Access to Educational Opportunity in Rural Communities: Alternative Patterns of Delivering Vocational Education in Sparsely Populated Areas

Volume 1: Problem, Study Design and Procedures, Findings, Conclusions, and Recommendations.

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Roland L. Peterson

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EDUCATION IN SPARSELY POPULATED AREAS

Volume 1: Problem, Study Design and Procedures, Findings, Conclusions, and Recommendations. Thomas, R. and Peterson, R.

Volume 2: The Heartland Vocational Center: A Decentralized Center. Thomas, R.; Peterson, R.; Anderson, M. J.

Volume 3: The Northwest Multi-District: A Mobile Facilities Center. Peterson, R.; Thomas R.; Anderson, M. J.

Volume 4: The Inter-District Vocational Center: A Centralized Center. Peterson, R.; Thomas, R.; Anderson, M. J.

Volume 5: The Clay-Wayne County Joint Agreement: A Decentralized Non-Center Agreement. Thomas, R.; Peterson, R.; Rabideau, R.

Volume 6: Glencoe, Lester Prairie, Brownton: A Centralized, Non-Center Agreement. Peterson, R.; Thomas, R.; Rabideau, R.

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CHAPTER I

INTRODUCTION

Problem

Between 1960 and 1980 rural communities in the United States experienced distinct and conflicting demographic trends. In the earlier part of this twenty-year period migration occurred from rural areas to urban industrial areas. Toward the end of this period, there was a migration to the rural areas. During the 1970s the overall rate of United States population growth declined.

As a result of these trends, concern for the development and retention of human resources in the rural areas increased. Decline in the numbers of youth in rural communities due to the general reduction in the population growth rate and emigration of youth posed serious threats to both economic stability and the quality of life in rural communities. This situation focused increasing attention on the means for developing human resources, which were seen as important to the economic stability and quality of life in rural America.

During the same twenty-year period another trend occurred across the United States: increased emphasis on vocational education as a means for developing human resources. Access to vocational education became a key issue.

The converging of these trends, along with state and federal imperatives directed at rural school districts to increase the access of secondary students to vocational education, resulted in a wide range of efforts to provide programs that addressed the new challenges thrust upon local school policy-makers. Secondary vocational curricula in rural schools had typically been limited to agriculture and consumer-focused home economics programs. Industrial arts and business curricula, although frequently offered in rural schools, were not as frequently vocationally oriented.

This situation placed schools in the center of conflicting trends and conditions. On one hand, rural school enrollments were declining due to the general reduction in the population growth rate and emigration from rural communities; schools' financial resources consequently also were reduced. On the other hand, schools were told to increase their range of curricular offerings, which required hiring specialized personnel and acquiring specialized laboratory facilities and equipment. In the later 1970s and early 1980s, the situation was made even more challenging by a general decline in the economic base of several states, which further reduced financial resources available to schools. The net result was the emergence of the central problem for rural schools of how to provide students with expanded access to quality vocational education in the face of declining enrollments and financial resources.

As these trends evolved, solutions to the problem might have taken several forms. Other means of human resource development (in the home, community, or workplace) might have been used exclusively or combined with school-based approaches. However, the most common approach was to focus on the schools.

Schools that were large enough shifted their curricula to place more emphasis on vocational offerings. The largest schools had the potential to simply add vocational offerings without decreasing other programs. But rural schools in sparsely populated areas had special challenges, since they did not have a sufficient number of students or a large enough financial base to expand vocational offerings. A solution that emerged from these schools was cooperation with other school districts by pooling students and sharing costs. As a result of this effort, several variations of inter-school cooperation emerged. However, some cooperative arrangements dissolved after several years of operation, particularly as financial resources became more scarce.

The knowledge base for helping rural schools cope with the widening gap between external imperatives and student population size and financial resources was sorely deficient. Little systematic knowledge about rural schools in general was available, and even less was known about approaches for delivering vocational education in sparsely populated rural areas (Sher, 1979). Although several forms of inter-school district cooperation existed, there were few formal studies of the alternatives (Peterson, et al., 1981).

Purpose

This study was planned in response to the need for a knowledge base on the delivery of vocational education to sparsely populated rural areas. More specifically, an identification and understanding of the forms of inter-school district cooperation, how they work, and their consequences, was pursued. The purpose of the study was to provide information that will enable local and state educational planners and policymakers to compare and evaluate alternative forms of inter-school district cooperation as a means of providing rural students with access to quality vocational education.

The study was conceptualized in three phases:

Phase I: Identification of forms of inter-school district cooperation.

Phase II: Description, analysis, and understanding of forms of inter-school district cooperation.

Phase III: Application of findings to decision-making regarding delivery of vocational education in rural areas.

The purposes of Phase I, reported in an earlier document (Peterson et al., 1981), were to: (1) identify alternative forms of inter-school district cooperation used to provide secondary vocational education in sparsely populated rural areas; (2) compare inter-school district cooperation with other types of school-based approaches for delivering secondary vocational education; and (3) compare inter-school district cooperation with other major means of human resource development in rural communities. These purposes were accomplished by a survey of the literature concerning rural vocational education and an empirical survey of states regarding existing forms of inter-school district cooperation. The literature survey produced a conceptual model of forms of inter-school district cooperation, other school-based approaches for delivering vocational education, and other major means of human resource development in rural communities. This conceptual model (Figure 1) and its development were discussed in the earlier publication (Peterson et al., 1981). The empirical survey of states produced data that allowed identification of specific sites representing forms of cooperation presented in the conceptual model.[1]

The purpose of Phase II of the study was to verify, elaborate on, and discover variables associated with varying forms of inter-school district cooperation. Products of Phase II are in-depth descriptions of specific examples of each of the five selected forms of cooperation and a comparative analysis. The comparative analysis is reported in this volume. The in-depth descriptions of the five forms of cooperation are reported in volumes two through six.

The purpose of Phase III will be to develop a planning model for local and state policymakers to use in developing, comparing and evaluating alternatives for delivering vocational education in sparsely populated rural areas. The product of Phase III will be a tool for decision-makers.

The entire study was jointly conceptualized by researchers at the University of Nebraska and the University of Minnesota. Phase I was funded by the Agricultural Experiment Stations at the University of Nebraska and the University of Minnesota under provisions for regional research projects. Phase II was designed and conducted by researchers at the University of Minnesota and funded by the Agricultural Experiment Station at the University of Minnesota.

Research Objectives

The basis for the research objectives of Phase II of the study is presented in Figure 2. This research model reflects relationships among components of the problem described in the introduction. Components addressed in Phase II of the study appear inside the dotted line.

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[1]Information regarding the empirical survey of states may be obtained by contacting Drs. Osmund Gilbertson and Gwendolyn Newkirk, Institute of Agriculture and Natural Resources, East Campus, 302 Agriculture Hall, University of Nebraska, Lincoln, Nebraska 68583.

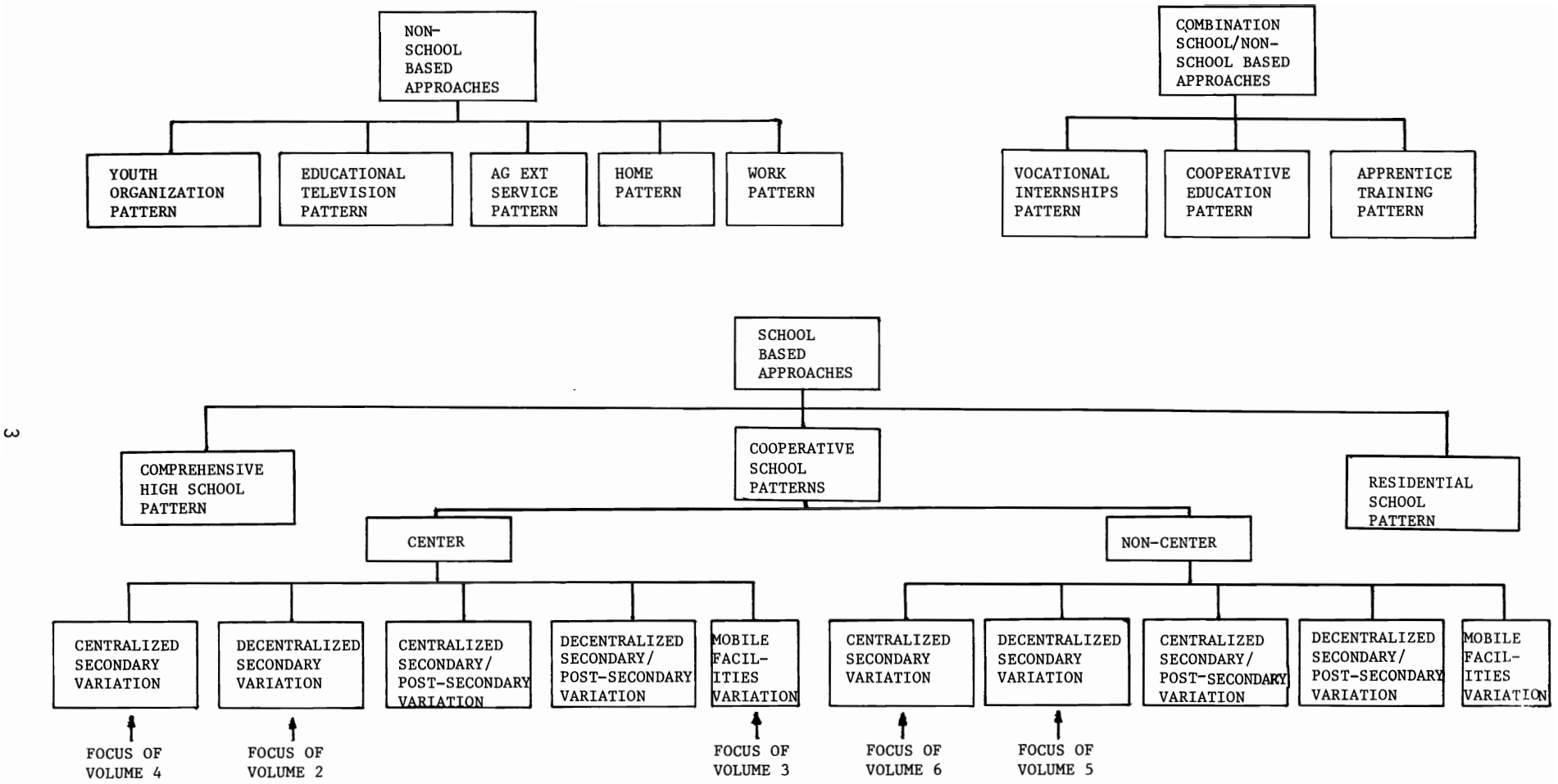

Figure 1. Conceptual model of approaches, patterns and variations for delivering vocational education

