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ABSTRACT

This report summarizes the pilot-year (1988-89) activities of a project in the Green Bay Area (Wisconsin) Public School District which provides educational programming via an ITFS (Instructional Television Fixed Service) system. The goal of the project was to expand opportunities for staff development, staff communication, and resource sharing through effective utilization of a distance education telecommunications network. This report begins by describing the formation of an ITFS user consortium--the Northeast Wisconsin Telecommunications Education Consortium (NEWTEC)--and activities undertaken to meet two objectives: the design and implementation of staff development programing in a minimum of four locations, and the provision of increased learning opportunities with the network fully operational by January 1, 1991. Findings of the Phase I evaluation are then presented, covering technical concerns, the ITFS consortium structure and communication, ITFS program selection and registration, staff and student evaluations of programs, and ITFS staff and presenters of programing. Recommendations for improvements in each of these areas are included. Responses to evaluation questionnaires indicated that the staff development programs, student enrichment programs, and new courses for students were a positive experience for all involved. Although teacher attitudes toward the use of distance education technology were mixed, student attitudes were positive and they had little difficulty with the operation of equipment or the interaction over teleconference equipment at their receiving sites. include a calendar of broadcast programming, a list of the programs received via satellite, and the evaluation questionnaires. (DB)

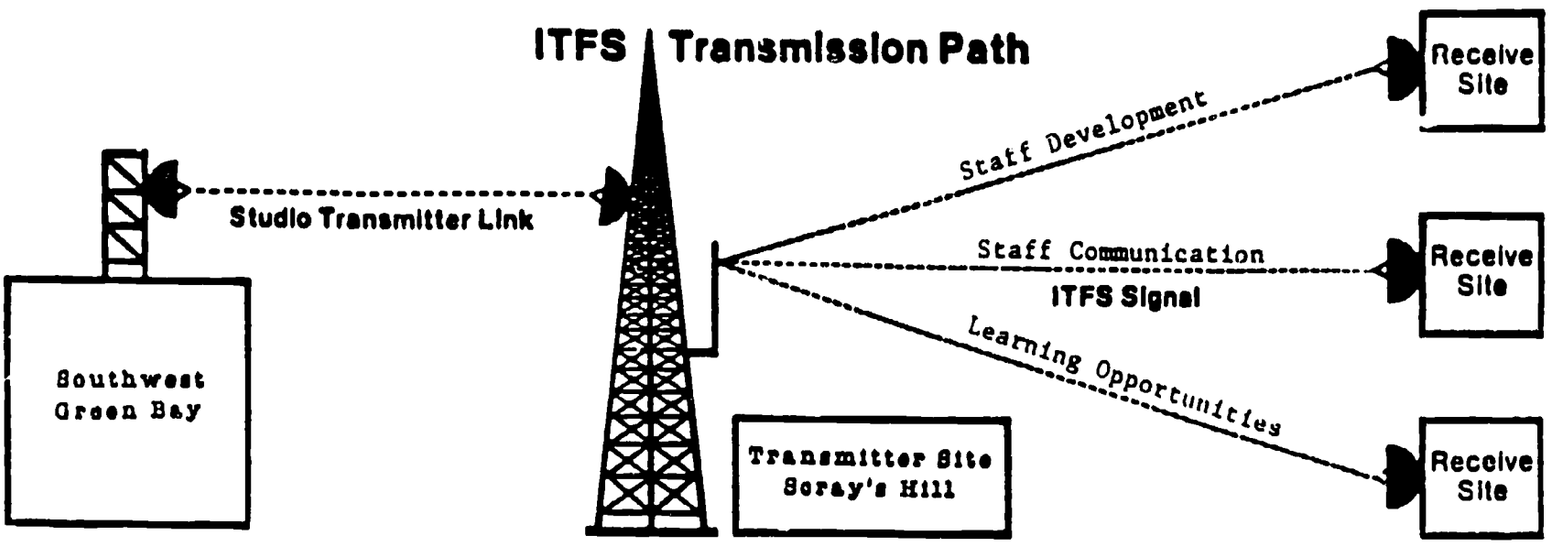
Project B.E.S.T. :

Better Educational Systems

Through Telecommunications

Phase I

Evaluation Report



PROJECT B.E.S.T.:
BETTER EDUCATIONAL SYSTEMS THROUGH TELECOMMUNICATIONS: PHASE I, EVALUATION REPORT

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August, 1989

Forward

We would like to express our deepest appreciation to those superintendents and school boards who were able to envision the potential of distance education. Without their support and commitment the Green Bay Area ITFS system would have remained in written format. Special thanks to Nissan Bar-Lev for his support and funding of distance education programs for special education staff over ITFS; and to Mr. Lyle Martens, Superintendent of the Green Bay Schools, for his confidence and without whose support this system would not exist.

Brillion School District
Chilton School District
Denmark School District
Green Bay Area Public School District
Hilbert School District
Kaukauna Area School District
Kiel Area School District
Little Chute School District
Luxemburg/Casco School District
New Holstein School District
N. Fond du Lac School District
Oakfield School District
Reedsville School District
Seymour School District
Stockbridge School District

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I. SUMMARY OF PHASE I PROJECT ACTIVITIES

A. ITFS Consortium

Upon signing the agreement with the Educational Communications Board in the Spring of 1988 to operate the Green Bay Area ITFS system, the Green Bay Area Public School staff began working with CESA #7 to form an ITFS user consortium. The Northeast Wisconsin Telecommunications Education Consortium, better known as NEWTEC, was created prior to the close of school. CESA #7 was contracted to serve as the fiscal agent for NEWTEC, and Susan Penny, a communications instructor at UW-Green Bay, was hired half-time as the NEWTEC coordinator. By fall, 1988 this ITFS consortium had grown to 15 member school districts, with 30 identified receive sites. Today the Green Bay Area ITFS system has the potential of providing educational programing to 2400 staff members and 34,000 students in Northeastern Wisconsin.

The Green Bay Area ITFS system is unique to all other ITFS systems in Wisconsin, since management and operation of the Green Bay ITFS system is the responsibility of the Green Bay Area Public School District. Programming and operations of the ITFS system is the responsibility of the Director of Instructional Resources for the Green Bay Area Schools and two ITFS staff members at Southwest High School in Green Bay, Wisconsin. The ITFS studio/classroom staff consists of a full-time ITFS secretary, a Mass Media teacher who served part time (20%) as the ITFS Site Supervisor and five student assistants. The Green Bay Area Public Schools had established the Telecommunications Advisory Committee (TAC)

during the planning stages of Project B.E.S.T. (Better Educational Systems Through Telecommunications). This committee consists of teachers, curriculum supervisors and administrators, who select ITFS programming for Green Bay staff and students and monitor the ITFS system's operations.

