

A Teaching and Telecommunications Partnership

By using the local cable television system to transmit and receive live broadcasts of each other's courses, four Illinois school districts have discovered a way to cope with declining enrollments and teacher shortages—and to enhance student learning.



Students at all four locations can participate in discussions as they would in any normal classroom, while the teacher—acting as producer, director, and technician—conducts classes, controls cameras, and uses special effects generators to make points effectively.

Recent advances in telecommunications are providing educators with unique opportunities to improve instructional techniques and to resolve some of the problems facing the teaching profession. For example, four K-12 school districts in Carroll County, Illinois, have employed telecommunications technology in a partnership designed to confront problems of declining enrollments, teacher shortages in critical areas, and limited curricular resources. The four school districts had an additional problem: limited financial resources. Their solution was to form a telecommunications consortium. As a result, they are now successfully using the local cable television system to transmit and receive live broadcasts of each other's courses.

Carroll County's Interactive System

Four schools, one in each district, were "wired" together by the local cable television company, allowing them to receive and broadcast television signals. Each school has its own channel, so students and teachers at participating schools can tune into each other's broadcasts. Everyone can see *and* hear one another; the system is totally interactive.

Each school has set up one classroom for television reception and broadcasting. This classroom is equipped with three color cameras and four monitors, a special effects generator, and microphones. The four monitors allow students simultaneously to view broadcasts from the four different schools, the cameras televise activities in the home classroom, and the special effects generator allows the teachers to be more creative in their broadcasts. The generator also gives teachers the ability to broadcast a split-screen image, which enables them to maintain "eye contact" with students in remote schools while broadcasting.

The use of interactive television allows participating teachers to teach classes in conventional ways. They are able to use sound teaching methods such as discussion groups, demonstrations, and lectures, and administer tests and quizzes. The system allows the students from all four locations to simultaneously participate in discussions as they would in any normal classroom situation.

Distribution of related classroom materials to each of the four sites for the classes has not been a major prob-

lem. Materials are transported from one location to another using school buses or driver education vehicles, or by employees living in one community but working in another.

Planning

When it became apparent that the four communities could be serviced by the same cable company, the four superintendents explored the feasibility of using this technology to eliminate the problem of small enrollments and the lack of "critical mass" to make specialized and college preparation classes available to the students in a cost-effective manner.

Once the superintendents were convinced that a telecommunications system could solve their problems, they began to formalize their investigation. They talked to teachers, students, guidance counselors, school board members, and parents about what types of courses could be offered over the system. Next, all four school boards met and passed a motion to authorize the project. At the meeting five project goals were formulated:

1. to increase the number of course offerings for students in each district;
2. to provide fully qualified, experienced, and effective faculty members to teach advanced-level courses in mathematics, science, and foreign languages;
3. to motivate and challenge gifted and talented students through association with comparable students from other districts;
4. to promote high levels of student achievement as measured by content mastery of advanced-level course work; and
5. to increase efficiency of teachers' instructional time in traditionally low-enrollment, advanced-level courses.

In consultation with faculty members from Northern Illinois University, the districts requested a grant from the Illinois Board of Education. A \$40,000 grant was awarded to the consortium in August 1983. The districts were required to supply the remainder of the money necessary to buy the equipment and remodel the classrooms as television studios. The consortium districts spent an additional \$70,000 of local money to equip, carpet, and soundproof the classrooms. Six teachers, chosen because of their subject-matter expertise and their designation as master teachers, were then selected from the four schools to begin teaching over the system.



Implementation

Before such an innovative project could be implemented, teacher training was vital. Several days of inservice workshops prior to the school semester, as well as several days of inservice during the first two years, helped teachers acquire new television teaching skills and learn how to use the telecommunications system. To help the teachers make the transition from teaching in a regular classroom to teaching via telecommunications, the districts arranged for training in equipment operation, interactive teaching techniques, cooperative management techniques, curriculum concerns, and evaluation strategies. Equipment orientation included an introduction to the cameras, the monitors, the special effects generator, and the microphones. Teachers discussed system "start-up" and troubleshooting and practiced using all the equipment.

Once familiar with the technology, teachers focused on teaching techniques and system management. To get more variety and clarity in their lessons, they practiced use of the special effects generator, and learned to design diagrams and charts, and to do camera closeups. They also reviewed effective teaching techniques, including use of eye contact, pacing, interactive discussion questions, round-robin sessions, and regular use of personalizing techniques to enhance participation. System management problems focused on materials transport from school to school, grading, discipline problems, cheating, testing, and provision of individualized assistance. Open communication between schools, teachers, students, and administrators was the key ingredient for success.

Technical problems and management strategies aside, curricular variations were the biggest concern. The same texts and tests had to be used,

and identical class outlines needed to be agreed upon to combine students from four schools into "one class." School calendars and course schedules had to be worked out, as did course pacing, grading variations, and even teaching styles. Keeping all classes "in sync" with one another was vital so that all students would have an equal learning opportunity. Entry and exit skills for mathematics and foreign languages were agreed upon to maintain consistency from school to school, course to course, year to year. Teachers from the four districts agreed to meet regularly to solve problems and suggest changes.

Evaluation

In cooperation with the system's teachers, the schools developed an evaluation scheme. Teachers administer pre- and posttests to all students at the beginning and end of the courses to compare cognitive gain. Students are surveyed twice each semester and observed and interviewed throughout the year. Use of these varied methods of data collection helps ensure that evaluation data can be cross-checked and key issues analyzed in greater detail.

The evaluation results of the first two years have been encouraging. Students in telecommunication classes not only learn as well as or better than those with "live" teaching, but they also indicate that their satisfaction with the courses is above average. Students also rate the teacher contact, interactive nature of the classes, and their level of comfort with the classes as above average. The largest problems are technical; when weather or other problems create interference, the classes are disrupted. Nevertheless, evaluation to date shows that the telecommunications consortium has accomplished its goals: increasing the advanced coursework available to students, heightening competition among bright students in four districts, and stimulating teachers to use technology in the service of innovative instruction. □

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