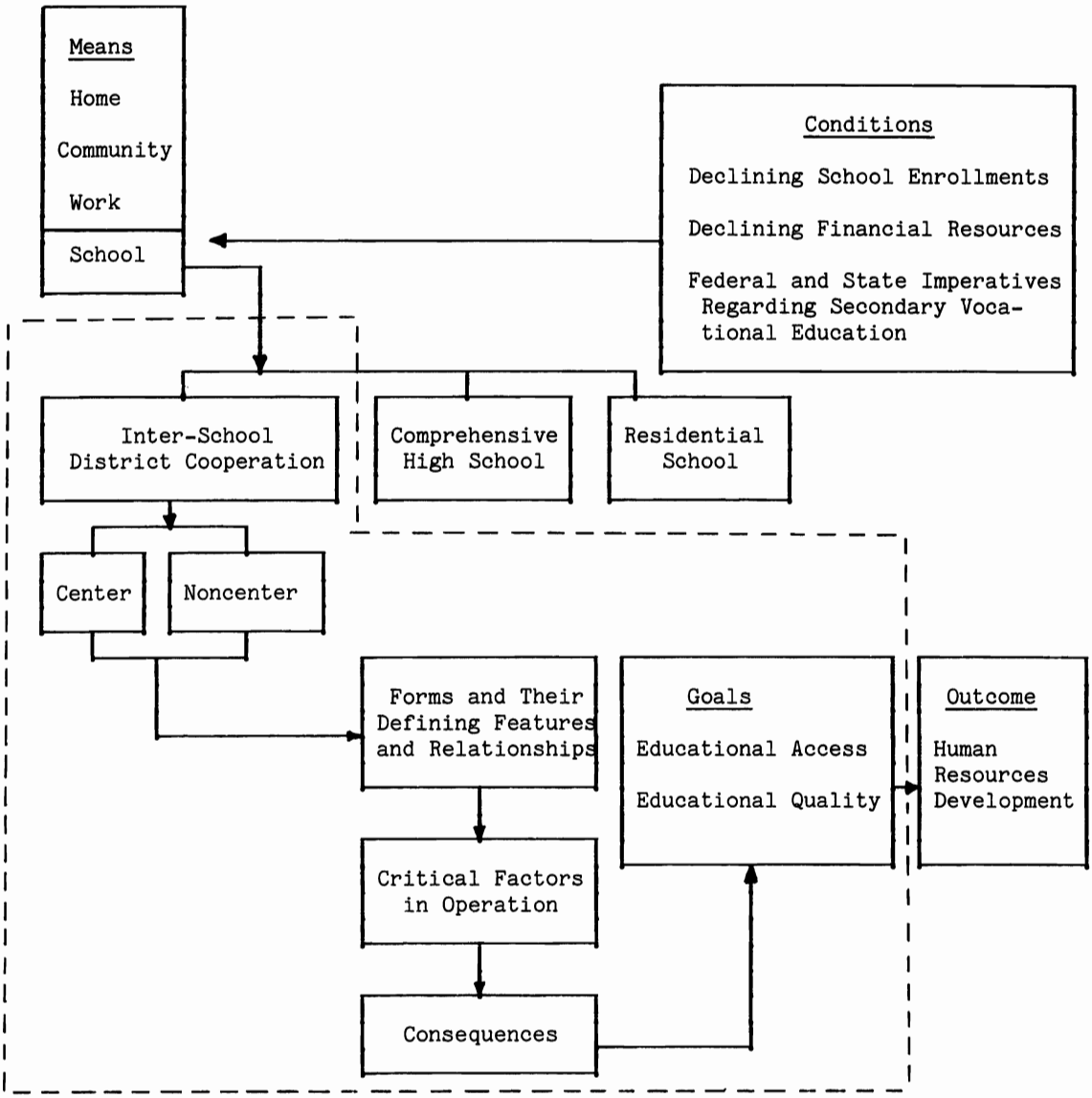

Figure 2. Research model summarizing the problem and basis for research objectives and indicating components addressed in Phase II

The objectives of the research conducted in Phase II were to:

1. Verify, elaborate, and further identify defining features of alternative forms of inter-school district cooperation.

2. Discover critical factors in the operation of each form of inter-school district cooperation.

3. Identify relationships between forms of inter-school district cooperation and geographical, community, and school district settings.

4. Assess the consequences of alternative forms of inter-school district cooperation for educational access and educational quality.

5. Develop recommendations regarding inter-school district cooperation for:
   a. further research;
   b. development of a planning model for local and state level policymakers; and
   c. development of new approaches for delivering vocational education in sparsely populated rural areas.

Limitations

This study is limited in that only some forms of inter-school district cooperation were included. The case study methodology used is appropriate for understanding-focused objectives and for hypothesis generation, but does not lend itself to broad generalization of results. Consequently, caution should be exercised in applying findings to other settings. The primary usefulness of the study is in guiding the formulation of questions regarding inter-school district cooperation for delivering vocational education in rural areas rather than in providing definite answers. The study should be viewed as providing (1) a base from which to generate further research and new ideas concerning educational delivery, and (2) a set of considerations for which applicability to specific settings should be verified.

CHAPTER II

STUDY DESIGN AND PROCEDURES

Background

Research methodology used in Phase II was chosen to best suit the purpose of describing, analyzing and understanding inter-school district cooperation as a means of providing vocational education in rural areas. Understanding requires a clear concept of what the object of study is (description, clarification, discovery) and how it fits in a larger picture (relationships, comparisons, differentiation). When little knowledge exists in a particular area, as is the case for the delivery of vocational education in rural areas, research methodology necessarily differs from methodologies appropriate when a knowledge base exists.

The general research approach used in Phase II may be described in Smith and Keith's (1971) terms as "formulative" or "model building." This approach involves careful descriptions captured in site visits as well as other observations and compilations of data; abstraction from description to a more general theoretical level resulting in the creation of new concepts or variables; generation of hypotheses that explain the data; and formulation of models or graphic representations that have applicability beyond the individual case. These kinds of results are viewed as useful starting points for further research.

Case study methodology was identified as appropriate for developing a general understanding of inter-school district cooperation. This methodology provides detailed description and in-depth observation, and has the potential to uncover underlying factors unlikely to be discovered using less intensive methodologies. However, it also imposes a major limitation on the generalizability of the data. The tradeoff seemed appropriate given the focus of the study on understanding the patterns of inter-school district cooperation and the state of knowledge regarding the delivery of vocational education in rural areas. Potentially critical variables must be identified before they can be verified and studied using research methods that lead to broadly generalizable results.

Procedures

The steps followed for Phase II were: (1) identify the data to be obtained for each case study, (2) determine data sources and methods by which data would be collected, (3) determine criteria and procedures for site selection for the case studies, (4) develop procedures for conducting the site visits and other data collection procedures, (5) develop data reporting and analysis procedures, (6) collect the data, (7) analyze and interpret the data, and (8) draw conclusions and formulate recommendations.

Decisions relevant to steps (1) and (2) are presented in Table 1. Step (1) was based on the research objectives and the work completed in Phase I. Two criteria prevailed for step (2), determining data sources and data collection methods: a) collect on site only those data available in no other way, and (b) triangulate on-site data to the extent possible within resource constraints.[2] The results of applying these criteria are shown in Table 1.

Two sets of questionnaires were developed on the basis of Table 1. One set of questionnaires was designed to be sent to the site several weeks prior to the site visit. The second, a set of interview schedules, was designed to be used in conducting structured interviews with individuals at the site. Each questionnaire and each structured interview schedule was directed at a specific individual identified in Table 1 under sources of data.

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[2]Triangulation of data involves collecting similar data from several sources to verify accuracy.

Table 1. Objectives of Phase II, data to be obtained, source(s) of data and method of data collection[1]

Phase II Objective	Data to be Obtained	Data Source(s)	Method of Data Collection
1. Verify, elaborate, and further identify defining features of alternative forms of inter-school district cooperation	1. Number of facility locations	Cooperative arrangement administrator(s) and direct observation	Interviews, on-site observations
	2. Type of governance structure	Cooperative arrangement administrator(s) and governance documents	Interviews, on-site observations, document analysis
	3. Structure, responsibility and role of administrative staff	Cooperative arrangement administrator(s) and governance documents	Interviews, document analysis
	4. Structure and responsibility of teaching staff	Cooperative arrangement administrator(s) and teaching staff	Interviews, questionnaires
	5. Financial structure(s)	Cooperative arrangement administrator(s), policy-makers and agreement documents	Interviews, questionnaires, document analysis
	6. Nature of legal agreements between schools	Agreement documents	Document analysis
	7. Approval mechanisms	Agreement documents, State Dept. of Education	Document analysis, interviews
	8. Transportation patterns	Cooperative arrangement administrator(s)	Interviews, questionnaires
	9. Vocational curriculum	Cooperative arrangement administrator(s), student handbook	Interviews, questionnaires, document analysis

[1]The fifth Phase II objective is not included in Table 1 since it focuses on data interpretation rather than data collection.

Table 1. Objectives of Phase II, data to be obtained, source(s) of data and method of data collection (continued)

Phase II Objective	Data to be Obtained	Data Source(s)	Method of Data Collection
2. Discover critical factors in the operation of each form of inter-school district cooperation	1. Communication networks among schools	Cooperative arrangement administrator(s) teachers, agreement documents	Interviews, questionnaires, document analysis
	2. Perceived need for cooperation	Cooperative arrangement policy makers, school administrators, community members, teachers	Interviews, questionnaires
	3. Perceived benefits from cooperation	Cooperative arrangement policy makers, school administrators, community members, teachers	Interviews, questionnaires
	4. Transportation	Cooperative arrangement and school administrators	Interviews, questionnaires
	5. Schedules	Cooperative arrangement and school administrators	Interviews, questionnaires
	6. Enrollments	Cooperative arrangement and school administrators, state reports	Questionnaires, reports analysis
	7. Attitudes	Cooperative arrangement and school administrators, policy makers, teachers, community members	Interviews, questionnaires
	8. Resources	Cooperative arrangement and school administrators, policy makers, state reports	Questionnaires, interviews, report analysis

Table 1. Objectives of Phase II, data to be obtained, source(s) of data and method of data collection (continued)

Phase II Objective	Data to be Obtained	Data Source(s)	Method of Data Collection
3. Identify relationships between forms of inter-school district cooperation and geographical, community, and school district settings	1. Attitudes toward education	School administrators, teachers, policy-makers, community members, students, parents	Interviews, questionnaires
	2. Resources provided to school	State-generated reports	Report analysis
	3. Future education and career plans of high school graduates	School counselors, students, parents	Interviews, questionnaires
	4. Community demography, cultural and ethnic background	U. S. Census, Dept. of Economic Security	Document analysis
	5. Community resources	Dept. of Economic Security, local telephone book, direct observations	Document analysis, on-site observations
	6. Community economic patterns	Dept. of Economic Security, U. S. Census	Document analysis
	7. Community health statistics	Dept. of Public Health	Document analysis
	8. Physical geography	Direct observation	On-site observation
	9. Transportation systems available	Dept. of Economic Security, maps	Document analysis
	10. School district enrollments, class size	State reports, school administrators	Report analysis, questionnaires
	11. School district income, expenditures	State reports	Report analysis, questionnaires
	12. School district faculty and administration size, qualifications	School administrators	Questionnaires

Table 1. Objectives of Phase II, data to be obtained, source(s) of data and method of data collection (continued)

Phase II Objective	Data to be Obtained	Data Source(s)	Method of Data Collection
	13. School district facilities	School administrators, direct observation	Questionnaires, interviews, on-site observation
	14. School district schedules	School administrators	Questionnaires, interviews
	15. School district curricula	Student handbook	Document analysis
	16. School district student transportation patterns	School administrators	Questionnaires, interviews
4. Assess the consequences of alternative forms of inter-school district cooperation for educational access and educational quality	1. Access		
	a. Number of students enrolled in cooperative delivery mechanisms	Cooperative arrangement and school administrators, teachers	Questionnaires, interviews
	b. Curriculum available to students	Cooperative arrangement and school administrators, handbooks, reports	Questionnaires, interviews, document analysis
	c. Transportation requirements for students	Cooperative arrangement and school administrators	Interviews, questionnaires
	d. Schedules	Cooperative arrangement and school administrators, faculty	Interviews, questionnaires
	2. Quality		
	a. Student organization functioning	Cooperative arrangement and school administrators, teachers	Interviews
	b. Faculty qualifications	Cooperative arrangement and school administrators, faculty	Interviews, questionnaires
	c. Facilities	Cooperative arrangement and school administrators, faculty, direct observation	Interviews, questionnaires, on-site observation

The basis for step (3), site selection, was the cooperative school patterns portion of the conceptual model presented in Figure 1. Five center and five noncenter cooperative school pattern variations comprised the pool of potential sites. To determine which cooperative pattern variations existed, data from the empirical survey of states were searched for each pattern variation. In addition, sites in Minnesota and Nebraska which potentially represented pattern variations exemplified in Figure 1 were identified with the help of advisory committees and state departments of education.

Site selection was based on conceptual and logistical concerns. Since agriculture and home economics programs have traditionally been offered in small rural schools, cooperative mechanisms offering these types of programs were preferred to allow comparison between single school programs and multiple-district programs. Consequently, the following criteria were used in site selection:

a. Site possesses the defining features of a delivery pattern variation.
b. Agriculture and home economics programs are available within the cooperative mechanism.
c. Site is accessible within resource constraints.
d. Site personnel are willing to be involved in the study.

Procedures developed under step (4) for conducting the site visits and other data collection activities were:

1) Select site.
2) Contact site by phone; establish dates for site visit.
3) Contact state department of education personnel to arrange for an interview.
4) Mail questionnaires to site with letter detailing the on-site interviews to be scheduled.
5) Develop initial site profile from census data, economic security data, health department data, and state school district report data.
6) Prepare interview questionnaire packets for on-site visits.
7) Conduct half day interviews with state department of education personnel (team of three researchers).
8) Spend one to three days at a site conducting interviews and observations (team of three researchers). A general guide of one researcher per day per community was used to establish time needed for the site visit.

A pilot test of these procedures and the questionnaires was conducted in February and March 1980 and the questionnaires and procedures were subsequently revised. Interviews with students and parents were eliminated since these yielded little additional data. Questionnaire revisions eliminated some data triangulation that seemed to produce little benefit in relation to the costs involved in obtaining the data.