NEWTEC is governed by a Board of Directors consisting of seven (7) superintendents (or their representatives) from member districts. Two subcommittees were established by the consortium by-laws to work with the ITFS staff from the Green Bay Area Schools to develop programming and establish budgets and fee schedules. NEWTEC's Programming Subcommittee worked throughout the 1988-89 school year with Green Bay's Staff Development office to select and schedule staff development programs and enrichment programs for high school students.

The Long-Range Planning and Budget Subcommittee was given the responsibility of developing the consortium fee structure for membership and establish program participation fees. This committee is also responsible for monitoring and evaluating consortium operations and long-range planning.

The success of the Green Bay ITFS system during the 1988-89 pilot year of Project B.E.S.T. is a direct result of a strong commitment to distance education by NEWTEC members and the Green Bay Area Public Schools. The first step in the planning process was to establish formal lines of communication between Green Bay's Telecommunications Advisory Committee (TAC), NEWTEC and the Educational Communications Board (ECB). The advantage of the Green Bay ITFS system is in its management

structure. Since this ITFS system is operated and managed by the Green Bay Area Schools, and programming is selected by the TAC committee and the NEWTEC board; the philosophy of use and goals of the system focuses on K-12 student and staff learning opportunities. Program planning and development between the Green Bay Schools, the NEWTEC Program Committee, the Northeast Wisconsin In-School Telecommunications (NEWIST) staff and the School Services Bureau at UW-Green Bay resulted this year in creative program development and an innovative planning team for future utilization of the system.

Success this year did not come without frustration resulting from technical problems. Even before the installation of the ITFS microwave system between November, 1988 and January, 1989, the system was plagued by delays and technical problems. It began with a delay by the FCC in approving the license and intensified with the incompetence of the equipment installer hired by Wisconsin Bell to install all of the microwave transmission and receive equipment.

Students participating in calculus, when broadcasting began in February, 1989, were restricted to watching a black and white picture with varying amounts of colored snow at some sites. An improper alignment of the receive antenna at Chilton with the Green Bay Tower on Scray's Hill and faulty equipment at Scray's Hill resulted in problems with reception in the Calumet Co. Schools, Oakfield and North Fond du Lac. Once the Chilton tower was correctly realigned and a new amplifier to boost the transmission signal at Chilton was installed, the signal improved dramatically.

The improved signal lasted for only a couple of weeks. Once the leaves began to bloom on the large oak trees in Brown County, the picture quality at receive sites deteriorated substantially. The ECB and Wisconsin Bell engineers in testing the system found that the transmitting antenna at Southwest High School was incorrectly located and needed to be raised an additional 40 feet to clear trees in the transmission path to Scray's Hill.

The ECB engineers, together with technicians from Broadcast Communications, (the new installers for Wisconsin Bell) installed a 75' free standing tower at Southwest and relocated the ITFS transmitting equipment in July, 1989. During August, the technicians from the ECB will go through the system to realign all of the tower antennas and check signal strength along the transmission path. Prior to the start of school, the ITFS staff will visit each district to check their signal strength and make correct adjustments.

B. Goals and Objectives

While technical problems severely limited the effectiveness of the system during the pilot semester, ITFS staff gained valuable knowledge of the strengths and limitations of the system. Despite these technical problems, the Green Bay Schools and NEWTEC were able to achieve the goals and objectives established by Project B.E.S.T. and look to the future potential of the system.

Goal: To expand the opportunity for staff development, staff communication and resource sharing through effective utilization of telecommunication technology.

1. Staff Development Programing

Objective 1.1: By January 1, 1989, a site based staff development program will have been designed and implemented in a minimum of four locations.

This objective was accomplished one month later than projected because of technical problems and delays in the installation of receive site equipment. A review of the monthly program schedules in Appendix A will show that interactive staff development programming began January 26, 1989; with an in-service program on teaching overseas. During these initial stages of broadcast, the two-way audio and one-way video broadcasts were received in seven (7) of the NEWTEC participating districts plus 10 Green Bay schools. Staff development programs were offered after the school day (4:15 p.m.), and allowed staff to remain in their building to participate in the interactive staff development programs. Presenters for these professional in-service programs were provided through the Green Bay Area Schools' Staff Development office and the CESA #7 Special Education Department. Presentation topics included "Emergent Literacy and Development", "Programming Options for Gifted and Talented Students", "Cooperative Learning", "Critical Thinking Skills", "Skills for Effective Teaching", and a weekly series of programs for special education teachers sponsored by CESA #7 in cooperation with Silver Lake College.

Our major staff development accomplishment during this pilot year was a three-day workshop on cooperative learning jointly sponsored by the Wisconsin Association of Supervision and Curriculum Development (WASCD) and NEWTEC. Rebecca North and Sue Gruber from UW-Milwaukee, who have been trained in cooperative learning by the Johnson Brothers, were the presenters for this distance education program. Over 40 teachers and administrators from consortium schools participated at no cost in this three-day workshop at Southwest and three ITFS receive sites. Funding for this cooperative learning workshop was provided through fees paid by the 30 WASCD members from throughout the state who attended the workshop.

The Green Bay ITFS system, in cooperation with the ECB, became a PBS satellite teleconference receive site second semester for staff development programs from the PBS Elementary and Secondary Services Bureau. NEWTEC members accessed teleconferences entitled: "The Failure of Basic Skills: Who's At Risk?", "AIDS in the Public Schools" and "Managing Instruction for Equity and Excellence". These were purchased by NEWTEC and were attended live by consortium staff or will be used as part of an upcoming ITFS in-service. Appendix B lists the satellite programs currently housed in the consortium library.

The real potential for staff development opportunities is in the consortium's ability to access satellite programming from ASTS at Oklahoma State University, SERC, NASA, NUTN and other satellite transmission networks. These satellite networks, which NEWTEC has just

begun to utilize, provide a wealth of national teleconferences from professional associations and universities throughout the United States and Canada.

2. Increased Learning Opportunities

Objective 1.2: By January 1, 1989, the districts utilizing a telecommunication system will provide increasing learning opportunities, improve communication networks and enhance resource sharing among district(s) staff. The network will be fully operated by January 1, 1991.

Again, after starting almost a month late due to technical problems, the Green Bay Schools and NEWTEC surpassed the expectations of this goal. A major undertaking of the consortium during Phase I was the production and daily broadcast of an A.P. Calculus course from Southwest High School from 7:00 - 7:50 a.m. Each morning 22 high school students in six (6) NEWTEC member districts outside of Green Bay interacted live with a calculus teacher at the Southwest ITFS studio through a telephone conference bridge system.

