites together for projects. Some examples are listed below.

Northern Lights Network (CESA 11) comments: "In a small school a video distance education network assists with our mission by allowing us to access a more diverse curriculum. If ITV were discontinued, it would not be possible to offer the variety of advanced courses currently being offered."

"Our mission is to challenge students of all ability. ITV allows us to develop this concept. Yes, because we would not be able to provide an "accessible learning experiences" for many of our students without the use of distance education."

"The UW-River Falls focus is on the St. Croix River Valley as the area of its primary mission. Using video distance education is one way to reach this audience without having to drive all the time. This is becoming more critical with the budget situation. We are reducing travel and staff, so using those resources wisely is critical."



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