Step (5), development of data reporting and analysis procedures, involved two parts: development of a format for the case study reports, and development of data analysis procedures. These procedures were designed around questions directed at or elaborating the Phase II objectives.

For each case study, the following research questions were asked:

1) What features of the cooperative delivery mechanism are evident? How consistent are the features with defining features of the pattern represented by the case?
2) How does the delivery mechanism work? What factors facilitate or impede its operation and cooperation among school districts?
3) How does the delivery mechanism fit with the characteristics of its setting, i.e., with the mix of geographical, community, and school district characteristics?
4) What are the consequences for educational access and quality?
5) How might the delivery mechanism be modified?

Within each case, concepts, variables and patterns were identified. Data from each case study were compared across the case studies. Data matrices used in the comparative analysis are included in the appendix. Concepts, variables, and patterns emerging from the comparison were identified.

Step (6), data collection, occurred between March 1980 and April 1982. The availability of agriculture and home economics programs within the cooperative mechanism turned out to be extremely limiting since few sites that met this criterion also met site selection criterion (a) (possessing the defining features of as delivery pattern variation). In addition, the home economics programs offered through the cooperative mechanism were occupationally focused rather than consumer-focused. When both criteria could not be met, the defining features criterion took precedence.

Four sites were selected, two in Minnesota, one in South Dakota, and one in Illinois. The latter two states, while not involved in conducting the study, contained pattern variations not found in Minnesota or Nebraska. Each site represented a different pattern variation in the conceptual model. Since the pilot study had been conducted in a Minnesota site representing the centralized center pattern variation, this site represented a fifth pattern variation. The five sites contained a total of 24 school districts. Ideally, all ten pattern variations should have been studied in a similar manner. Resource constraints did not permit the study of all ten variations within the scope of Phase II. Variations selected for study were those that were determined in Phase I to be used most frequently, to clearly exist (the conceptual model identified variations that could exist theoretically), to represent a balance between center and noncenter pattern variations, and to be distinctly separable. The five pattern variations represented in the four sites selected and the pilot study were:

1. Centralized Center
2. Decentralized Center
3. Mobile Unit Center
4. Centralized Noncenter
5. Decentralized Noncenter

Data from the 1980 U.S. Census were not available until the latter part of the data collection period. Consequently, the 1970 census data were used in developing the site profiles and were supplemented by more recent data available from other sources.

Procedures for step (7), analyze and interpret data, included development of in-depth descriptions of each case based on the data collected; identification of dimensions for comparing cases (dimensions were derived from Phase II research objectives and column two, data to be obtained, in Table 1); comparative analysis of the five cases across the dimensions; identification of variables that appeared to underlie variation among the cases; grouping of variables and identification of central concepts common to all variables in each group; labeling of central concepts (themes); and description of how the themes and variables applied to each case.

Two procedures were used in step (8). The first was consideration of the implications of the findings in relation to each Phase II research objective. The second procedure involved identifying actions based on the findings that would address the three concerns of the fifth Phase II research objective: further research, development of an educational delivery planning model, and development of new approaches for educational delivery in sparsely populated rural areas.

CHAPTER III

RESULTS AND DISCUSSION

Findings are presented in this chapter under headings that relate to the first four research objectives of Phase II. Recommendations pertaining to the fifth research objective are presented in Chapter V.

Defining Features of Alternative Educational Delivery Patterns

Two major independent variables underlying the conceptual model presented in Figure 1 were confirmed and elaborated by Phase II results. These variables were organizational structure and facilities configuration. In the conceptual model, features related to organizational structure determine whether a delivery pattern is classified as a center or a noncenter. Facilities configuration determines whether a delivery pattern is identified as centralized, decentralized, or mobile.

Organizational Structure

Organizational structure is defined as design and relationship of the parts of the organization. Case study data that focus on organizational structure features are presented in Table 2. Organizational structure, the independent variable, has two levels: center and noncenter. Defining features are presented as dependent variables that vary according to the levels of organizational structure. Table 2 reveals that centers and non-centers can be distinguished on the basis of differences in governance structure, fiscal agent status, patterns of staff assignment and function, and services provided.

Organizational structure for center patterns is external to the school districts. Centers have a formally specified governance structure separate from (although related to) the governance structures of participating schools. In addition, center staff and services are provided by the center and set apart from school district staff and services. Centers also have fiscal agent status.

Noncenter organizational structure is internal to the school district. Noncenters have no formally specified governance structure, but instead are governed through existing school district governance bodies and administrators. Noncenter arrangements do not have fiscal agent status; school districts are the fiscal agents for any financial transactions associated with shared courses and programs. Existing school district staff run noncenter arrangements; there are no separate or additional staff. Services are provided by the school districts.

Organizational structure represents one of the initial major decisions cooperating school districts must make in developing and planning the delivery of shared vocational education programs. The defining variables presented in Table 2 represent considerations in developing centers and noncenters and in generating ideas for new structures that combine features of centers and noncenters.

The case study data suggest that, for some organizational structure variables, a continuum represents the organizational structure alternatives more accurately than the two-category center/noncenter concept. There was considerable variation with the noncenter category. For example, while centers tended to have a set of relatively stable programs clearly designated as center offerings, noncenters offered a stable set of programs identified as shared, or varied what was shared from year to year depending on student interests. A continuum would represent such variations better than the discrete categorical view used in Table 2.

Facility Configuration

A second dimension of defining features is that of physical centralization and decentralization. In the conceptual model presented in Figure 1, features related to facility configuration determine whether a delivery pattern variation is classified as centralized, decentralized, or mobile.

A centralized center or noncenter is one in which facilities are located in one community or building and students are transported to that site for vocational classes. A decentralized center

Table 2. Relationship between organizational structure and defining variables

Defining Variable	Organizational Structures	
	Center	Non-Center
	*Centralized *Decentralized *Mobile Unit	*Centralized *Decentralized
1. Governance structure		
a. Governance body	Formal, legally identified and authorized governance body.	Informal, self-identified and school board authorized existing school administration group.
b. Approval bodies	State and participating school boards.	Participating school boards; may have state approval in some states for some forms of non-centers.
c. Legally binding documents	A set of bylaws and/or a constitution adopted by all participating school district boards.	Uniform or varying resolutions or joint agreements adopted by each participating school board.
2. Fiscal agent status	Center has fiscal agent status and assesses member school districts to create separate dollar pool for center; school districts levy taxes.	School districts are fiscal agents and bill each other for services.
3. Staff		
a. Assignment of administrative, instructional, and support staff	Assigned part or full time to center.	Assigned to each local school district.
b. Administrative duties	Carried out by a director hired by and responsible to the governance board.	Carried out by superintendents and principals in participating schools who are informally responsible to each other and formally responsible to their school board and district.
4. Services	Specifically identified, relatively stable set of courses or programs offered by center.	Relatively stable or highly variable set of courses offered by school districts.

* Identified in Figure 1.

or noncenter refers to an arrangement that involves more than one facility in more than one community. Students, teachers, or both may be transported in this configuration.

Mobile facilities are a special type of decentralized configuration. Their features differentiate them from decentralized nonmobile facilities to such an extent that they are more appropriately categorized separately. Mobile facilities involve one or more transportable facilities that rotate between two or more communities. Students are not transported and teachers move with the facility.

Data on facility configuration drawn from the case studies are presented in Table 3. Facility configuration is presented as an independent variable with three levels: centralized, decentralized, and mobile. Defining features are presented as dependent variables that vary according to configuration levels. As was the case for organizational structure, the data are consistent with Figure 1. Table 3 reveals that centralized, decentralized, and mobile facility configurations can be distinquished on the basis of the number of communities in which facilities are located, facility type, and transportation characteristics. The number of communities in which facilities are located rather than the number of buildings or spaces differentiates centralized and decentralized facility configurations. What is transported differentiates the mobile configuration from the other two but does not separate centralized and decentralized configurations.

Table 3. Relationship between facility configuration and defining variables

Defining Variable	Facility Configurations		
	Centralized	Decentralized	Mobile
1. Number of communities with facilities	One	More than one	More than one
2. Type of physical structure(s)	Permanent building or sections of a permanent building, owned or rented	Permanent building or sections of permanent buildings, owned or rented	House trailer or other mobile unit, owned
3. Program elements that move	Students	Students and/or teachers	Facilities, equipment and teachers
4. Transportation requirements	Dollars, personnel and vehicles for moving students daily	Dollars, personnel and vehicles for moving students daily; may involve transportation allowance for teachers	Dollars, personnel and equipment for moving mobile facility; electrical and water hook-ups at each location; may involve moving allowance for teachers

Facility configuration represents a second major decision cooperating school districts must make in planning and developing shared vocational education programs. The facility configurations shown in Table 3 represent alternatives that decision-makers might consider. Like organizational structure, facility configuration might be viewed as a continuum. For example, a decentralized arrangement involving five schools is more decentralized if all five schools offer shared programs than if only two of the schools have shared programs located in them.

Delivery Patterns

The data suggest that the major dimensions of the conceptual model--i.e., organizational structure and facility configuration--are basic, underlying concepts useful in identifying, differentiating, and comparing models of inter-school district cooperation. In addition, the data clarify and elaborate these dimensions and suggest that a discrete categorical view may be less appropriate than a continuum view. The dimensions and their relationship to the five specific delivery pattern variations are shown in Table 4 and in the definitions of each delivery pattern variation which follow.

Table 4. Relationship of organizational structure, facility configuration and five delivery pattern variations

Organizational Structure	Facilities Configuration		
	Centralized	Decentralized	Mobile
Center	Centralized Center	Decentralized Center	Mobile Unit
Noncenter	Centralized Noncenter	Decentralized Noncenter	

Centralized Center. The centralized center has a formal, legally identified and authorized governance body; is approved both by the state and by the boards of participating school districts; operates according to a legally binding set of bylaws and/or a constitution; and is a fiscal agent for public funds obtained by assessing member school districts. The centralized center has administrative and instructional staff specifically assigned to it whose salaries are paid by the center in full or in part in proportion to the time assigned to the center. A center director administers the center. The center offers a relatively stable set of programs or courses.

Center programs are located in one community, typically in a permanent, newly constructed or remodeled structure owned or rented by the center. Students are transported to the center daily by bus from their home school district at a cost to the home district.

Decentralized Center. The decentralized center is similar in many ways to the centralized center. Facility configuration is the essential element that differentiates the two: decentralized centers have programs in two or more communities whereas all programs in a center are located in one community.

Like the centralized center, the decentralized center has a formal, legally identified and authorized governance body, is approved by the state and by the boards of participating school districts, operates according to a set of legally binding bylaws and/or a constitution, and is a fiscal agent for public funds obtained by assessing member school districts. The decentralized center also has administrative and instructional staff specifically assigned to it whose salaries are paid by the center in full or in part in proportion to the time assigned to the center. The decentralized center may be more likely than the centralized center to have teaching staff employed by both the center and one of the member districts. It is administered by a center director. Its programs, like the centralized center, are likely to be a relatively stable set of offerings.

Decentralized center programs are located in renovated or remodeled facilities, unchanged facilities, newly constructed facilities, or some combination of these. Facilities may be owned or rented. A likely pattern is that existing school districts' facilities will be used with, for example, the foods occupations program in the home economics facilities in one school, the

horticulture program in the agriculture facilities in another school, and the welding program in yet another school's industrial education facilities.

Students are transported to programs in other school districts by bus with the students' home district paying the transportation costs, or the teacher may travel between schools (the latter requires duplicate facilities, but avoids student travel). Programs may have one or several sections, depending on the number of students enrolled. Programs are typically scheduled so that any one school transporting students only makes one round trip to a program location per day. A district may send students to several different locations in a day.

Mobile Unit Center. This arrangement has the usual features of a center: it is governed by a formal, legally identified body, approved by the state as well as by the participating school boards; it operates according to a legally binding constitution and/or bylaws; and it is a fiscal agent for public funds provided by member school districts. Administrative and instructional staff are specifically assigned to and paid by the center. A center director has primary responsibility for administration and supervision of the center. A relatively stable set of programs or courses is offered through the center.

Programs are located in center-owned trailers that resemble mobile homes. These are periodically moved from one school district to another. In the site studied there was a separate trailer for each program and the number of programs equaled the number of member districts. Over a period of time, all programs were located in all member school districts. No students are transported to other communities for instruction in this model. Teachers move periodically with the trailers or commute to each location of their trailer. In cases where extreme distances are involved, as was the case in the site studied, moving allowances may be provided if teachers have to change their residence with the trailer. Each school district provides a site and utility hook-ups for the trailers.