Students at receive sites were given access via satellite to monthly live interactive video conferences from NASA. The ITFS system was also used to rebroadcast a nature series from National Geographic to which the Green Bay schools owns the broadcast rights. High school students had access every Friday morning to one of 19 art programs from the National Gallery of Arts series produced by PBS.

The most gratifying programs for our production staff during this pilot semester were developed in cooperation with the School Services Bureau at UW-Green Bay for high school students. In a day-long gifted and talented program entitled, "Dirty Harry Violence, Law and Order When Media Violence and Society Meet", students had the opportunity to interact with college professors from the Communications Department at UW-Green Bay. The second opportunity for students in distance education was a series of four call-in shows entitled "Time to Talk" which were broadcast once per month over the lunch hour. Current topics of interest to teens (i.e. suicide, drug abuse, risk taking, eating disorders) were selected for the theme of each show. State and local experts at the ITFS studio at Southwest discussed the topics and answered questions from the audience at Southwest and via telephone from the receive sites.

In addition, two original video programs were produced by the ITFS staff. The first was a promotional tape on the Green Bay ITFS system and describes the types of programming we provided. The second tape dealing with sexual abuse is called, "You Can Tell", and was written and performed by Green Bay Area School special education staff. This video and teachers' guide will be used by the elementary teaching staff for their unit on verbal and physical abuse.

The proposed use of the ITFS system for curriculum presentations, committee meetings and staff meetings never occurred because of poor reception at some of the school sites. ITFS staff decided to wait until all 30 sites had quality signals before this portion of the objective was attempted, thus preventing a potential negative reaction by teachers

staff. Job-alike meetings to discuss teaching strategies and learning styles will be implemented in the fall semester of the 1989-90 school year.

Three teleconferences were held using the telephone bridge system at the ITFS studio. This was a first experience for many of the participants in the teleconference. Participants appreciated the convenience of meeting without leaving their office and the efficiency of this meeting format. Our experience during this pilot semester convinced us that more emphasis should be placed on the use of this system for administrative meetings and teacher teleconferences during the 1989-90 school year.

Coordination and constant communication between ITFS sites provided by Susan Penny, the ITFS Coordinator and Green Bay ITFS staff were key ingredients to the Green Bay Area ITFS system's success this first semester of operation. Support from the School Services Bureau at UW-Green Bay, the Northeast Wisconsin In-School Telecommunications (NEWIST) staff and EDIMPRO staff was invaluable in consortium program design and development. The organizational structure of the consortium provided the lines of communication required to identify staff needs and develop staff utilization of this learning tool. NEWTEC member school districts are confident that distance education technology will not only provide their students equal access to the educational opportunities and skills they will need to participate in an information society, but will provide their teaching staff the opportunity to keep current with changes in educational theory, teaching strategies and learning styles as we approach the year 2001.

II. FINDINGS OF PHASE I EVALUATION AND RECOMMENDATIONS FOR IMPROVEMENT

A. Technical Concerns

While staff and students participating in this initial programming over ITFS realize the potential and benefits of distance education, they expressed their concern regarding technical problems. Despite the careful planning and design to avoid the technical problems experienced by older instructional television systems, the Green Bay ITFS system, like its forefathers, experienced technical complications of audio/video signals or equipment malfunctions to different degrees, on different days and at different locations.

Problems began with delays by the microwave transmission equipment installer, Skyview, hired by Wisconsin Bell. Skyview was also hired by the consortium to install the receive equipment at the 30 consortium receive sites. After numerous delays and 10 receive site installations in three months, the consortium terminated their agreement with Skyview. In January, NEWTEC hired a local equipment installer to complete the installations in the Green Bay Schools and the consortium districts.

After programing began in late January the ITFS staff were faced with numerous technical problems at the receive sites. Many of these receive site problems were the result of an improper alignment of the receive antenna at Chilton with Scray's Hill and the need for a booster amplifer for the transmission equipment at Chilton. These technical problems at

Chilton intensified the poor signal coming from Scray's Hill which was the result of an incorrect placement of the transmission antenna at Southwest.

With the changes made this summer in the transmitting and receive antennas at Southwest and Scray's Hill, each NEWTEC receive site will have to be checked and realigned to maximize signal strength prior to the start of programming.

Recommendation

Summer vacation 1989 will be used by the ECB staff and Broadcast Communications to install a new ITFS tower and relocate the microwave transmitter at Southwest. ITFS staff and ECB staff will troubleshoot the complete system and make necessary adjustments in the transmission signal and equipment prior to the start of the 1989-90 school year. The ITFS coordinator and ITFS site Supervisors will visit each consortium receive site to check reception and make appropriate adjustments prior to the start of programing.

B. ITFS Consortium Structure and Communication

During the planning stages of the ITFS system, staff were concerned with the human factors involved in the change required to institutionalize telecommunication technology into our existing educational organization. The key, we decided, was involving as many teachers and administrators as possible throughout the program selection and design process.

ITFS staff knew that the line of communication with consortium schools would be critical, and the ITFS Coordinator was given the responsibility for facilitating information exchange to and between consortium members. The NEWTEC Advisory Committee, which consisted of representatives from each consortium school, met on a bimonthly basis throughout the 1988-89 school year to plan implementation and select programming recommended by the programming subcommittee. This NEWTEC advisory committee had voted not to expand the committee during this pilot year to representatives from post-secondary institutions, other educational institutions in Green Bay, nor to a Chamber of Commerce representative. However, this resulted in the ITFS Coordinator providing the necessary lines of communication with the other educational institutions during the program development process.

Recommendation

The NEWTEC Advisory Committee should be expanded for the 1989-90 school year to include representatives from post-secondary institutions, business industry and community members. Broadening participation in the Advisory committee will enable us to explore the potential of providing instructional programs to parents, business and community over the ITFS system.

C. ITFS Program Selection and Registration

The ITFS Coordinator met in Fall, 1988, with representatives in each consortium district to complete a needs assessments and discuss the ITFS system operation. The organizational chart (See Appendix C) for the

NEWTEC consortium schools recommends that an administrator/teacher curriculum committee in each district be established to provide input to their NEWTEC representative. During Phase I of Project B.E.S.T., the communication of recommendations, procedures, programs and information regarding the ITFS system operation, was handled differently in each district. The Green Bay Area Schools, for example, utilized their Telecommunications Advisory Committee (TAC) consisting of directors, supervisors and teachers. This committee has the responsibility of reviewing and selecting the staff development programming and student enrichment opportunities for the Green Bay Area Public Schools.

