



Small high schools can use computers and correspondence courses to diversify their curriculums.

# Independent Study: Route to Academic Equity for Rural High Schools

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For the 15 million students who attend America's rural schools, a threat to equality of educational opportunity is the erosion of secondary curriculum. In an age that has witnessed the emergence of new disciplines, methods of inquiry, instruments of observation, and the hyper-accessibility of information, the curriculum of many rural secondary schools has shrunk.

In Littlefork-Big Falls, along the Canadian border of rural Minnesota, juniors and seniors have had to choose from a dwindling number of courses that too often failed to correspond with their personal interests or the entrance requirements of universities. It hasn't been altogether rare to find students repeating basic courses just to fill their schedules.

Littlefork-Big Falls students are disadvantaged because of their numbers and remoteness, not their ethnicity or poverty. Even if a potential course enrollment is more than one or two, the problem of locating teachers for specialized elective courses

remains. And for the staff on hand, professional development opportunities are limited because of distance from universities, libraries, and instructional resources.

## Self-Directed Study

When there are too few students, too little money, and a scarcity of skilled staff, can independent study be an alternative? The Academic Equity for Rural Schools program, with the support of the Minnesota Council on Quality Education, looked for the answer. In 1978 they established a learning center for independent studies at the secondary level to study four major kinds of delivery systems: (1) computer-assisted instruction, (2) extension courses offered through correspondence, (3) audiovisual courses, and (4) videotape courses.

Littlefork-Big Falls selected Control Data Corporation's PLATO. Using a special terminal with a touch-sensitive screen for responding, 78 students took courses in chemistry, French, Spanish, vehicle maintenance, basic skills, developmental reading, and occupational skills.

In the beginning we assumed there would be an abundant supply of materials, but actually there was a scarcity of audiovisual programs for independent study. Still, five courses were added to the curriculum: energy, consumer education, first aid, health, and speed reading. Five students chose German language instruction, a videotape course.

University extension courses proved to be the richest sources for independent study. Family relations, busi-

ness math, family and community health, photography, bookkeeping, creative writing, and wildlife management were the most popular of the different courses introduced into the curriculum through correspondence.

## Volunteer Advisors

Community resources can also bring a special dimension of quality to independent studies. In Littlefork-Big Falls, students may select a local volunteer as a personal course advisor, for instance, a native speaker of the foreign language they are studying. School staff members recruit the volunteers and organize introductory workshops for advisors and students.

## The Manager

How independent is the secondary student in pursuing "independent study"? The answer is: "less than we had thought." Students need considerable support to progress through independent studies, and the support requirement multiplies with the number of courses offered and the number of students enrolled. Research has found that even at the post-secondary level, failure to complete courses threatens the effectiveness of "individual pacing" (Alderman, 1978), evidence that some form of external management is crucial to the success of independent learning (Atkins and Lockhart, 1976; Coldeway and Schiller, 1974; Miller, Waver, and Semb, 1974).

In Littlefork-Big Falls, a special teacher manages the daily operation of the study center and assists each student's progress on an individual basis. Each student, in cooperation with the manager, develops and signs a contract for completing independent study and meets weekly with the manager to compare progress and plan. If the student can't complete the course according to the original schedule, the contract is revised. With each contract revision, the manager sends home a letter describing the changes and soliciting the parents' cooperation in the student's independent study. Failure to adhere to the new terms in subsequent weeks results in more conferences and follow-up. If by the fourth week of en-

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rollment student progress remains unsatisfactory, the independent study is terminated.

### The Microcomputer

The Apple II microcomputer has a special program for simplifying course management tasks and monitoring student progress. Each student enters information concerning goals, progress, personal feelings, and human resources on a daily basis. On a cathode ray tube they chart progress in color against an anticipated progress curve derived from an interpolation of the student's original goal-setting behavior. A group summary progress report is available in hard copy form for the instructional manager.

### The Costs

Figure 1 displays the relative total costs and cost per student hour of correspondence, PLATO, audiovisual and videotape courses for one year. Cost data on audiovisual and videotape courses are included for comparison, but note that these are one time purchase prices rather than the price structures of correspondence and PLATO courses that are repeated each term. In sum, correspondence courses accounted for a yearly total of 4,276 student study hours at a materials cost of \$2,643. These figures yield a quotient or costs per student study hour of \$.60. When equipment, postage, and estimated percentage of local instructor time are included, the total cost reached \$8,805, or \$2.05 per student hour.

Costs for PLATO courseware (two terminals, courseware, zone maintenance, communication ports, and telephone line) were \$19,692 per school year. A maximum of 1,050 use hours per school year are available through each terminal, yielding 2,100 student hours per year at 100 percent use rates. These figures yield a cost of \$9.11 per available student hour.

Figure 2 summarizes the total current use and cost data comparing PLATO Basic Skills, all other PLATO use combined, audiovisual, videotape, and the correspondence courses.

Figure 1. Relative Total Costs for One Year.