Centralized Noncenter. Unlike the center patterns, the centralized non-center has an informal, self-identified governance body composed of participating school superintendents and principals who have been given the authority to serve in this capacity by their school boards. No formal constitution or bylaws are involved. A legally binding written resolution or agreement may be used to authorize the terms of cooperation. This document is approved by each participating school and may be approved by the state.

Each school district is a fiscal agent for its own portion of the cooperative enterprise, assessing other districts for services rendered and receiving direct payments from each district served.

No additional administrative or instructional staff are likely to be involved. Rather, each school district's teaching staff conduct and supervise the shared courses. Shared courses are administered by superintendents and principals in each school district on an in-kind basis.

Programs or courses offered to other school districts may be a specifically identified, stable set of offerings, or may vary from year to year depending on the interests of students. Shared offerings are typically limited to currently available courses, however, and are not as likely to involve the addition of new offerings as they are in centers.

As in the centralized center, programs are located in one community, typically in the school building, although in the case study one rented building was used in addition to the school facilities.

Students from participating districts are bused to the central location daily at a cost to their home district.

Decentralized Noncenter. The decentralized noncenter is organizationally similar to the centralized noncenter. It has an informal, self-identified governance body made up of participating school superintendents and principals whose decisions and actions regarding cooperation among the school districts are approved by their respective school boards. No formal constitution or bylaws are involved. In the site studied a brief document called a joint agreement was used to spell out the arrangement. This was approved by the respective school boards and the state. State approval in this case meant that additional state aid was provided for cooperating in this manner. Resolutions as described in the centralized noncenter could also be used.

As is the case with the centralized noncenter, each school district is a fiscal agent for its own portion of the cooperative arrangement and charges the other districts for services rendered. Since programs are located in two or more school districts, a network of accounts payable is circulated among all the schools at the end of the year.

No additional administrative or teaching staff beyond those already employed by the school districts are likely to be involved. Existing teaching and administrative staff assigned to and paid by each school district conduct and supervise the shared courses offered by their own district. Participating districts are charged for space, teacher salary, and materials, but principal and superintendent administrative services are in-kind contributions--a factor in the moderate cost of this pattern.

While not absolutely necessary, it would be likely that shared programs would comprise a specifically identified, relatively stable set of offerings, since a school would be unlikely to have a large array of sharable programs unduplicated in other schools. As was the case in the centralized noncenter, shared programs are likely to be programs already offered by a district that can be made available to and are desired by the other districts.

Programs are likely to be housed within existing school buildings, another factor that contributes to the moderate cost of this pattern. Students are bused to program locations at a cost to their home district.

Summary

The findings regarding definitional features of the delivery patterns support the conceptual model presented in Figure 1. Organizational structure determines center or noncenter status and facility configuration determines site centralization and decentralization. The features of five cooperative delivery pattern variations (three center arrangements and two noncenter arrangements) were elaborated and clarified by the data.

Critical Factors in the Operation of Inter-School District Cooperation

No models were generated prior to collection of data pertaining to the way in which each form of cooperation operated. Instead, interview and questionnaire questions were generated around the eight areas identified under Objective (2) in Table 1. While the findings relating to defining features concerned hypothesis verification, elaboration, and clarification, the findings related to the operation of cooperation involved hypothesis generation. Consequently, the variables presented in this section should be viewed as emerging from the data in an area where little knowledge was available on which to form a priori expectations.

Cooperation is a central concept in the conceptual model of approaches for delivering vocational education presented in Figure 1. Cooperative patterns represent one of the three school-based approaches to educational delivery in the model. Cooperation is also a central component in the research model presented in Figure 2 and is identified as a means of improving educational access and quality. Cooperation is an organizing concept and underlies all of the educational delivery pattern variations examined in this study. Consequently, factors which facilitate or impede cooperation are seen as critical to these patterns.

Factors were identified as critical if they appeared to have implications for the propensity of school districts to cooperate. These factors all concern the school districts' perspectives on cooperation with other school districts. To a degree, the operation of each cooperative pattern variation was limited and defined by organizational structure and facilities configuration. Consequently, some critical factors emerged from the data regarding organizational structure and facility configuration. Other critical factors did not appear to be associated with either organizational structure or facilities configuration, but rather, appeared to be related to social structures and attitudes and perceptions of people associated with the school districts, communities, and individuals involved in the cooperative arrangement. The data matrices used in the comparative analysis that produced the critical factors are provided in the Appendix.

Variables identified as critical factors were organized into major groupings or themes, each of which appeared to reflect a school district perspective concerning cooperating with other school districts. Four themes were identified: school district autonomy and flexibility, sense of ownership, perceptions of a cost-benefit ratio, and incentives to cooperate. Variables related to each of these themes are presented in Tables 5 through 8. In the sections that follow, each theme and the associated variables are defined and their implications discussed.

Autonomy and Flexibility

School district autonomy and flexibility refers to the ability of a school district to operate as an independent agent in decisions and in making changes in various aspects of its functioning.

Table 5. Variables associated with individual school district autonomy and flexibility

Variable	Low autonomy, flexibility ←	→ High autonomy, flexibility
A. Variables associated with organizational structure:		
1. Size of investment	Higher [a]	Lower [b]
2. Reversibility of cooperative arrangement	Lower [a]	Higher [b]
3. Number of class hours cooperatively scheduled per day	2-6 [a]	1-2 [b]
4. Schedule synchronization	Some daily schedule synchronization throughout day[a]	Some daily schedule synchronization first one or two periods in day[b]
	yearly calendars synchronized	yearly calendars not synchronized
B. Variables associated with facility configuration:		
1. Daily schedule synchronization	Some synchronization[c]	No synchronization[d]

[a] Associated with centers
[b] Associated with noncenters
[c] Found in centralized and decentralized facility configurations
[d] Mobile facilities make daily schedule synchronization unnecessary

Table 5 concerns critical factors associated with school district autonomy and flexibility. Four variables, size of school district investment, reversibility of the cooperative arrangement, number of class hours cooperatively scheduled per day, and schedule synchronization, emerged from the organizational structure-related data. One aspect of the schedule synchronization variable, daily schedule synchronization, also emerged from the facility configuration data. The variables in Table 5 are identified in terms of their effect on autonomy and flexibility.

The first variable identified with organizational structure, size of investment, refers to the investment in personnel, physical space, and equipment associated with cooperation. This variable was related primarily to flexibility because a district's resources were tied up in an

organizational structure and capital items, and fewer resources were available for other uses. Thus a district had less flexibility in changing the use of resources, at least in the short term. School district financial investments in noncenter cooperative arrangements tended to be smaller and not committed to as extensive an organizational structure or to as many capital items as were investments in centers, leaving more resources for other uses.

The second variable, reversibility of the cooperative arrangement, is defined as the ease with which a school district can withdraw from a cooperative arrangement and the ease with which the cooperative enterprise itself can be dissolved. Reversibility is closely tied to the size of investment. Because centers involved larger financial investments on the part of school districts; because a more formal and extensive organizational structure was involved in a center than a noncenter; and because some or all personnel were exclusively assigned to the center, the center could not as easily and quickly be initiated and dissolved as the noncenter.

There are several ways to interpret the reversibility variable. On one hand, ease of getting in and out of a cooperative arrangement may lead to greater instability of the arrangement and less commitment to it by the school districts. On the other hand, when reversibility is low, school districts may resent the lack of flexibility and the need to make a bigger commitment, and may be as likely to want to remove themselves from the arrangement. Both of these conditions were observed to some extent, indicating that more information about this variable is needed and that degree of reversibility is only one of many variables involved in the propensity of school districts to cooperate.

The number of class hours cooperatively scheduled per day is the third variable in Table 5. The more class hours per day that are cooperatively scheduled, the less autonomy and flexibility a school district has to operate as an independent agent in making decisions about and changes in its own school schedule.

Number of class hours cooperatively scheduled per day was related to organizational structure because centers had more extensive curriculums that which tended to have several two-hour sections of each program scheduled during the day. Noncenter programs generally were accommodated in a smaller portion of the school day.

The fourth variable, schedule synchronization, refers to the degree of similarity among the cooperating schools in their daily schedules and yearly calendars.

The daily schedule portion of this variable emerged from both the organizational structure data and the facility configuration data. The mobile facility center required no daily schedule synchronization among school districts. Non-centers, which scheduled shared offerings only the first one or two periods in the day, required less daily schedule synchronization and posed fewer daily scheduling constraints for school districts than did the nonmobile facility centers, which scheduled two hour periods through the school day.

With respect to yearly calendars, none of the sites had completely synchronized their school year starts and ends; semester, or quarter, or trimester periods; emergency closings (e.g., snow days); or lyceum program periods or days. In some cases adjustments had been made to bring calendars into closer alignment. Some problems were reported with this nonsynchronized arrangement, e.g., dealing with students who were registered in a shared course at a school that had a snow day or began in the fall one week later than their own school. Relaying information about emergency closings was an occasional problem; sometimes when a school closed due to weather other schools were not informed and sent students anyway. Overall, the problems with the lack of yearly calendar synchronization were described as relatively minor. It appears that the problems were preferable to the loss of flexibility and autonomy calendar synchronization would entail.

The need for school district autonomy and flexibility can be understood in a historical context. While the degree of autonomy and flexibility of school districts varies from state to state, the general educational system in the United States is one of decentralized control and local initiatives. Even the terminology used in the labeling of school districts (e.g., "Independent" School District No. XXX) carries the tone of autonomy. Anything that threatens to reduce this historically autonomous stance is likely to meet with some resistance. Cooperation, by its very nature, does entail joint problem-solving, compromise, consensus, and consideration of and constraint by the needs and perspectives of others. To some, this suggests a reduction in autonomy.

In planning cooperative arrangements and patterns, some latitude exists in the degree of autonomy and flexibility school districts can retain as indicated by Table 5. In general, the more autonomy and flexibility an individual school district retains, the less constraining cooperation will be and the greater will be the propensity to cooperate. Small financial investments in the cooperative enterprise, high reversibility, minimal daily schedule and yearly calendar synchronization, and few cooperatively scheduled class hours enhance school district autonomy and flexibility.

Sense of Ownership and Control

Table 6 deals with sense of ownership and control by school districts. Three interrelated variables emerged from the data regarding organizational structure; two interrelated variables emerged from the facility configuration data; and one variable grew out of the data regarding the operation of the cooperative arrangements. Each variable is presented in relation to a strong or weak sense of ownership on the part of school districts in the cooperative arrangement. Sense of ownership is defined as the sense a school district has that it is an owner, a full partner and central actor in the control and operation of the cooperative arrangement, as opposed to a sense of being on the periphery and a receiver of someone else's organization or plan.

The first organizational structure-related variable presented in Table 6 is means of distributing power and control. This variable concerns the mechanisms used to vest individuals, positions, organizations or units with authority. In the center structure, power and control are distributed by the structure of the organization and by legal prescription. In the noncenter, no formal organizational structure exists, so power and control are distributed by personal and school district initiatives and prerogatives. (These factors also operate in the center structure, but their impact is mediated by the organizational structure.) Consequently, a school district has the opportunity for more direct control and influence in the noncenter pattern. The sense of ownership an individual school district has is likely to be greater over something in which it perceives itself to have more direct control and influence.

The second organizational structure-related variable, locus of power and control, is related to the first and identifies the location (e.g., person, organization, unit) of power and control in the cooperative pattern. In the center pattern this locus is outside the school district in a structure separate from, although participated in, by the districts, and involves a center director and board. The locus of power and control in the noncenter is within the school district, lodged in the school district superintendent and principal. It is not totally within any one school district, but is shared with other school districts.

The third organizational structure-related variable, role of school district superintendents and principals in the cooperative mechanism, follows from the distinctions drawn between centers and noncenters with respect to the first two variables in Table 6. The role of superintendents and principals in center organizational structure is primarily policy input and implementation. This role is reflected in the ex officio status of these administrators in meetings of the center board, and in their central role in coordinating the schedules, transportation, and registration of students in center courses. A typical pattern observed was that these administrators met separately as a group to discuss operations, procedures, and matters to be brought to and resulting from center board action. The vocational director in the center structures appeared to be a key figure in modifying the role of school district superintendents and principals; some directors made these administrators more central in decision-making regarding the center, and some directors created a less central role for them.