Green Bay was the exception. In several districts, the responsibility for planning and programming use of the ITFS system fell to one or two individuals at each receive site. Equipment utilization training sessions at Southwest for site facilitators and those provided over the ITFS system were poorly attended or cancelled because of technical problems.

A second problem which reoccured during the registration for staff development programs was getting information on programs out to receive sites. The ITFS staff published a quarterly newsletter entitled "NEWTEC News" which included information on the system and a calendar of upcoming programming for the next month. Newsletters were sent to every teacher in the consortium school districts. In addition to the newsletter, a monthly calendar containing the title, dates and times of of programs was sent out to each staff member at their consortium schools.

Originally, all registration for staff development programs would be done through the Green Bay staff development office (EDIMPRO). Low registration from staff in outlining districts resulted in a revision of the promotional procedures. At mid-semester, the ITFS staff began sending out separate promotional flyers, information sheets and registration forms for staff in the consortium to describe the course more completely.

All Green Bay teachers and consortium schools were to register for staff development programs through procedures set up in cooperation with the staff development office in Green Bay. Each ITFS site facilitator was to complete a registration form for each program with a list of participants. Problems in registration resulted in people who had not registered calling in from receive sites on the day of the program complaining that no one had set up equipment for viewing. Also, staff from non-consortium schools who wish to participate in a program on some occasions were sent to Green Bay schools where programs were not scheduled to be viewed and equipment was not set up.

In summary, limited promotion by appropriate site facilitators within the consortium schools and inconsistent registration procedures limited staff participation for the pilot semester of programming.

Recommendation

The ITFS Coordinator continues to work with existing curriculum committees within each member district to determine programming to meet staff and student needs. The Green Bay Staff Development office

(EDIMPRO) will handle all Green Bay staff participation as well as registration from non-consortium schools. NEWTEC will handle all staff registrations from consortium schools. Non-consortium school staff will be sent to Southwest to provide a live audience for presenters. Special education programs sponsored by CESA #7 will have staff register through CESA #7.

The ITFS studio will be responsible for collecting the final totals for staff participation in each ITFS program. All registration deadlines for ITFS programming will be set seven (7) working days before the air date. Early registration deadlines are required to allow for the printing and duplicating of resources and the distribution of resources and evaluations to site facilitators before broadcast dates.

On-site facilitator training for each district will be initiated at the beginning of the 1989-90 school year. Site facilitators will be trained in ITFS protocol and how to set up and trouble shoot receive equipment. Facilitators will also serve as the communication link between program participants and the ITFS classroom and control room. These facilitators will also assist ITFS staff in the distribution of program flyers, the distribution of promotional resources for programs, and in the return of program attendance and evaluation forms.

D. Staff Evaluation of Programs

Teaching staff who participated in the staff development programming during Phase I of this project stated that interactive distance education was an excellent use of instructional interactive television.

Teachers participating in the ITFS staff development programs were much more reluctant to use the telephone bridge system for interactive participation. They were more comfortable just listening and watching the programming from Southwest. Interaction was stimulated only when presenters incorporated specific activities requiring participants' input through the system.

According to evaluations received by the staff development office, success of staff development programs hinged on the quality of the presenters. Presenters who used a variety of multimedia to maximize the effect of this interactive technology received high scores for their presentations by staff. Review of presentations by the ITFS staff indicate that teachers successful in using Madeline Hunter or similar skills for effective teaching strategies in their classroom had an advantage when preparing to teach over ITFS. Successful presenters were able to transmit their interest and enthusiasm of the topic through this medium and designed activities requiring interaction from participation at receive sites.

Participants stated that another key ingredient to successful ITFS courses was the availability of articles and support resources on topics which were sent out to participating staff before and after program segments. However, participants expressed their concern over the delays they experienced from the time the information was sent out after a session until it was received. Getting information printed, mailed from Southwest, sent to participating receive sites and delivered to the participants took as long as 4 or 5 days.

Recommendation

A more efficient method of transmitting documents (hard copy) between the ITFS studio/classroom and receive site needs to be established. Two alternatives under consideration for the transmission are; Facsimile (Fax) machines and electronic mail. Fax machines at each ITFS site and the studio/classroom could be used to transmit information between and among ITFS sites before, during and after program broadcasts. However, due to expense, large bulk packets of information would continue to be sent via U.S. mail rather than using fax machines. A network of MacIntosh or IBM computers could be set up using modems and the capability of electronic mail systems such as **learning link** to transmit information and data between sites. Computers would give receive sites that added capability of sending and receiving software programs. The MacIntosh also has a fax modem which allows it to send documentation to fax machines.

E. Student Evaluation of Programs

Students participating in the Calculus class were asked to complete an evaluation on the ITFS system at midterm and again at the end of the year. (See Appendix D for survey form.) Students also expressed their concerns regarding technical problems with telephones and ITFS receive equipment discussed earlier but were enthusiastic about the potential of bringing courses to their school. The interaction provided back to the

ITFS studio via telephone was also a problem for several Calculus students. Problems included access to telephone lines, conference phone units and the interconnect between Wisconsin Bell and GTE.

Students, unlike the teaching staff, adapted very easily to the interactive technology and were very comfortable using two telecommunication technologies they grew up with. They had little difficulty with the operation of equipment or interacting over the teleconference equipment at their receive site, when systems were properly functioning.

Students found the U.S. mail system for shipping tests and quizzes very frustrating. Currently the U.S. mail is used for the exchange of tests and quizzes with the instructor. If the instructor checks the test or quiz immediately upon receipt, the total delivery cycle at best took 4-5 days before the student received their tests and quizzes back. Students felt the learning experience would be more valuable if they were able to get test and quiz results prior to going on to the next section of the text.

Recommendation

Calculus students offered ITFS staff the following insight into providing better distance education programing:

1) Students want to see their scores and performance on the test before they get too far into the next chapter. They also expressed the

need to interact in sharing problem solving strategies in a manner where both participants can visually share data and problem solving strategies.

2) Each ITFS receive site should have a telephone line installed and a teleconference unit or speaker phone available to allow for interactivity over the system.

3) Students felt length of lesson should be varied depending on topic and ability level. Half of the students favored having lecture type presentations with question/answer session three times per week and a live call-in show optional the other two days to go over problems. Flexibility of programming was seen as an advantage for the ITFS system.

4) Effectiveness of cooperative learning practices varied at each site. Students enjoyed interaction with students from other districts and would like to expand opportunities for interaction and have ITFS instructors encourage cooperative activities.

5) Students like the ability to stay at their school without leaving the district for several hours to take a calculus course at an area college. However, they preferred that classes be scheduled during the school day, not at 7:00 a.m. or after school.