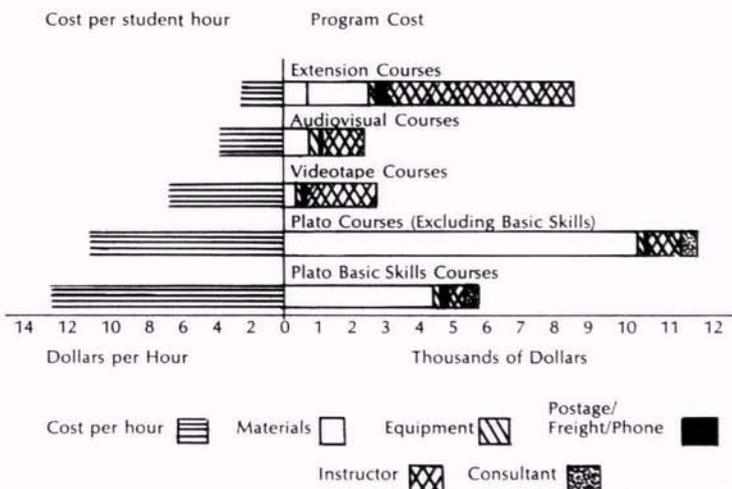
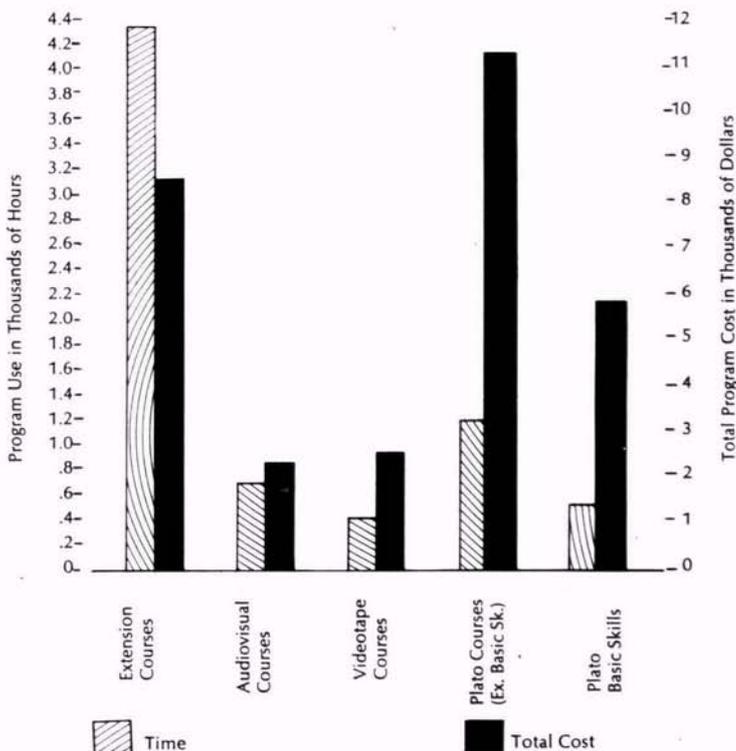


Figure 2. Self-Instructional Programs: Total Use and Cost





## Student Reactions

One way to evaluate an educational method is to observe the behavior of the students who participate. After two years of operation, there have been no discipline problems, no vandalism, and no thefts at the independent study center.

This is not due to some pre-selection of participants for the project. In reality, the center serves all types of students. The center provides remediation in the basic skills, instruction for students with learning and behavior problems, and an alternative learning center for students who have been expelled from some traditional classes. Of course, the center also serves advanced, highly motivated students. All types and grade level students are in the room at the same time with one manager, taking different courses and progressing at different rates.

With the great potential for disruption, why aren't there discipline problems? There may be more answers to this question than we are aware of, but here are a few possibilities:

- The students choose self-instruction; they aren't required to participate (even a remedial group).
- Each student is thoroughly counseled prior to enrollment regarding personal expectations and staff expectations.
- The novelty of using new technology and participating in self-instruction has strong appeal to students from a rural community.
- A microcomputer management program keeps all participants apprised of their completion status.
- Students seem able to accept responsibility for self-instruction if there is good planning, organization, and support.
- Student advice on how to improve operation of the self-instructional program is heeded.
- For the first time many students have the opportunity to enroll in courses that really appeal to them.
- Self-instruction places a greater responsibility on the students, but there is also a greater sense of pride in any accomplishments.

- The Center has good community support.

Each student evaluates his/her independent study. When the student evaluations were summarized at the end of the year, the most frequently stated advantages were: (1) working at own speed; (2) course was interesting and helpful; (3) liked room atmosphere; (4) liked learning contract; (5) learning center manager was helpful; and (6) felt learned more independently. The disadvantages were: (1) no quick help from teacher; (2) vague questions on tests

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and lessons; and (3) a mention of boredom and disappointed expectations.

## Course Completion Rates

As was mentioned earlier, a problem with independent studies is low completion rates. Informal observations and discussions with other educators suggest that the base rate for course completion is typically less than 50 percent. While Littlefork-Big Falls cannot boast 100 percent completion, they presently have a 92 percent completion rate.

## Grades

Students taking self-instructional

courses have been receiving course grades that are equal to or better than their overall grade point average. Because self-instruction requires so much interaction, the demands on the students are considerable. We have observed that in most cases students have no difficulty achieving reasonable grades, the difficulty comes in keeping on schedule.

At first, the AERS project was considered to be “just another government project” by local citizens. They failed to understand that this project was created and designed to meet the academic needs of their school district and the community. A series of newspaper articles, open house activities, and word-of-mouth publicity have changed the community's view to a more positive one. Now, in its third year, the independent study project is mentioned as a highlight when describing the school district. It is an innovative and cost-effective means of expanding curricular offerings for the rural school. ■

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