Evaluating The Benefits of a Computer Based Telecommunication Network: Telementoring and Teletraining for Educators in Rural Areas

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ABSTRACT

Telecommunication advances in computer based networking are fast becoming a vital information tool and resource in the field of education. The evaluation of the educational benefits of telecommunications includes the delivery of resources and training to educators in rural schools and the enhancement of communication between educators and students. The evaluation of the Winthrop College Telementoring-Teletraining-Telecommunication Project has national and international implications.

INTRODUCTION

Telecommunication network innovations are having a tremendous impact on increasing and enhancing teacher training programs. Computer networks enable educators to link together all levels of the educational spectrum. The networks promote communication and the transmission of electronic research and data nationwide, as well as worldwide. Technological advances in the area of telecommunciation have assisted educators in:

* delivering teacher training programs in rural areas,

* developing and adapting instructional materials and curriculums,

* sharing information and resources locally, regionally, nationally, and internationally,

* delivering college courses to students residing in rural areas,

* linking schools, businesses and agencies together, and

* preparing students for the knowledge and skills required for the technological needs of the future.

According to Kendall and Anfin (1989) telecommunication advances in computer networking are demonstrating educational benefits such as reducing the cost of providing and delivering educational information and data to school districts in rural areas, increasing communication between educators, and serving as an instructional tool for enhancing teacher training programs.

TELECOMMUNICATIONS-TELEMENTORING-TELETRAINING PROJECT

In July, 1987, the South Carolina Commission on Higher Education awarded Winthrop College a grant to support a Center of Excellence in Early Childhood Education (COE). The grant was made possible by funds from the Education Improvement Act (EIA). One of the objectives of the Center was to establish a telecommunication network to provide inservice teacher training to educators in early childhood-special education, located in rural areas in South Carolina. A tele-

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telecommunication network was recommended due to the need for trained teachers in early childhood-special education. (Note: The passage of *Public Law 99-457* addresses the needs of educating handicapped and at-risk children from birth to age five. In addition, the mandated legislation of *Public Law 94-142 Education for all Handicapped Children Act* requires all states to train teachers to meet the needs of educating and caring for exceptional children.)

Another reason for establishing a network was a need to expedite the delivery of information to teachers working in rural schools. Due to the fact that South Carolina is 70 percent rural, the delivery of inservice training to those teachers presented a major concern. The physical isolation of many rural educators makes it difficult to

* deliver training and research information on a frequent schedule,

* problem solve with teachers regarding educational problems,

* provide immediate feedback regarding questions, concerns and requested information, and

* provide daily mentoring and support to the teachers as they work and care for handicapped children.

To address the problem of providing on-going teacher training to educators in rural areas, the COE established a computer based telecommunication network called Telecommunications-Telementoring and Teletraining Project (TTT). The primary goals of the project were to

* promote communication between early childhood and special education profession-als in the state,

* provide teachers with access to educational data and other information pertinent to their field of study,
* assist in providing information and research regarding the integration of handicapped and high-risk preschoolers into early child-hood and day care programs,

* instruct teachers in the operation of a computer modem to interact with an electronic bulletin board system,

* demonstrate the various methods in which teachers can share information and teaching practices with other educators in the state, and

* provide additional graduate level college training, known as teletraining, using the computer and modem as the means of receiving instruction and returning assignments.

Concepts of Telementoring and Teletraining

Telementoring is the process of utilizing a tele-communication network between an institution of higher education and public schools located in rural areas. The faculty provides support in assisting the district administrators with problem solving related issues; in providing research information and training practices to the teachers, in keeping educators updated regarding educational opportunities, resources, services, legisla-tion and conferences (Kendall, 1989).

Teletraining is the process of training educators in their perspective fields using telecommunication tech-nology (a computer, a modem, and telecommunication software) to deliver instructions and research to educa-tors in rural areas. This method provides additional training opportunities for personnel who are normally restricted, due to their location, in taking advantage of inservice and college courses. The college faculty is required to adapt the curriculum and assignments for transmission over the computer. One advantage to computer delivery of instruction is the individualized manner in which the instructors must communicate with the students.

Networking allows multiple communication and information sharing between numerous computers in a school, office, district, state, nation and the world by using phone lines, modems and telecommunication software programs.

In addition, the participants were introduced to the electronic Bulletin Board System (BBS). The electronic Bulletin Board System enables users to share and obtain information, access public domain programs,

and pull resources from around the state and nation (Kendall, 1989).