6) Students found that having a staff member monitor the class was very beneficial. Monitors helped students with their concerns, provided a link of communication between the ITFS instructor and students, took attendance and proctored tests.

7) Students felt that the ITFS instructor's availability and office hours were of sufficient length to get questions answered. Students expressed interest in an afternoon lab session over the phone next year.

8) Students recognized the importance of remaining highly motivated throughout the course because it is difficult to make up material when missed. Next year, individual receive sites should video tape lessons to provide review and make-up activities for students.

9) Students like the periodic meeting of class sessions at the studio and enjoyed interacting with students from other school districts. However, teaching staff in their districts expressed displeasure with students missing three hours of their class over the course of the semester in order to come to Southwest. The possibility of Saturday morning or evening class meetings should be reviewed.

F. ITFS Staff and Presenters Of Programing

At the end of the 1988-89 school year the ITFS staff met with the ITFS presenters, to discuss the operation of the ITFS studio and use of ITFS as an educational delivery system. This was followed up by a written survey of presenters. ITFS presenters, stated that they enjoyed their

opportunity during the pilot semester to use this new educational delivery tool in Northeastern Wisconsin. They would like more training on the effective use of this interactive instructional television and felt a presenters manual would be very beneficial for new presenters. Presenters also requested that they receive feedback from producers on the technical qualities after each program and prior to their preparation for the next show.

The most successful ITFS staff development programs were 2 hrs. per session in length, 6-8 hours long and broadcast over 4 weeks. Staff liked what has been labeled a "wrap around format". In this type of presentation, a local presenter introduces to the audience an educational topic of current concern (i.e. At-Risk Students) then has staff participate in an interactive national teleconference with a "leading expert" on the topic or view a prerecorded program. The presentation concludes with participants discussing how ideas, programs, etc., can be applied to what is happening in their school district. Idealy, recommendations for improving instruction come out of these programs for staff to take back to their schools.

The ITFS staff found that lack of time was a major limiting factor on the quality of productions during Phase I of Project B.E.S.T. Limited staff time available to ITFS operations resulted in minimum training for presenters and limited access to presenters to review script of programs prior to production. Hence, live broadcasts insufficiently used various camera angles, and properly designed visuals were infrequently used.

Technical problems, although frustrating at the receive sites, were magnified at the ITFS studio where calls were made when trouble occurred. A lot of time was spent by ITFS staff trouble shooting problems and making duplicate tapes of the programs for students who missed because of illness or poor reception. Presenters also expressed the frustration of not being able to send a hard copy of material during or at the end of the presentation to participants at the receive sites

Recommendation

1) Presenters would like more of a variety of camera shots to help motivate the audience. This could be accomplished by using a camera operator on the floor camera to vary shots and by using the overhead camera more. Presenters specifically liked the use of split screen shots.

2) It was suggested that planning meetings for programs occur one week prior to broadcast. This would allow ITFS staff to run through the presentation format and preview visuals. Whenever possible, visuals should be put into the character generator for inserting on the screen upon demand.

3) Presenters would appreciate a more formal feedback procedure after each presentation from ITFS staff as they prepare for the next presentation.

4) Development of an ITFS presenter handbook to include helpful hints to make the most of this telecommunications medium.

5) ITFS staff should make sure all receive sites are on line at least five minutes before broadcast to avoid wasting presenter's class time waiting for sites to come on line. Accuracy of attendance list for each receive site is needed, and attendance should be taken during this off air time 5 minutes before the broadcast.

6) Each ITFS receive site should video tape the live interactive student courses for review.

III. Conclusion

In conclusion, the experiences of the Green Bay ITFS system in providing staff development programs, student enrichment programs and courses for students was a positive experience for all involved. Experience gained during the pilot semester has provided the ITFS staff the skill and ability needed to provide all districts equal access to quality educational programming.

While teachers appreciate the opportunity to use the ITFS system for staff development, there still is a reluctance on the part of teaching staff on the value of distance eduation technology to provide student courses for credit. Teacher attitude seems to fall into three categories toward the ITFS system; 1) those anxious to use this potential source of programming, 2) those who don't care one way or the other and 3) those who support the WEA position that distance education should only be used by teachers for enrichment purposes.

The recommendations and concerns in this implementation evaluation report for Phase I will be addressed by Green Bay's TAC committee, the NEWTEC program and planning committees and the ITFS staff. Phase II of Project B.E.S.T. will use the information in this report to make modifications and develop grant proposals for additional equipment and program resources.

APPENDIX A

Northeast Wisconsin
Telecommunications Education
Consortium

(414)497-3
(414)497-3

January 1989

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24 1:30-2:45 p.m. NASA Teleconference "Future Exploration"	25 3:30-4:30 a.m. "Using ITFS Workshop"	26	27	28
29	30 7:00-7:50 a.m. Calculus	31 7:00-7:50 a.m. Calculus 12:00-5:00 PBS Tele- conference "Managing Education"				

NEWTEC

Northeast Wisconsin
Telecommunications Education
Consortium

February 1989

Newtec: ITFS Studio
Southwest High School
1331 Packerland Drive
Green Bay, WI 54304

(414)497-3884
(414)497-3899

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			7-7:50 a.m. Calculus 10-11:00a.m. National Geographic "Realm of the Alligator" 1	7-7:50 a.m. Calculus 2	7-7:50 a.m. Calculus 10:00 a.m. PBS Art Series "The National Gallery Bullus" 3	4
5	6 7-7:50 a.m. Calculus	7 7-7:50 a.m. Calculus	8 7-7:50 a.m. Calculus 10-11:00 a.m. National Geographic "Polar Bear Alert"	9 7-7:50 a.m. Calculus	10 7-7:50 a.m. Calculus 10:00 a.m. PBS Art Series "The Quiet Collector, Andrew Mellon"	11
12	13 7-7:50 a.m. Calculus 4:15-6:15 p.m. "Overseas Visiting Teacher Program" (EDIMPRO)	14 7-7:50 a.m. Calculus 3:30-5:30 p.m. S.E.T Refresher "Motivation Theory: Why We Do What We Do"	15 7-7:50 a.m. Calculus 10-11 a.m. Nat'l Geo. "Creatures of the Mangrove" 4:15-5:45 "Emergent Literacy Development" (EDIMPRO)	16 7-7:50 a.m. Calculus 3:10-4:00 Special Education (Nissan Bar-Lev)	17 7-7:50 a.m. Calculus 10:00a.m. PBS Art Series "Raphael and the American Collector"	18
19	20 7-7:50 a.m. Calculus	21 7-7:50 a.m. Calculus 1:30-2:45 p.m. NASA Videoconference "Living in Space" 4:15-6:15 "Gifted/Talented Overview" (EDIMPRO)	22 7-7:50 Calculus 10-11 a.m. Nat'l Geo. "Wild Chimpanzees" 11:30-12:30 "Time To Talk: Stress, Depression, & Coping Strategies"	23 7-7:50 a.m. Calculus 3:10-4:00 p.m. Special Education (Nissan Bar-Lev)	24 7-7:50 a.m. Calculus 10:00a.m. PBS Art Series "Leonardo, To Know How To See"	25
26	27 7-7:50 a.m. Calculus 4:15-6:15 p.m. "The Healthy Heart" Wellness	28 7:00-7:50 a.m. Calculus 4:15-6:15 p.m. "K-5 Gifted and Talented Strategies" (EDIMPRO)		Between 12-2 p.m. each afternoon, the following WPNE "Parade of Programs" series will be rebroadcast: -Global Geography -It's A Rainbow World -Kinetic Carnival -Out and About -Across Cultures -Tradeoffs -Classic Short Stories -Inside Slim Goodbody		