In the noncenter, superintendents and principals met to formulate policy as well as to discuss operations and procedures. Policies were subject to approval by their respective school district boards in a manner similar to the process of acceptance by individual school boards of center board policy decisions in the center pattern. In other words, the school district superintendents and principals in the noncenter pattern had functions similar to those of the center board in the center pattern. Since no director or supervising superintendent was designated in the noncenter pattern, power and control were distributed primarily through assumption of initiative and prerogatives.

The relationships expressed in the organizational structure-related portion of Table 6 suggest that the more internal to a school district the decision-making center is, the greater the sense of ownership in the cooperative mechanism is likely to be. As Table 6 shows, the noncenter structure implies a stronger sense of ownership than does the center structure.

Table 6. Variables associated with sense of ownership and control by individual school districts

Variable	Weak Sense of Ownership ⟷ Strong Sense of Ownership		
A. Variables associated with organizational structure:			
1. Means of distributing power and control	Via organizational structure, legal prescription [a]		Via personal initiative and school district prerogatives [b]
2. Locus of power and control	Center board, center director [a]		School district superintendents and principals [b]
3. Role of school district superintendents and principals	Advisory, policy implementers [a]		Policy-makers and implementers [b]
B. Variables associated with facility configuration:			
1. Physical presence	One community [c]	Two or more communities [d]	All communities [e]
2. Student flow into and out of the community	Into one community, out of all other communities [c]	Into two or more communities, potential flow out of all communities [d]	No student flow [e]
C. Other variables:			
1. Availability of sharable programs in a school district	No		Yes

[a] Associated with centers
[b] Associated with noncenters
[c] Associated with centralized configurations
[d] Associated with decentralized configurations
[e] Associated with mobile facilities

As shown in the next section of Table 6, two interrelated variables bearing on sense of ownership emerged from the data concerning facility configuration. The first variable, physical presence, refers to the location of the visible, physical, concrete components of the cooperative mechanism. This variable varied with facility configuration since facilities are the primary such component of the cooperative arrangement. The centralized facility configuration provided only one community with a physical presence. In contrast, the decentralized configuration provided a physical presence in two or more communities and may provide a physical presence in all participating communities if each contains a shared facility. In the mobile facility configuration all communities experienced the physical presence of the cooperative mechanism at least part of the time.

Somewhat related to physical presence is the second variable, student flow into and out of the community. This variable is defined as the patterns of student movement associated with enrolling in programs offered through the cooperative arrangement. Like facilities, students (and the buses that transport them) are physical, visible, concrete elements. However, student flow differs from the physical presence element of facilities in that a facility exists regardless of whether students are in it or it is being used. On the other hand, when a school district's students are in a neighboring school or community, they are not in their own school or community. They are not in classes, they are not taught by their own school district's teachers, and they are not available to participate in extracurricular activities. These latter dimensions of student flow in and out of a community appear to be especially critical in school districts' sense of ownership. In the centralized facility configuration, where students flow out of all but one community, the sense of ownership in the cooperative arrangement is likely to be more remote. Some decentralized configurations appear to have been initiated with this factor as a primary consideration. The decentralized configuration may be one way of increasing member districts' sense of ownership, since a school district may send its students to other districts but may also receive other districts' students. However, it may also reduce efficiency, quality and other factors of concern that will be addressed in the following sections.

The mobile facility configuration avoids the student flow question since students do not travel in this configuration. Students' schedules are disrupted minimally and extracurricular participation by students in their own school district is not impeded.

The mobile unit configuration appears to make the strongest contribution to school district sense of ownership on the part of all school districts through its ability to provide a physical presence in every community and to avoid student flow out of the school districts. A centralized facility configuration contributes least to a sense of ownership on the part of all school districts, and the decentralized facility configuration falls between the mobile and the centralized configuration on the continuum.

The availability of sharable programs in a school district, while not necessarily related to either organizational structure or facility configuration, appeared to have a bearing on the sense of ownership felt by an individual school district. A sharable program allows members to contribute to and "own a share" in the enterprise, and consequently have a sense of ownership in the cooperative arrangement. Having a sharable program meant that a school district already offered a program that would provide a unique educational experience to students in other member districts. It also meant that students from other schools came to the school district to enroll in the program. Not having a sharable program meant that a school district's students would go to other school districts for courses. Hence, the relationship between having a sharable program and student flow is apparent.

There was some indication that having a sharable program was also related to organizational structure. In commenting on one of the noncenter structures, a state-level administrator said, "That's one of the things we look for in considering this type of structure--do any of the schools have anything that warrants sharing?" The noncenter structure appears to be more possible when programs that could be shared already exist in schools. When a number of new added programs are involved, the center structure appears to be more likely to be used.

The theme of sense of ownership and control by school districts is just what it says, a "sense." It is discerned from comments expressing experience and interpretation. For example, one administrator said of his experience in a center: "We were told what to do. We felt we had almost no input--that the community where the center was located was running the show and making the decisions." Another group expressed pride in the fact that each school district had a program viewed by the others as desirable and that each was contributing a program to the sharing effort. A central implication of the sense of ownership theme for propensity to cooperate is that something in which ownership is vested is likely to involve higher commitment, more positive expectations, greater effort to insure success, and less competitiveness. The use of school district and personal initiative and prerogative as means of distributing power and control; the location of power and control within school districts; maintenance of a policymaking role for the school district superintendent and principal; existence of a physical presence of the cooperative enterprise within the school district; absence of student flow out of a district and sharing of a school district program appear to enhance a school district's sense of ownership and control in the cooperative enterprise.

Costs and Benefits

The variables associated with a third emerging theme, perceived relationship between the costs and benefits of cooperation, are presented in Table 7. This theme is concerned with the degree to which school districts perceive that cooperation "pays off" for them in terms of the benefits they gain for the costs incurred. Variables are again presented in terms of their emergence from organizational structure data, facility configuration data, or other data related to operation of the cooperative arrangement.

Table 7. Variables associated with perceived relationship between school district costs and benefits of cooperation

Variable	Perceptions of High Cost or Low Benefit or Both ←		Perceptions of Low Cost, High Benefit or Both →
A. Variables associated with organizational structure:			
1. Economic principle	Tax [a]		Exchange [b]
2. Added costs	Higher added costs: [a] • One time costs - facility adjustment, acquisition • Recurring costs - facility rental, salaries, supplies and materials		Lower added costs: [b] • One time costs - facility adjustment • Recurring costs - facility rental, salaries, supplies and materials
3. Cost levels	Larger budgets and expenses [a]		Smaller budgets and expenses [b]
4. Opportunity Costs	Higher [a]		Lower [b]
5. Risk	Higher due to greater sunk costs, added personnel, and formalized structures [a]		Lower due to fewer sunk costs, no added personnel or formalized structures [b]
B. Variables associated with facility configuration:			
1. Transportation costs	Higher [c]	Higher to medium [d]	Lower [e]
2. Student time spent in travel during school	Yes [c,d]		No [e]
3. Proportion of eligible students served	Lower [c]	Medium [d]	Higher [e]
C. Other variables:			
1. Number of members	Few		Many

continued

Table 7. Variables associated with perceived relationship between school district costs and benefits of cooperation

Variable	Perceptions of High Cost or Low Benefit or Both ←		Perceptions of Low Cost, High Benefit or Both →
2. Services are provided that school district could or would not provide on its own.	No		Yes
3. Importance/desirability of services provided	Low		High
4. Cost distribution method	Ability to pay, potential number of students that could be served[f]	usage rate[f]	Equal flat fee [g]
5. Representation pattern	Based on usage or financial contribution [f]		Equal [g]

[a] Associated with centers
[b] Associated with noncenters
[c] Associated with centralized configurations
[d] Associated with decentralized configurations
[e] Associated with mobile facilities
[f] Based on equity principle
[g] Based on equality principle

The first variable under organizational structure-related variables is economic principle. From the perspective of school districts, the basic economic principle underlying centers and noncenters is different. In the center structure, funds from each district are collected into a central pool and dispensed to creditors by the center. The principle is essentially the same one that a school district operates under, where funds from district residents (taxes) are collected by the school district for its use. Noncenters tended to use an exchange principle instead, which involved direct payment of funds to another school district for specific services.

One significance of this difference in underlying economic principles appeared to be the general attitude on the part of school districts about being "taxed" versus buying a service. The negative connotations generally associated with taxes seemed to be involved. Issues such as the general good versus the individual good, contributing resources and having representation versus buying services and having direct and individual control over those purchase decisions, and paying for the opportunity to receive benefits versus paying for benefits actually received were touched on by informants.

The next four organizational structure-related variables in Table 7 are related to costs. These appeared to be linked to perceptions on the part of school districts of costs they incurred by cooperating with other districts.

The first of these variables is added cost. Added costs refer to costs school districts incur as a result of participating in the cooperative arrangement. Specific added costs may include such items as additional facilities, equipment, staff, transportation, and materials and supplies.

School districts involved in centers tended to incur higher levels of added costs than did those in noncenters. This was because centers were more likely than noncenters to involve added facilities, equipment, and administrative, instructional, and support staff. School districts involved in noncenters tended to use facilities and staff they already used full time and to further amplify the use of these elements by cooperating with other districts. These school districts did incur some added costs for equipment and instructional materials, however, because they served additional students in shared courses.

Added costs include both one-time and recurring costs. Costs for facility acquisition and remodeling and for equipment are one-time start up costs. Recurring costs include facility rental, salaries, equipment maintenance, supplies, and materials. Noncenter added costs tended to be lower in both categories because less elaborate facility adjustments were employed and because in-kind contributions of administrative and support staff were not reflected in the cost figures.

Closely related to added costs is the cost levels variable. Cost levels are defined as per student costs and total costs. The pattern reflected in the five cases was one of higher per-student and total costs for the centers than for the noncenters.

Opportunity costs refers to the cost of the next best alternative, the assumption being that by allocating resources to one alternative another alternative is forgone. Because of the higher cost of centers, fewer resources were available in a school district to allocate to other programs and alternatives. This variable is especially critical when financial resources are extremely scarce and their allocation to shared programs threatens continuance of other programs offered by the school district.

Risk is defined as the degree of commitment in relation to the certainty of and control over the outcome. High-risk situations are ones that require substantial irretrievable commitment with relatively little certainty of or control over the outcome. Low-risk situations involve a relatively minor commitment and/or provide a high degree of certainty of and control over the outcome.

Because they tend to involve higher sunk costs (unrecoverable cost due to a past decision), more added personnel, and a more formal organizational structure, center patterns tend to invoke higher risks than noncenter patterns. Included in center-related sunk costs are building purchases (buildings may not be easy to sell or rent in small rural communities), equipment purchases (depreciation prevents full cost recovery at resale), and unrecoverable costs for personnel and rented facilities and equipment. One center attempted to reduce risk associated with sunk costs by buying a small house for their administrative offices, reasoning that the possibility of resale was higher than for a commercial building. Another center had movable interior walls that allowed a range of potential uses for the building. This same center had acquired its facility on a lease/own plan whereby school districts initially were able to rent the building and apply rental payments to the purchase of the building. This approach spread the investment in buildings over time and reduced the risk associated with buying a building. Risks to school districts in centers were also modified by legal agreements between the districts. Agreements that allowed a district to receive back a portion of its investments in the center if it withdrew from the center posed less risk for districts then agreements which provided no rebate to a withdrawing district. Noncenter sunk costs are fewer, with minimal or no building and equipment purchases or rentals, no administrative and support staff costs, and minimal or no added instructional personnel costs.

A second aspect of risk is personnel-related. Whenever personnel are brought into an organization for newly created positions, there is an underlying expectation (at least on the part of the employee) of continuing obligation on the part of the organization, even if potential temporariness may have been emphasized when employment agreements were made. Centers, which involve new administrative and support staff positions, and which often involve new teaching positions have more of this aspect of risk associated with them than do non-centers which do not create new personnel positions.

A third aspect of risk is the formality of the organizational structure. A formal organizational structure with specific legal parameters costs more to create and dissolve than a less formalized structure. Identities created by formal organizational structures are at risk of being lost, a risk that is not present when formal organizational structures are not created. Like the other aspects of risk, centers have more of this type of risk associated with them than do noncenters because of centers' more formal structure.

Risk as a variable is thus closely related to reversibility, costs and commitments. Because centers are less easily disassembled (i.e., less reversible, see Table 5), and have higher costs and greater commitments associated with them than do noncenters, their formation involves more risk. It should be noted that risk involves financial as well as psychological costs.