EVALUATION OF TELECOMMUNICATION

The impacts and benefits of the COE's telementoring and teletraining project were evaluated by external consultants, Drs. Berry and Kijai (1990). They focused the evaluation on the !988-90 telementoring participants, drew on a variety of quantitative and qualitative indices, and sought to elucidate how the program participants used the information generated and disseminated by the COE.

The methods, findings, conclusions and recommendations are as follows:

Methods and Findings

Using a variety of quantitative and qualitative indices, and evaluation system was designed to monitor the use of the network information by participants and how their attitudes, behaviors, and skills changed over the course of one academic year — Fall of 1989 through the Spring of 1990. The procedures used to collect these data included interviewing key administrators, analyzing program documents, compiling utilization logs, surveying participants, and interviewing selected teachers and supervisors.

Surveys of Participants

Almost 80% of the participants completed their telementoring sessions during school hours mainly because it was in their schools where they had access to computers. Those participants that did have computers in their homes tended to do their telementoring sessions after school hours. For most participants (70%), their sessions lasted less than 30 minutes. Table 1 displays the participants' assessments of their competency with computers and research both prior to and at the end of the telementoring program. It is quite clear from the table (using a correlated t-test as a statistical measure of significance) that participants' perceived competency in the use of computers and research information (and research journals) improved significantly by the end of the year.

The participants assess critical issues related to the implementation of the telementoring project both at the beginnning, as well as the end of the year. It is apparent from the "after" means that the participants were much more able to accomplish their intended task at the end of the program year. Additionally, by the end of the year the participants seemingly had more access to their computers, were more able to demonstrate the operation of the PC, and were more able to send and receive electronic mail as well as telecommunicate with other colleagues. (Note: These positive changes were not statistically significant, but worth highlighting.)

Table 1
Participants Ratings* of Their Competency
(N=15)

Variables	After	Prior	Difference
Competency in...			
a. using computers	3.57	1.75	1.71**
	(0.53)	(0.89)	(0.29)
b. understanding research journals	3.43	2.63	0.86**
	(0.53)	(0.74)	(0.26)
c. using research information	3.57	2.50	1.14**
	(0.53)	(0.93)	(0.34)

*Base on 4=excellent; 3=good; 2=fair; 1=poor.
** $p < 0.05$

(Number in parentheses is standard deviation).

Also, the survey results revealed that at the beginning of the program year the participants felt that they had sufficient information about the operation of personal computers and the Bulletin Board System (BBS) and felt that they could send and receive electronic mail, as well as telecommunicate with other colleagues. The survey data revealed that the participants felt that administrators demonstrated support for their telementoring efforts. However, what might be considered surprising is the decrease in the level of support for the program among principals and central office personnel, i.e., release time, on-site application and funding. Again, the decrease was not statistically significant, but worth noting.

The Utilization Logs.

The teachers were instructed to complete a utilization log each time they logged on the telementoring bulletin board. There were approximately 450 telementoring sessions logged from October 1989 to May 1990. These telementoring sessions were conducted from schools, as well as from some of the participants' homes.

The most common reason for using the telementoring program was to communicate with the staff of the COE at Winthrop College. Another common reason was to receive research news.

Of greatest import: The most frequently cited type of research news sought was the integration of handicapped children into early childhood education programs (26.7%). Research on working with parents was sought almost 16 percent of the time while simulation and intervention teaching strategies were sought almost 15 percent of the time.

Table 2 displays how the participants assessed the quality of their telementoring sessions. Over 90 percent of the telementoring sessions were rated excellent by the participants. For example, in 93 percent of

the sessions the participants were able to easily access the Center of Excellence telementoring computer network. In nearly 96 percent of their telementoring sessions, the participants rated the response time of the COE staff to their inquiry as excellent. In over 94 percent of their sessions the participants considered the research they received as being understandable. (In less than one percent of the telementoring sessions, the participants considered the information they received as irrelevant.) In general, the participants considered the telementoring process as being "user friendly."

DISCUSSION

The school districts became involved in the telementoring project primarily because of the "good relationship" district officials had with Winthrop College. The positive relationship between Winthrop and these districts seemed to mitigate one of the primary concerns that some district administrators had about the program —the inexperience that teachers (and supervisors) had with computers. As one teacher noted:

* Most teachers would not get involved because they were fearful of computers — computerphobia.

Another asserted:

* I was terrified of computers — much like other teachers — I couldn't even type and did not know how to turn the computer on. But, I like challenges.