Northeast Wisconsin
Telecommunications Education
Consortium

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Southwest High Schoo
1331 Packerland Drive
Green Bay, WI 54304

(414)497-3884
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March 1989

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			7:00-7:50 Calculus 10-11 a.m. Nat'l Geog. "Save the Pandas"(I) 4:15-5:45 "Emergent Literacy & Development" (EDIMPRO) (I) **1**	7:00-7:50 Calculus **2**	7:00-7:50 Calculus 10-10:30 PBS Art Series (C) **3**	**4**
5	7-7:50 Calculus 4:15-6:15 p.m. "The Healthy Heart" Wellness (C) **6**	7-7:50 Calculus 4:15-5:15p.m." Grades 6-12 "Programming Options for Gifted & Talented Students" (EDIMPRO) (I) **7**	7-7:50 Calculus 8:30-8:40a.m "Auto Shop Safety" (Y) 10-11:00 Nat'l Geog. "Shark"(I) 4:15-5:45 "Emergent Literacy " (EDIMPRO)(I) **8**	7-7:50 Calculus 3:10-4:00 Spec. Ed. Program Preview 4:15-6:45 Special Ed: "Evaluation of E.D. Children & Youth" **9**	Inservice Day-No Calculus 10-10:30a.m. PBS "Art Series" (C) **10**	8:30-4:30 "TEST HIGH: A.C.T. Exam Workshop" **11**
12	7-7:50 Calculus 4:15-6:15 p.m. "The Healthy Heart" Wellness (C) **13**	7-7:50 Calculus 3:30-5:30p.m. S.E.T. Refresher "Reinforcement: Ya Done Good"(EDIMPRO) (I) **14**	7-7:50 Calculus 8:30/8:40 "Auto Shop Safety"(Y) 10-11 Nat'l Geo."Creatures/ Namib Desert"(I) 11:30-12:30 "Time To Talk:Date Rape" **15**	7-7:50 Calculus 4:15-6:45 Special Ed. "Evaluation of E.D. Children and Youth" **16**	7-7:50 Calculus 10-10:30 a.m. PBS "Art Series" (C) **17**	**18**
19	7-7:50 Calculus 4:15-6:15p.m. "The Healthy Heart" Wellness (C) **20**	7-7:50 Calculus 1:30-2:30 p.m. NASA Teleconference "Technology And Your Classroom" (Live) (Y) **21**	7-7:50 Calculus 8:30-8:40 - Auto Shop Safety (Y) 10-11 a.m. Nat'l Geog. "Great Whales" (I) **22**	No Calculus SPRING BREAK BEGINS **23**	Good Friday. **24**	**25**
26	**27**	**28**	**29**	**30**	**31**	

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Northeast Wisconsin
Telecommunications Education
Consortium

April 1989

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1
2	7-7:50 Calculus 4:15-5:45 "Teaching Skillful Thinking" (EDIMPRO) (I)	7-7:50 Calculus	7-7:50 Calculus 6:30-8:30 "How To Keep It Together vs Falling Apart" (EDIMPROXI)	7-7:50 Calculus 11-2:30 "Failure of Basic Skills: Who's At Risk" Vidconf (I) 3:10-4:00 Spec Ed Intro 4:15-6:45 Spec Ed: "Self Concept Dev." (EDIMPRO) (I)	7-7:50 Calculus 10-10:30 PBS Art Series (C)	
	3	4	5	6	7	8
9	7-7:50 Calculus 4:15-5:45 "Teaching Skillful Thinking" (EDIMPRO) (I)	7-7:50 Calculus 4:15-6:15 S E T Refresher "Retention: Research On Memory" (EDIMPRO) (I)	7-7:50 Calculus 11:30-12:30 "Time To Talk. Risk Taking vs. Decision Making"(Y) 6:30-8:30 "How To Keep It Together vs Falling Apart" (EDIM XI)	7-7:50 Calculus 4:15-6:45 Spec Ed.: "Self Concept and Social Skills Development For All Students" (EDIMPROXI)	7-7:50 Calculus 10-10:30 PBS Art Series (C)	
	10	11	12	13	14	15
16	7-7:50 Calculus 4:15-5:45 "Teaching Skillful Thinking" (EDIMPRO) (I)	7-7:50 Calculus 12-1:15 NASA Videoconference "Aviation" (U) 4:15-6:45 Spec Ed.."EEN Student's Program Adaptations" (EDIMPRO) (I)	7-7:50 Calculus 6:30-8:30 "How To Keep It Together vs Falling Apart" (EDIMPRO) (I)	7-7:50 Calculus	7-7:50 Calculus 10-10:30 PBS Art Series (C)	
	17	18	19	20	21	22
23	7-7:50 Calculus 4:15-5:45 "Teaching Skillful Thinking" (EDIMPRO) (I)	7-7:50 Calculus 10:30-4:00 Vidconf. & Local "Aids in the Public Schools" (EDIMPROXI) 4:15-6:45 Spec.Ed."EEN Student's Prog. Adaptations" (EDIM.XI)	7-7:50 Calculus 6:30-8:30 "How to Keep It Together vs Falling Apart" (EDIMPRO) (I)	7-7:50 Calculus	7-7:50 Calculus 8:30-3:00 Spec.Ed. "Speech & Language/Early Childhood Program Evaluation, Structure and Curriculum" (EDIM.XI)	
	24	25	26	27	28	29
30						