The facility configuration portion of Table 7 contains three variables: transportation costs, student time spent in travel during the school day (both cost variables), and proportion of eligible students served (a benefit variable). Transportation costs are defined as the cost of transporting students, teachers, facilities, and other program elements. Transportation demands are generally highest for centralized facility configurations and lowest for mobile facilities. Transportation costs in centralized and decentralized facility configurations are for daily transportation of students to vocational classes. Decentralized facility configurations may entail costs for transporting teachers among schools in addition to or in lieu of student transportation costs. Transportation costs associated with mobile facility configurations are for periodic facility transfer and for teacher moving allowances, if provided.

The daily transportation of students is likely to incur the highest transportation costs, making the centralized and decentralized configurations the most costly from this aspect. Decentralized configurations in which only the teacher travels may have lower transportation costs. Obviously, distance traveled is also a factor in these relative transportation costs.

Student time spent in travel during school refers to whether or not students must spend school time traveling to a site far enough away from the school building to require transportation. The mobile unit did not require such travel. Consequently, the cost of spending student school day time in travel was not incurred. Centralized and decentralized facility configurations required some student travel during the school day for students in most or all participating districts. The cost incurred by students in such travel is sometimes simply loss of a study hall, but many forego enrolling in a class or participating in an extracurricular activity in their own school district.

The proportion of eligible students served refers to the portion of a school district's students who meet criteria for enrollment in the shared courses that actually do enroll. The mobile facility configuration tended to have greater proportions of eligible students participating than did either the centralized or decentralized configurations. Fewer logistics such as class schedule conflicts and transportation were involved since the facility was located adjacent to the school. In addition, the trailer was visible and available for inspection by students, likely increasing student awareness of and interest in the programs offered in the trailers. In both the centralized and decentralized facility configurations greater numbers of students from the district(s) where a program was offered enrolled in the program than did students from other districts, lending further support to the importance of logistics and student awareness in enrollment patterns.

In the "other" category, the number of members (the number of school districts that declare themselves to be members or participants in a given cooperative arrangement and who have satisfied membership requirements) has a bearing on the cost of participation. This scale or "critical mass" variable is particularly related to costs that do not vary directly with the number of students served or number of members. Administrative costs are an example of this kind of cost. For example, a full time director's salary was shared by two schools in one case and by nine schools in another case. When there are few member school districts, each district must shoulder a greater proportion of the total costs of cooperation than when a greater number of members are involved.

The services provided that school districts could or would not provide on their own represents a benefit school districts receive by cooperating. When services provided through the cooperative mechanism are already provided by a school district, the benefit the school district derives from the cooperative venture is reduced. An example of this variable was the perception on the part of larger districts with programs that also were offered through the cooperative mechanism that they were paying twice for the same services. This sometimes occurred when several schools participating in a center did not have a program and wanted it offered through the center and one participating school already offered the program.

Importance/desirability/value of the service provided, the third variable in the "other" category in Table 7, refers to the priority a service has in the eyes of a school district. Services need to be viewed by school districts as important and desirable in order for benefit to be perceived in them. In one noncenter situation great care was taken to identify a program in each school that no other participating district offered but that was viewed as a desirable program by

the other districts. This approach eliminated program duplication, maximized the benefit to each district, and equalized the relative benefits and costs among the districts.

Costs and benefits were not only perceived by school districts within their own frame of reference, but also in relation to costs incurred and benefits received by other member districts. The last two "other variables" concerns this relative frame of reference. Two basic perspectives appeared to underlie this relative frame of reference: an equity perspective and an equality perspective.[1]

The cost distribution method refers to the way in which the amounts charged to school districts for participation were determined. Methods appeared to range widely, and were sometimes a composite of several approaches. Equity principle-based methods included distributing costs on the basis of: (1) the school districts' financial status (ability to pay); 2) school district enrollments (the number of students in a district that could potentially be served by the cooperative arrangement); and 3) actual enrollments from a school district in the shared courses (usage rate). One equality principle-based method of cost distribution was observed. This involved splitting the costs of the cooperative arrangement equally among all members regardless of usage rate, ability to pay, or school enrollments.

Cost distribution based on ability to pay and the potential number of students that could be served appeared to be the most problematic with respect to perceptions of relative costs and benefits. These two approaches are more closely associated with a tax principle than with an exchange principle. Districts with more local resources appeared to resent having to contribute more for services for which other districts paid less. Districts that had fewer local resources and consequently received more resources from the state also found themselves in a position of making greater financial contributions to the cooperative arrangement than districts that may have had more local resources and fewer state aids. In other words, the ability-to-pay principle created some incongruities and unusual relationships among school districts that tended to foster resentment and perceptions of unfairness in districts who paid more.

Under the cost distribution system based on the potential number of students that could be served, bigger school districts paid proportionately more than smaller districts. Since larger districts were more likely to be able to offer broader curriculums on their own and to depend the least on the cooperative arrangement to broaden their vocational curriculums, they tended to perceive themselves as subsidizing the smaller districts, and to see the latter as receiving the greatest share of benefits from the cooperative arrangement. Larger districts frequently also had the greatest ability to pay. Consequently, under either the ability to pay or the school enrollment methods of cost distribution, larger districts tended to see themselves as "hit harder" on cost than smaller districts, and as having other options for providing the same benefits.

The third cost distribution method based on equity, usage rate, appeared to engender the least resentment toward other districts. This method is an exchange rather than a tax approach: the more services a district uses, the more it pays. This allows larger districts, which may have more services available within their own district, to pay only for those services they use. This method has the potential to encourage districts to limit enrollment in order to hold their costs down. However, this tendency may be tempered by the fact that limiting enrollment increases the per-student cost.

A further distinction that can be made between the first two equity principle methods and the usage rate method of cost distribution is that the former are based more on what a school district is than on what it does. A district's ability to alter its local resources or enrollment may be minimal; therefore, its ability to control what it pays under an ability-to-pay or enrollment system is very limited. On the other hand, a usage rate formula reflects what a district does and thus provides more control by the district over what it pays.

The one equality principle method observed, an equal flat fee, provides less control by a district over what it pays, but everyone else is in the same situation so all are treated equally

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[1]The contribution of Dr. Jane Plihal, Home Economics Education Division, Department of Vocational and Technical Education, University of Minnesota, and her associates in the Minnesota Research and Development Center is acknowledged in making applications of the distinction between equity and equality to vocational education.

whether or not they are equal. In practice, this method charges the small school the same as the large school. At first glance, this may seem unfair since the larger school obviously has greater opportunity to enroll more students and receive more services than does a smaller school. It appears however, as was anticipated in the discussion in an earlier publication (Peterson, et al., 1981, pp. 46-47), that a smaller proportion of students from larger districts enroll because students have a greater number of competing alternatives, so the number of students who enroll from these variously sized districts is not grossly unequal. Consequently, the equal flat fee method may reflect quite accurately equal payment for equal services rendered. Since the flat fee would typically represent a smaller proportion of a larger school districts' financial resources and a larger proportion of a smaller districts' resources, the flat fee may fit the differential financial situation of large and small districts reasonably well and be consistent with the student enrollment proportions. Further, rather than providing incentives to school districts to limit enrollment in school courses, the flat fee approach encourages maximizing enrollment.

With respect to representation pattern (the basis on which school district representation in cooperative arrangement decision-making bodies is determined), the equality principle was used in all cases observed in this study. The consistency between the equal flat fee and the equal representation pattern may have been a key factor in the seeming success of the flat fee cost distribution method. The consistency question may be especially important with the tax principle approaches to financing. The relationship between taxation and representation has a long and strong history in the minds of U.S. citizens, including school district representatives.

In summary, perceived relationships between the costs and benefits of cooperation is a complex theme. When school districts perceive that benefits they receive from cooperating with other school districts in offering educational programs are in reasonable alignment with the costs they incur by cooperating, propensity to cooperate is likely to be enhanced. When a district perceives its costs to be greater than the worth of the benefits received, resentment, reluctance, and withdrawal from a cooperative arrangement are likely. Factors that appear to be related to a positive view of the balance between costs and benefits are: 1) financial arrangements based on an exchange rather than a tax principle; 2) low costs; 3) low risk; 4) substantial proportions of school district students served by the cooperative arrangement; 5) a sufficient number of members to provide efficiency of scale and smaller financial burdens for each district but not so many members that insufficient service is provided to each district; 6) services provided cooperatively that do not duplicate services provided by individual school districts; 7) services provided that school districts perceive to be important, valuable, and desirable for their students; 8) cost distribution methods based on equality rather than equity; and 9) consistency between the basis for school district representation and cost assessments.

Incentives

Table 8 is concerned with a fourth major theme emerging from the data: school district incentives for cooperating with other school districts as a means of delivering educational services. This theme is defined as the motives or reasons a school district has for entering into cooperation with other school districts. Incentives appear to be more closely associated with whether or not a program is offered by a district than with organizational structure or facility configuration. Table 8 reveals that the variables associated with this theme may be important modifiers of the perceived costs and benefits identified in Table 7.

School districts providing a program received added income (revenue accruing to a school district) either through direct exchange payments from other districts (noncenter) or payments or credits (center). School districts that offered programs in noncenter arrangements received added vocational reimbursement. School districts not offering programs paid for services they received and did not receive added income.

School districts providing programs experienced increased enrollment in school district programs(s). Consequently, they had the opportunity to use their program facilities and staff more efficiently.

Access of school district students to program(s) was enhanced in school districts offering a program. Mobile facilities maximized the access incentive for each member school district by locating all shared programs in every district. Fewer enrollment eligibility requirements also enhance access.

It is clear that there are distinct incentives to a school district to be the site of one or several shared programs. Undoubtedly, these incentives underlie the development of many

Table 8. School district incentives for delivering education through cooperation with other school districts

Variable	Incentives Absent ⟷ Incentives Present	
1. Income for school district	No	Yes
2. Enrollments in school district program(s)	Decrease	Increase
3. Access of school district students to program(s)	Limited	Enhanced

decentralized centers and noncenters. When incentives for cooperation are lacking, the propensity of school districts to cooperate is likely to be reduced. State or federal funds were sources of income incentives in some cases.

Summary

The four themes concerning the operation of cooperation--school district autonomy and flexibility, sense of ownership, perceptions of costs and benefits, and incentives--all have a common characteristic: they concern the individual school district's point of view on the cooperative endeavor. This point of view, as indicated in Tables 5-8, appears to be related to an array of variables associated with each theme. School districts' ability to retain autonomy and flexibility is enhanced by low financial investments in the cooperative mechanism and daily and yearly schedules that are unsynchronized with those of other school districts. A school district's sense of ownership in the cooperative mechanism is enhanced if it plays a decision-making role in the cooperative arrangement and if it contains at least part of the physical facilities of the cooperative arrangement.

A school district's sense of the costs of cooperation is enhanced by: 1) a strong sense of being taxed; 2) added costs; 3) a sense of high risk in the cooperative venture; 4) a very small number of participating districts; 5) perception that it is disadvantaged in some way relative to other participating districts. A school district's sense of the benefits received from cooperating with other districts is enhanced when a relatively large proportion of its students receive services; when it has few or no alternative ways of providing the services; and when it views the services it receives as important and desirable. School district incentives for cooperating are largely efficiency-related but also include access to services.

Setting

This section concerns the relationship of setting to form of cooperation. Setting includes geographical, community, and school district characteristics. Data in this section focus on the idea that particular forms of inter-school district cooperation may be more suitable for some settings than others. Organizational structure did not appear to vary on the basis of setting. Facility configuration, on the other hand, did vary by setting.

Geography

Table 9 presents geographical setting variables associated with facility configuration.

The first variable, pupil density, is defined as the number of students per square mile. It is obtained by dividing the total K-12 district school enrollment by the number of square miles in the district. A high value indicates greater density; a low value indicates a sparser distribution of pupils over the school district. Table 9 indicates that the mobile facility was used in the case of extremely low pupil density (less than one student per square mile). The centralized configuration

was used in the situations of greatest pupil density. The range and values of the pupil density index for the decentralized configuration were less than the range and values for the centralized configuration and greater than the range and values for the mobile facilities configuration.

Table 9. Relationship between geographical setting and facility configuration

Context Variable	Facility Configuration		
	Centralized	Decentralized	Mobile
1. Pupil density (students/ square mile)	2.7 - 17.9	1.57 - 8.87	.11 - .73
2. Distance between participating communities (miles)	5 - 24	5 - 30	19 - 98
3. One-way distances traveled during the school day (miles)	5 - 12	5 - 21	0

Distance between participating communities is the second geographical setting variable associated with facility configuration. The mobile facility was located in the setting with the greatest distances between participating communities. The centralized facility configuration involved the shortest distances between communities. Distances between communities in the decentralized configuration fell between the two.