The positive relationship between Winthrop and these districts also seemed to mitigate other concerns as well — the difficulty of implementing a telementoring

Table 2
Assessment of Telementoring Sessions
(N=450)

Statements	Rated Excellent (in %)
a. Accessibility COE telementoring network	93.0
b. Response time from COE staff	96.0
c. Relevancy of information received	92.0
d. Understandability of information received	94.1
e. User friendliness of telementoring equipment	93.7

program and the possibility that the College would "dictate to teachers" what they should teach. The concerns were alleviated — in part — by the management style of the project director. As one supervisor noted:

> We were all learning. . .[The project director] has been real patient . . .We had such a diverse group of people — those who have never turned a computer on and those who knew DOS upside down. The people at Winthrop made it enjoyable and nonthreatening.

Also, the COE exerted considerable effort in serving the needs of their constituent school districts — from answering questions promptly to troubleshooting telephone hook-up problems. COE staff were constantly in the school — especially in the early implementation phase. Some districts "jumped at the opportunity" to get involved with the telementoring project because of the program's possibilities with students and their interest in innovative practices outside their districts. As one teacher noted:

> * Our school has a lot of slow learners but the children are fascinated by technology.

Another supervisor asserted:

> * We could find out what other districts were doing to solve problems, for example reading problems. Plus, we would get some equipment and experience with computers.

Finally, several teachers decided to take the course because they "needed the three hours of certification"credit. For these teachers, the possibility for recertification was the "bait," but it did not remain the raison d'etre for completing the course. As will be revealed, the telementoring program fulfilled many of the participants' professional development needs.

CONCLUSIONS AND RECOMMENDATIONS

In sum, the initial implementation of the telementoring project appears to have a salubrious effect on practitioners — especially in its relationship to (1) learning new information, (2) utilizing scarce resources effi-

ciently, (3) professional development for teachers, and (4) empowering students to learn for themselves. Interestingly, some of the districts involved "jumped at the opportunity" to become a part of the computer network because of their perceptions of the program's possibilities with students and their interest in innovative practices outside their districts.

The COE appeared to market their product (i.e., the telementoring program) very well and then proceeded to serve the participants as if they were million dollar clients. In essence, during the crucial initial implementation period of the project, COE staff were on-site — solving both technical problems (making sure teachers and administrators became comfortable with the innovation).

In addition, participants felt that the telementoring enabled them to work more effectively with other teachers and begin the process of collaboration and sharing — a critical variable highlighted in the current school reform movement. The telementoring process began to allow teachers the opportunity to view themselves differently — consultant, researcher, computer communicator, and facilitator of students learning how to learn. All of these roles are considered to be important for teachers to undertake so that as practitioners they can take part in the dialogue about and ultimately direct the transformation of public schooling.

Based on the data collected and analyzed, the following recommendations were presented:

1. The public schools and the college should continue to support the further development of the telementoring project and consider ways to integrate the concept into the formal and traditional means of pre- and in-service education. In addition, the telementoring project should be considered as a first step in enhancing the possibility of developing Professional Development Schools (The Holmes Group) with their emphasis on collaborative inquiry between professor and practitioners.

2. Administrators and the project director should ensure that the telementoring program is properly staffed so that practitioners will have access to the expertise needed to solve both the technical and cultural problems associated with the implementation of the "high-tech" innovation in the public schools.

3. The college should continue to offer graduate credit for the practitioners who complete the course and its requirements. Graduate credit appears to be an important incentive to "lure" practitioners into this innovative, but somewhat path-breaking program.

4. School districts and site administrators need to work to establish more support for telementoring to occur. Teachers need more time to telementor and more computers will be needed as more teachers find the need to be a part of what could be a contagious network of learners.

Unfortunately, less than 10% of all educational institutions are using effective telecommunications (Weinstein & Roschwalb, 1990). John Sculley (1989), chairman and chief executive officer of Apple Computer, addressed this issue by stating:

How is it that we have recognized the economic value of Industrial Age tools. . . and yet we don't seem to recognize the economic value of Information Age tools in education?. . . If we're going to be successful in this global economy we've got to change the way people think, communicate, learn, and work. We can do this with many of the technologies that we have today.

Mecklenburger (1990), stated that education that relies on electronic learning is the future. But making this future a reality, sensibly and for the good of the nation, is the restructuring task of the 1990s that educators have yet to consider. Projects such as the COE Telementoring and Teletraining will help administrators and educators to realize the wealth of resources that telecommunications can bring to the teachers and students.

Telecommunication activities such as telementoring and teletraining can increase communication between school districts and higher education institutions. Educators can share information locally, nationally and internationally. Telecommunication can provide an alternative for delivering college courses and preservice/inservice training, providing on-site mentoring, and in linking schools. The problem of being located in a rural area will no longer present a barrier for immediate access and exchange of educational information.

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