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May 1989

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	7-7:50 CALCULUS 12-2:00 "Distance Education: Is The Sky The Limit?" (Part 1 of a National Teleconf. Taped/XC) 1	7-7:50 CALCULUS 4:15-5:15 "Programming Options for G/T Students Compacting Curriculum" (EDIMPROXI) 2	7-7:50 Calculus 9-2:30 *SPECIAL* UWGB G/T FORUM "DIRTY HARRY, VIOLENCE & LAW & ORDER WHEN MEDIA VIOLENCE AND SOCIETY MEET" (Live interactive) (C) 3	7-7:50 Calculus 4:15-6:45 Spec. Ed. "Building Support Team Procedures, Responsibilities and Beyond" (EDIMPROXI) 4	7-7:50 CALCULUS 10-10:30 PBS ART SERIES 5	8:30-3:30 "Cooperative Learning: A Powerful Strategy For Learning" (EDIMPROXI) 6
7	7-7:50 Calculus 12-2:00 "Distance Ed: Is The Sky the Limit?" (Part 2 of a National Teleconf. Taped) (C) 4:15-7:00 "Cooperative Learning: Follow-up Workshop" (EDIMPROXI) 8	7-7:50 CALCULUS 8:30-3:30 "Cooperative Learning. Follow-up Workshop" (EDIMPROXI) 9	7-7:50 CALCULUS 11:30-12:30 "Time to Talk: Eating Disorders" (Y) 10	7-7:50 CALCULUS 4:15-6:45 Spec. Ed. "Building Support Team Procedures, Responsibilities and Beyond" (EDIMPROXI) 11	7-7:50 CALCULUS 10-10:30 PBS ART SERIES 8-12:00 GBPS "Telecommunications Advisory Committee Meeting" (Live) (I) 12	*SPECIAL* 8:30 - 4:30 "TEST HIGH: A.C.T. EXAM WORKSHOP" (Live interactive) (I) 13
14	7-7:50 CALCULUS 12-2:00 "Distance Education: Is The Sky The Limit?" (Part 3 of a National Teleconf. Taped) (C) 15	7-7:50 CALCULUS 4:15-6:15 S.E.T. Refresher "Transfer: Using What We've Learned" (EDIMPROXI) 16	7-7:50 CALCULUS 12:00-2:30 Videoconference on "Communication Aids and Devices For the Disabled" (Taped/XY) 17	7-7:50 CALCULUS 4:15-6:45 Spec.Ed.: "ITFS Airtime for Special Need Children" (EDIMPROXI) 18	7-7:50 CALCULUS 10-10:30 PBS ART SERIES 12-2:30 "The 1989 Converse Basketball Teleclinic" (Taped/XU) 19	20
21	7-7:50 CALCULUS 12-2:00 "Distance Education: Is The Sky the Limit?" (Part 4 of a National Teleconf. Taped) (C) 22	7-7:50 CALCULUS 23	7:50 CALCULUS 12-2:00 NASA "Technology and Your Classroom" (Teleconf., Taped) (U) 24	4:15-6:45 Spec.Ed.: "ITFS Airtime for Special Need Children" (EDIMPROXI) 25	10-10:30 PBS ART SERIES 26	27
28	MEMORIAL DAY SCHOOLS CLOSED 29	30	31			

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APPENDIX B

WISCONSIN MAGAZINE

8 - 60 Minute tapes

SERC

1 Integration of Technology & Curriculum 60 min

2 Where Are We Going On Testing

3 Gifted and Talented Programs In Rural Schools 60 min

NATIONAL GEOGRAPHIC

1 **Baka: People of the Forest** 60 min
Journey to a rain forest in southeastern Cameroon home of the Baka people The camera follows a family - father mother and two young sons-for an intimate look at everyday life in a hunter-gatherer society Viewers join the Baka by day as they harvest honey catch fish and use forest plants to make medicines and see them by night as legends are passed on and as a family prepares for the birth of a baby

2. **Serengeti Diary** 60 min
Accompany wildlife photographer Baron Hugo van Lawick on a journey in and around Serengeti National Park his home for more than two decades An amazing array of African animals live in the vast ecosystem dozens of species from flamingos to wildebeests. The Special also views the Serengeti through the eyes of a Masai elder a bush pilot and a wildlife biologist

NASA

1 **Aeronautics** 90 min
Aeronautics discusses NASA's role in aeronautics research such as the National Aerospace Plane. advanced vehicle and materials technology noise reduction and wind tunnel testing. Featured is NASA's Langley Research Center and Roy Harris Langley s Director for Aeronautics Norman Poff an educational specialist in aeronautics describes and demonstrates activities which can be applied to the classroom

2 **Living In Space** 90 min
Living in Space investigates the human challenge of living and working in space for expended periods Topics include space suits food preparation. and human factors research. Teacher in Space designate. and the NASA Johnson Space Center will be featured John Hartsfield aerospace education specialist and author of a handbook of classroom activities related to the featured topic will share some of his teaching ideas with the audience

3 **Future Exploration** 90 min
NASA s concepts and plans for long-range exploration of space is featured Alan Ladwig from NASA Headquarters Office of Space Exploration will explain some of

these advanced concepts Also featured will be NASA's Lewis Research Center Among concepts to be discussed will be lunar bases Mars outposts, and enabling technologies Dale Bremmer will demonstrate how some of these advanced technol ogies and concepts can be applied in the classroom.

4 **Technology and Your Classroom** 90 min (tape missing)
Discussion of new applications of NASA s aerospace research to industry and classrooms and the new supercomputer-the Numerical Aerodynamic Simulator Special attention will be given to technologies for education such as computers videodiscs, computer networks, simulations, and communication satellites

5 **The Crew of the Apollo** 90 min
The past present and future of the Soviet and American space programs and joint missions in space is discussed with a student moderated in-studio panel of 12 Soviet and American students representing grades 4 through 12

6 **Oeliades At Newtons Laws** 90 min

7 **Food For the Future** 105 min
A journey through The Land at EPCOT Center at the Walt Disney World Resort This program is designed to introduce students in grades 6 - 12 to today's world of agriscience and its vision for the future

DISTANCE EDUCATION

Is The Sky the Limit 4 tapes
(Tape #4 was to be sent to us by Oklahoma State- never received) 120 min each
This four part series focuses on the issues involved in the effective use of technology in the classroom.

Designing K-8 Learning 3 tapes
120 min each
This three part series focuses on the commonalities of instructional decisions teachers make in reading, writing and mathematics.