The third variable identifies the range of one-way distances traveled during the school day. The centralized configuration involved the shortest of these distances, ranging from five to twelve miles. Distances traveled daily were longer for the decentralized configuration. This was because teachers or students might be transported between the outer extremes of the cooperative arrangement's geographic area. Consequently, in the decentralized configuration, while all member districts might have a program located within the district, students in the district most remote from a particular program may have more limited access to that program due to the practical limits of travel time. Thus, the increased physical presence throughout the membership limits access of some students to some programs. One potential solution to this problem is to not locate programs in the school district(s) that are on the perimeter of the decentralized cooperative arrangement's geographic area. Another solution is to have the teacher, rather than the students, travel between schools. A third solution, which exists in some states and which the state of Illinois was developing at the time of the interviews, was the establishment of satellite centers. This configuration involves programs located in several clusters of communities, with all clusters administered by a single director and board. The mobile facility configuration involved no daily travel for either teachers or students. Consequently, no trade-offs between access and physical presence were involved since this configuration provided a high degree of both.

Community and School District Characteristics

Table 10 presents community and school district characteristics associated with cooperative relationships. The characteristics appeared embedded in general patterns of relationship established over time through such mechanisms as school sports competition, economic competition between communities, value systems of community residents, and personal and professional interactions among administrators. The characteristics in Table 10 are based on the school district and setting data in the case studies and, to a small extent, on the data dealing with operation of cooperation.

The first characteristic, basic philosophies of school districts and communities, appeared to underlie attitudes of school district officials and residents toward other school districts. This factor was sometimes explicitly mentioned in interviews. For example, "We (our district and district X) see things in the same light. We could never cooperate like this with district Y

because our philosophies don't match." Philosophies that are similar entail similar value systems. When joint decisions need to be made, it is more likely that districts with similar values and philosophies will see similar priorities and more quickly and easily reach agreement.

Table 10. Community and school district characteristics associated with cooperative relationships among school districts

Characteristic	Impede Cooperative Relationship ⟷ Facilitate Cooperative Relationship	
1. Basic philosophies of school districts and communities	Divergent, incompatible	Homogeneous, compatible
2. Inter-community competitiveness	High level of rivalry	Low level of rivalry
3. Size of participating school districts	Wide variation	Similar
4. Financial status of participating school districts	Wide variation	Similar
5. Administrator turnover	High	Low
6. Communication patterns among school district administartors	Irregular and infrequent	Regular and frequent
7. Characteristics of students selected into shared programs	Low academic performance; undesirable behavior patterns	Strong interest; good academic performance; absence of behavior problems

The second variable, inter-community competitiveness, refers to the degree of rivalry that has been established between two or more communities. Frequently competitiveness between small rural communities revolves around sports or other school-related competitions, but the focus can be economic competitiveness or involve other competitive foci as well. When competitive relationships were well established it appeared to be more difficult for schools to work together cooperatively, even though the focus of the cooperative activity was quite different from that of the competitive activity.

The competitiveness variable was exemplified by members of a student organization associated with a center who objected to having the center name rather than their community name emblazoned on their student organization jackets. Community identity and pride are likely additional factors in this behavior.

The third characteristic is size of participating school districts. School districts that are more similar in size may have better chances of cooperating than those which vary widely in size. Enrollment is the most important aspect of the school district size variable. This variable is important primarily in connection with several variables presented in Table 7, including the proportion of eligible students served, the ability of districts to provide educational services on their own, and other perceptions of costs and benefits relative to other districts. Larger districts have a different scale, different trade-offs and more alternatives than smaller districts. Hence, their

perspective and dependence on cooperation as a means of providing comprehensive curricula are likely to be somewhat different from smaller districts.

The fourth characteristic, financial status of participating school districts, refers to the financial resources and overall financial condition of a school district. When districts of reasonably similar financial condition cooperate, feelings of being disadvantaged or of providing subsidies to other districts are less likely.

Administrator turnover, the fifth characteristic, is defined as the frequency with which school administrators leave and enter school district positions. When administrator turnover is high in participating school districts, new administrators must be constantly oriented to the cooperative arrangement. New administrators may not understand or appreciate the agreements made by their predecessors. Nor do they have an opportunity to develop a personal or professional relationship with the other participating administrators that might encourage at least temporary commitment to the cooperative arrangement. This characteristic was notable in two situations that represented extreme differences. The first situation involved neighboring school district administrators of long tenure who had been high school classmates and who had maintained a personal friendship for thirty years. The second situation involved some schools in which either the principal or the superintendent changed annually.

Communication among school district administrators as a group differed across the cases. In center arrangements communication occurred regularly and frequently through regularly scheduled monthly meetings focused on the cooperative arrangement. These meetings tended to deal with not only operation but evaluation and planning as well. In addition to the monthly meetings, communication between individual administrators also occurred on an ad hoc basis as needed. A second communication pattern involved a yearly planning and evaluation meeting of all administrators, with operational details handled as needed by ad hoc communication between individual administrators. This pattern was found in noncenters and seemed to work best where strong interpersonal or professional relationships were well established. In high administrator turnover situations, the yearly meeting provided little opportunity to build relationships among administrators or to inform incoming administrators. In both cases where yearly meetings were held, the meeting was dropped as time went on and operation became more routine; the result noted by school district administrators in both of these sites was lack of attention to planning and evaluation of the cooperative arrangement.

The two administrator-related variables point up a condition that is not unfamiliar--i.e., that organizations take on the character of their leaders. The nature of the relationships among school districts appeared to reflect, at least to some extent, the nature of the personal and professional relationships among school district leaders.

The seventh item in Table 10, criteria for selecting students into shared programs, is more of a practice than a characteristic of school districts. It is included here because the practice appears to reflect a basic attitude. Two basic approaches to student selection were observed: the "dumping ground" approach, as it was called by several informants, and the "careful screening" approach. In the dumping ground approach, it was reported that students with low academic performance and undesirable behavior tended to be selected for shared programs. The aim of a school district implied by individuals reporting this pattern was to rid itself of problems for a couple hours a day. This approach was negatively commented on by some center officials who perceived themselves to receive a majority of this type of student from some school districts.

The careful screening approach used student interest, good academic performance, and absence of behavior problems as criteria for student selection. This approach was emphasized in both noncenter cases. For example, one school official said, "X and Y are good schools. Their students are well behaved and we are happy to have them in our school." Another said, "We don't send just anyone who wants to go (to the program at W school). We screen the students pretty carefully."

The implication of this variable is that a school or center which constantly receives mostly problem students from another school is likely to assume that it is being used to solve a problem situation for another district. Although the real motive may have been to provide a certain segment of students with appropriate educational experiences, the action is likely to be interpreted negatively by the receiving district. Messages about the presence or absence of mutual concern and respect among school districts appear to be reflected through actions regarding student selection.

Summary

Variables in Tables 9 and 10 suggest that, while facility configuration is associated with geographical aspects of setting, other setting variables are more pertinent to who should attempt cooperation. Communities and school districts that are similar in size and philosophy, that do not have a history of intensely competitive relationships, and that maintain a positive relationship among administrators may have greater chances of maintaining a cooperative approach to delivering vocational education.

Educational Access and Quality

Thus far the discussion of results has focused on the inputs and the processes of inter-school district cooperation. This section addresses the two major goals of cooperation identified in Figure 2: educational access and educational quality. Educational access is defined as the degree to which vocational programs are available to rural students. Educational quality refers to the strength or excellence of the vocational program according to commonly accepted indicators. These goals identify outcomes sought by cooperation that are linked in the model presented in Figure 2 to the ultimate outcome of human resources development in rural communities.

Educational Access

Educational access variables were associated with facility configuration but not with organizational structure. All of the cooperative arrangements involved adding programs not previously offered to students in member districts or expanding access to a program in one district to students in all districts. While all of the facility configurations involved an increase in access of students to vocational programs, the degree and distribution of access differed according to facility configuration (Table 11).

Table 11. Variables associated with educational access

Variable	Low Educational Access ⟷ High Educational Access		
	Centralized	Decentralized	Mobile
1. Distribution of access among school districts	Unequal	Differential	Equal
2. Degree of access	High for all programs for students in one school district; moderate for students in other districts	High for at least one program for students in two or more districts; moderate for some programs for some students; low for some programs for some students	High for all students for all programs

Access is presented in Table 11 only in terms of geography and not in terms of the number of students allowed to enroll. In the centralized facility configuration access was unequal; the district in which programs were located had greater geographic access to the shared programs than did all other districts. Access in the decentralized configuration was diverse, with school

districts in which a program was located having greatest geographic access to that program. The mobile facility provided equal access for all districts to all programs.

While distribution of access concerns all of the participating districts, the degree of access concerns each individual district. In the centralized configuration, students in one district had high access but students in all other schools had only moderate access. In contrast, the decentralized configuration provided high access to one program for two or more districts but provided less access for districts located peripherally. In other words, students in districts located 10 miles from each other will have greater access to shared programs in each school than will students in districts located 30 miles from each other. The mobile facility configuration provided a high degree of access for all students in every participating district.

In summary, access appeared to be primarily a matter of facility configuration. A centralize configuration provided a high degree of access to students in only one district and more limited access to students in all other districts. A decentralized configuration improved the degree of access to the extent that it provided a higher degree of access to one program to students in more districts, but had the disadvantage of making some programs even more inaccessible to some students than was the case in the centralized configuration. The decentralized configuration widened the range of access at both ends, both increasing and decreasing access. The mobile facility provided the most equal and the highest degree of access to all districts.

One additional observation should be mentioned. Educational access is not increased if one group of programs is simply replaced by another. Access has increased only if a net increase in the programs available to students has occurred. In some cases studied, the introduction of shared courses resulted in a school district dropping one or two programs; however, in all cases more programs were available as a result of cooperation than had previously been available, so all districts experienced a net increase in programs available as a result of cooperation.

Educational Quality

Table 12 presents variables associated with educational quality. A great many dimensions of quality could be addressed (i.e., teacher qualifications); however, only those dimensions of quality associated with organizational structure, facility configuration and operation of the cooperative arrangement are included here.

Table 12 reveals that quality was not related to organizational structure or facility configuration. This result implies that in choosing an organizational structure or a facility configuration one is choosing a set of trade-offs rather than a universal best choice. A "best choice" for a particular situation would involve identifying a set of trade-offs that best fits the situation.

Leadership, the first organizational structure variable presented in Table 12, clearly distinguished centers from noncenters. In the center, leadership in planning, operating, and evaluating the vocational programs was clearly provided by a specific individual, the director. In contrast, the noncenter structure did not formally assign a leadership role to a specific individual, but operated under a system of shared leadership that did not appear to address planning and evaluating dimensions. In both of the noncenter cases a single individual appeared to have assumed the leadership role, but this individual's opportunities for leading were limited by the lack of formally assigned responsibility. Planning and evaluating functions "slipped through the cracks" in these cases, so little opportunity was available to improve or change the cooperative arrangement.

Approaches to facilities differed for centers and noncenters. Centers, which had added organizational structure and personnel, tended to be housed in specially constructed buildings or rooms. These buildings and rooms had up-to-date equipment and were designed to accommodate recent developments in teaching approaches. A few center programs were housed in existing facilities and were limited by the physical features of the facility.

Noncenters tended to use existing facilities that were adapted or amplifed to accommodate additional students. This meant that equipment, facility design and teaching approaches already being used were more likely to remain unchanged.

Curriculum was, to some extent, associated with facilities. The most striking dimension of curriculum quality was that of student organizations. Student organizations were very difficult to develop in the center structure due to problems with student transportation to meetings and, in some cases, lack of student motivation for competitions not connected with their home school district.

Table 12. Variables associated with educational quality of vocational programs

Variable	Lower Quality ⟷ Higher Quality	
A. Variables associated with organizational structure:		
1. Leadership	Ambiguous, not assigned to specific individual(s)[b]	Clearly identified and assigned to specific individuals[a]
2. Facilities	More likely to be adapted from existing facilities with little or no upgrading[b]	More likely to be specially constructed or remodeled[a]
3. Curriculum	Vocational student organizations not functional[a]	Functional vocational student organizations[b]
B. Variables associated with facility configuration:		
1. Program continuity	Inhibited by high teacher turnover[e]	Same as for any other school district program[c,d]
2. Capacity to adapt to unique needs of each community	Lower[c,d]	Higher[e]

[a]Associated with centers
[b]Associated with noncenters
[c]Associated with centralized configurations
[d]Associated with decentralized configurations
[e]Associated with mobile facilities

As already mentioned in connection with Table 10, naming the student organizations was problematic. If the organization carried the center name, school districts were not identified. In the noncenter, student organizations continued to operate as they had prior to cooperation. However, student transportation, school identity, and having a local advisor were still issues for students from other communities.