TELECONFERENCES - DPI (Charlotte Bell)

1 **Innovation & Collaboration In Distance Ed** 120 min
New ways to use new communication technoligies to deliver quality instruction, reduce costs increase learning opportunities for working adults enrich classroom instruction, update faculty, train administrators, provide community service forge training partnerships with businesses and offer additional professional and career education

2 **Interactive Communications** 90 min

3 **Communication Aids and Devices for Disabled** 3 hrs

4 **Training Video For Communication Aids and Devices** 2 1/2 hrs

5 **Aids In the Public Schools** 120 min
Interactive teleconference for administrators and policymakers dealing with the legal and policy issues related to AIDS The purpose of the teleconference is to help public school policy-makers prepare for and deal effectively with the emotionally-charged legal and policy issues related to the AIDS crisis which universally challenge administrators and educations

6 **A Failure of Basic Skills: Who's At Risk** 3 hours
Highlights instructional approaches that actively engage students in the learning process and help them understand and apply what they are learning The presenters will discuss why current classroom practices are failing and illustrate effective strategies and programs that are helping students become more active learners

7 **Converse Basketball** 2 1/2 hours

8 **Managing Education**

9 **Managing Instruction For Equity and Excellence**

10 **School Administrators Guide To Information Power**

11. **Teaching Learning Through Technology**

PBS ART SERIES

1	**National Gallery Builds**	15 min
2	**The Quiet Collector,Andrew Mellon**	29 min
3	**Raphael and The American Collector**	18 min
4	**Adventures In Art**	28 min
5	**Leonardo "To Know How To See"**	58 min
6	**Mobile - by Alexander Calder**	24 min
7	**Treasures of Tutenkamen**	30 min
8	**Femme Woman-a tapestry by Joan Miro**	15 min
9	**The Eye of Thomas Jefferson**	28 min
10	**The American Vision**	37 min
11	**James Audubon (Birds)**	29 min
12	**American Light-The Luminist Movement**	30 min

13	**James McNeill Whistler: His Etchings**	20 min
14	**William Merritt Chase**	25 min
15	**David Smith**	25 min

APPENDIX C

APPENDIX D

ITFS STUDENT QUESTIONNAIRE
CALCULUS
MARCH, 1989

Mr. Burke asked students from the ITFS Calculus class to respond to the following set of questions. Twenty-one students were asked at an on-site class held at Southwest to respond to 16 questions regarding programming and equipment. The following are the results of that survey. **A=Strongly Agree; B=Agree; C=Neutral; D=Disagree; E=Strongly Disagree; NR=No Response.**

		A	B	C	D	E	NR
1.	The instructor's writing on the pad and or chalkboard was legible.	3	7	5	3	1	0
2.	I can easily hear questions telephoned in by students.	4	9	4	2	2	0
3.	The camera operator varied the camera shots to maximize the learning opportunity.	0	9	8	3	0	1
4.	The instructor was available for telephone consultation during office hours.	2	2	13	2	0	2
5.	I received printed class material on time.	8	9	1	3	0	0
6.	The audio signal is clear.	3	7	6	4	1	0
7.	The video signal is clear.	2	9	2	3	5	0
8.	Telephone calls made to the instructor from my site were free from technical difficulties.	2	3	2	6	8	0
9.	My classroom was generally quiet enough for me to hear my broadcast.	11	7	3	0	0	0
10.	I was comfortable using the phone to call the teacher during class.	3	12	2	3	1	0
11.	My site coordinator was responsive to my concerns.	12	4	4	1	0	0
12.	I would take another ITFS course.	5	5	5	0	6	0
13.	There are adequate opportunities to talk with other students in cable TV	0	0	6	10	5	0
14.	Students have opportunities to ask questions of the teacher.	9	7	3	2	0	0

(OVER)

	A	B	C	D	E	NR
15. It is more difficult to catch up on make-up work in an ITFS course.	10	6	3	1	1	0
16. The amount of information given in a lesson on ITFS is usually about right for the speed at which I learn.	0	7	8	6	0	0

COMMENTS SPECIFIC TO QUESTIONS

1. - Needs to organize information better

2. - Most of the time
   - Unless their voice got cut off
   - Technical problem

3. - Not getting color (2)

4. - Never tried to reach him (4)
   - No time to ask questions after class

6. - On certain days
   - Fuzzy at times

7. - Black & White and fuzzy
   - Slightly fuzzy, but good color
   - Audio and/or video problems
   - Very unclear/distorted
   - No color
   - Real fuzzy, no color
   - Poor reception
   - Problems calling in
   - Technical difficulty

8. - Usually/Darome was terrible
   - Poor reception
   - Somethings have problems moving in
   - Many problems

9. - Until 7:35
   - Except for the students

10. - Hard to call in
    - Personal
    - Hate it

12. - Yes, but not so early in the morning (2)
    - No way
    - Undecided

13. - Hard to hear
    - Never attempted

16. - More pratical examples
    - Longer time for questions
    - Just about right (2)
    - Too much information to learn (4)
    - No work time, too much homework, class is more effective if you stay on-line (4)
    - More time to go over questions
    - Better explanations
    - Difficulty in doing homework

Note: (2)=Number of students with same response.

(OVER)

GENERAL COMMENTS

- Disappointed with phone system
- Reception is less than desirable
- Took two weeks to get system working
- Can't call in because still don't have a Darome
- Work we get is too long, difficult to get it finished
- I do not feel motivated to try because I get frustrated

RESPONSES TO
ITFS STUDENT QUESTIONNAIRE
CALCULUS
MAY, 1989

A=Strongly Agree; B=Agree; C=Neutral; D=Disagree; E=Strongly Disagree; NR=No Response.

		A	B	C	D	E	NR
1.	The instructor's writing on the pad and/or chalkboard was legible.	2	7	7	5		
2.	I can easily hear questions telephoned in by students.	3	5	2	11		
3.	The camera operator varied the camera shots to maximize the learning opportunity.		7	10	4		
4.	The instructor was available for telephone consultation during office hours.	3	4	5		1	8
5.	I received printed class material on time.	10	9	2			
6.	The audio signal is clear.		8	9	1	3	
7.	The video signal is clear.		1	7	7	6	
8.	Telephone calls made to the instructor from my site were free from technical difficulties.		4	5	7	6	
9.	My classroom was generally quiet enough for me to hear my broadcast.	8	6	3	3		1
10.	I was comfortable using the phone to call my teacher during class.	6	6	6	2		1
11.	My site coordinator was responsive to my concerns.	10	4	5		1	1
12.	I would take another ITFS course.	1	7	4	2	6	1
13.	There are adequate opportunities to talk with other students in cable TV.		7	3	8	1	2
14.	Students have opportunities to ask questions of the teacher.	3	13	5			
15.	It is more difficult to catch up on make-up work in an ITFS course.	8	6	4	1		2

(OVER)

		A	B	C	D	E	NR
16.	The amount of information given in a lesson on ITFS is usually about right for the speed at which I learn.		6	5	6	1	3