Two quality variables were associated with facility configuration. Program continuity was drastically affected in the mobile facility configuration, with almost annual teacher turnover. Because of the great distances between communities in the particular geographic location where this pattern was observed, teachers had to change their permanent residence every six months or year or maintain two residences, one permanent and one temporary. Provision of a moving allowance had not induced teachers to stay. This problem was, in all probability, more acute in this setting than it would be in a setting where distances between communities are shorter and commuting is possible. Program continuity was not so adversely affected in the centralized and decentralized configurations and did not appear to differ between these two configurations or to be appreciably different from any other high school program.

The capacity to adapt a program to the unique needs of a community was greatest in the mobile configuration, since students in each community were taught as a group and teachers had first-hand opportunities to understand each community. In the decentralized and centralized configurations students from several communities were more likely to be taught together and/or teachers had limited opportunity for direct exposure to each community and consequently the potential to adapt the curriculum to the needs of any one community was reduced.

Quality is an abstract concept, difficult to operationalize and quantify. In this discussion, characteristics of high quality vocational programs include: 1) leadership is present and engages in strategic planning and in evaluation of the educational enterprise; 2) facilities are up-to-date and well equipped; 3) vocational student organizations are available; 4) stability is present without stagnation; 5) adaptation to the unique needs of a community is possible. Both organizational structure and facility configuration were related to these characteristics in ways that indicated both strengths and weaknesses of the various forms of cooperation rather than a clear superiority of any one form.

Summary

Educational access varied with facility configuration but was also a function of the total number of programs offered and enrollment eligibility policies. Some educational quality variables were associated with organizational structure and some with facility configuration. Quality was more a matter of trade-offs than a matter of clear superiority for any one cooperative pattern variation.

CHAPTER IV

SUMMARY, CONCLUSIONS, AND IMPLICATIONS

This study was designed to address the problem faced by rural schools in addressing the need for development of human resources in rural communities and federal and state-level imperatives for the access of rural students to vocational education. The study focused on various patterns of cooperation among school districts as a means of diminishing the effects of declining enrollments and resources on individual districts' ability to educate their students. The general purpose of the study was to provide a knowledge base for inter-school district cooperation that would enable local and state educational policymakers to evaluate policy alternatives and that would be useful for designers of cooperative educational delivery.

The study involved identifying alternative forms of inter-school district cooperation through a literature review (presented in Peterson, et al., 1981), and a survey of states (conducted by O. Gilbertson and G. Newkirk at the University of Nebraska, Lincoln), and developing an in-depth understanding of various forms of inter-school district cooperation through a series of case studies.

Conclusions and implications regarding the first four Phase II research objectives are presented in this chapter. Recommendations pertaining to the fifth objective are presented in Chapter V. Not all forms of inter-school district cooperation that exist or are possible were studied due to resource limitations. Frequently found forms and those clearly differentiable from each other are included. Case study methodology was used because it provided an opportunity for in-depth description and understanding of forms of cooperation. Since case study methodology is not suited to producing generalizable results, conclusions should be interpreted as hypotheses, open to verification and further study. Conclusions should also be viewed as a means of guiding the questions to be asked regarding inter-school district cooperation and as a set of considerations to be addressed in making decisions about developing inter-school district cooperation for delivering education to rural students.

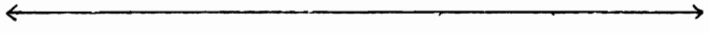
Conclusions About Defining Features

The findings confirmed the hypothesis developed in Phase I that organizational structure and facility configuration operate as two major independent variables with which an array of dependent variables can be associated.

Organizational structure is defined as the design and relationship of the parts of the organization. Dependent variables appearing to be associated with organizational structure are governance structure, fiscal agent status, staff assignment patterns and functions, and educational services provided. The center, as an entity separate from the school district, is the organizational focus in the center pattern. The school district is the organizational focus in the noncenter pattern.

A second conclusion is that a continuum concept represents the variability in organizational structure better than a category concept (i.e., center and noncenter). This might be graphically represented as follows:

Organizational Structure
for Inter-school District Cooperation

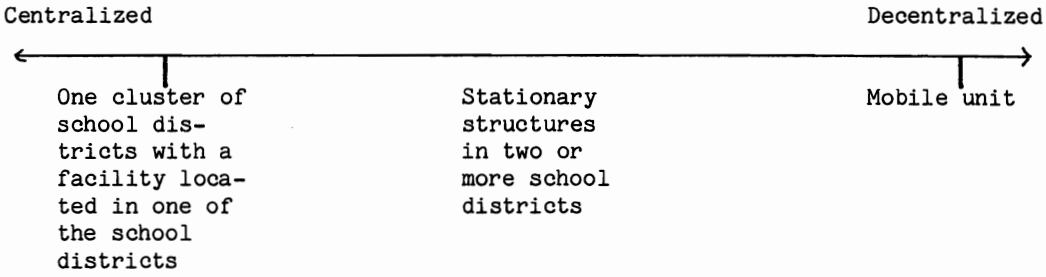


Center pattern — Noncenter pattern

Such a concept is likely to facilitate flexibility in thinking about organizational structures for inter-school district cooperation. Thus, instead of being either a center or a noncenter, the organizational framework may include elements or features of both patterns.

The second major independent variable, facility configuration, is defined as the location, type, and arrangement of facilities. Facility configuration is associated with at least four dependent variables, including the number of communities in which programs are located, the type of physical structure, program elements that move, and transportation requirements. Although conceptualized as an independent variable with three distinct types (centralized, decentralized, mobile), a continuum frame of reference appears to best represent the variation that exists, particularly within the decentralized configuration. For example, a mobile unit configuration is a special form of a decentralized configuration. In addition, a decentralized configuration with four locations reflects a higher degree of decentralization than does a configuration with only two locations. Facility configuration as a continuum might be depicted as follows:

Facility Configuration
for Inter-School District Cooperation



The importance of these two independent variables is clearly established in the data: by choosing a particular point on these two continua, school districts also determine a number of other features of their enterprise.

Conclusions About Critical Factors in Inter-School District Cooperation

Four themes concerning the perspectives of individual school districts involved in cooperating emerged from the operational factors data. The four themes and variables related to each theme are summarized in Table 13.

The first theme is school district autonomy and flexibility. Variables associated with this theme are size of school district investment, reversibility (of the cooperative arrangement), number of class hours cooperatively scheduled per day, and the amount of schedule and calendar synchronization required. The implications of this theme are that the more autonomy and flexibility a school district retains, the less constraining cooperation will be and the greater propensity to maintain cooperation will be. Few cooperatively scheduled class hours, small financial investments in the cooperative arrangement, high reversibility of the cooperative arrangement, and minimal schedule and calendar synchronization enhance school district autonomy and flexibility.

The second theme, is school district sense of ownership and control the cooperative arrangement. Six variables associated with this theme are means of distributing of power and control, locus of power and control, role of school district superintendents and principals in the cooperative arrangement, physical presence of the cooperative arrangement, student flow in and out of the school district, and availability of a sharable program within the school district. In general, the more internal the decision-making for the cooperative enterprise in an individual school district, the greater the sense of ownership. The importance of this theme is that something in which a district perceives itself to have ownership is likely to evoke stronger commitment, more positive expectations, and greater effort to insure success on the part of the district. School district initiative as a means of distributing power and control, locus of power and control within school districts, a policymaking role for school district superintendents and principals, a physical presence of the cooperative enterprise within a school district, absence of student flow from a district and sharing a school district program appear to enhance a school district's sense of ownership in the cooperative arrangement.

Table 13. School district perspectives and related variables in the cooperative arrangement

Perspective: Individual school district autonomy and flexibility

Variables:
- Size of school district investment
- Reversibility
- Number of class hours cooperatively scheduled per day
- Amount of daily schedule and yearly calendar synchronization required

Perspective: Sense of ownership and control by the school district in the cooperative arrangement

Variables:
- Means of distributing power and control
- Locus of power and control
- Role of school district superintendents and principals
- Physical presence
- Student flow in and out of the school district
- Availability of a sharable program within the district

Perspective: Perceived relationships between school district costs and benefits of cooperation

Variables:
- Economic principle underlying financing
- Amount of costs added for school districts
- Cost levels
- Opportunity costs of cooperating
- Risk of cooperating
- Transportation costs borne by a school district as a result of participation
- Student time spent in travel during school day
- Proportion of eligible students served
- Number of cooperating school districts
- Degree to which services provided through cooperation would or could be provided by a single school district for itself
- Importance, desirability, and value of service(s) provided
- Method by which costs are distributed to school districts.
- Pattern of school district representation on the decision-making body

Perspective: School district incentives for cooperating

Variables:
- Income for school district
- Increased enrollment in school district programs
- Access of school district students to educational programs

The third theme, the relationship perceived by school districts between the costs and benefits of cooperation has thirteen variables: economic principle, added costs, cost levels, opportunity costs, risk, transportation costs, student school day time spent in travel, proportion of eligible students served, number of cooperating school districts, degree to which services provided would or could be provided by the school district on its own, importance/desirability/value of the services provided by the cooperative arrangement, cost distribution method, and representation pattern. The implication of this complex theme is that when a school district perceives that the benefits are in reasonable alignment with the costs it incurs by cooperating, propensity to cooperate is likely to be enhanced. When a district perceives costs to be greater than benefits, resentment, reluctance, and withdrawal from the cooperative arrangement are likely. Conditions that appear to promote a positive cost-benefit ratio perception on the part of individual school districts are financial arrangements based on an exchange rather than on a tax principle; low financial and psychological costs on the part of school districts; service to substantial proportions of school district students; provision of services that are perceived as important and that add to rather than duplicate services already provided by the school district; distribution of costs equally or on the basis of

what school districts do rather than what they are; a sufficient number of members to share costs; and consistency in the basis for representation in decision-making and financial contributions.

The fourth theme is incentives for cooperation as a means of providing educational services. Three types of incentives were identified: income, increased enrollments in school district programs, and access of school district students to educational programs. Incentives provided by the state appear to encourage cooperation between school districts.

The significance of the four themes is that they address the point of view of individual school districts. Frequently, when solutions to educational problems are generated at the state or federal level, a global rather than an individual perspective provides the frame of reference. In the final analysis, a global perspective may be the only realistic one if educational opportunities of reasonable quality are to be available to all students. Nevertheless, the ways in which the specifics of a solution are formulated allow more or less consideration of individual perspectives. Given the decentralized character of education in the United States, the degree of control over the educational enterprise that school districts have enjoyed, and the data presented here regarding the operation of cooperation, it would seem that attention to individual school districts' perspectives is a critical factor in designing cooperative systems. The ways in which decisions about the structure and the operation of a cooperative arrangement are made are likely affect the attitudes of school districts and the long-term survival of the cooperative arrangement. Variables concerning governance, funding (costs, equity among districts), and student movement appear to be the most critical in the school district perspective themes.

Conclusions About Setting

The geographical variables (pupil density, distance between participating communities, and one-way distances traveled during the school day) are associated with facility configuration but not with organizational structure. The mobile unit configuration is associated with the lowest pupil density, the longest distances between communities, and no daily travel. The centralized facility configuration is related to the highest pupil density, the shortest distances between communities and short daily travel distances. The decentralized configuration is associated with pupil densities and distances between communities intermediate to those for the centralized and mobile configurations, and the longest daily travel distance.

Seven community and school district variables (basic philosophies of cooperating school districts, inter-community competitiveness, size of participating school districts, financial status of participating school districts, administrator turnover, communication patterns among school district administrators, and criteria for selecting students into programs) are related to organizational structure, facility configuration, and the probability of maintaining a cooperative educational enterprise. Communication patterns among administrators and criteria for selecting students into programs were related to organizational structure. Homogeneity of size, financial status, and basic philosophies; a low degree of inter-community competitiveness; and low administrator turnover appeared to facilitate the development of cooperation among school districts.

These setting relationships suggest that a given school district will cooperate more successfully with some school districts than with others. School districts that have similar characteristics and that are in similar situations are more likely to see things in a similar way, have similar values and priorities, see similar incentives and, in general, have a common base from which to develop a cooperative arrangement. Decision alternatives are likely to be rated more similarly and agreement reached more easily by districts with similar characteristics. Administrative continuity facilitates cooperation because cooperative arrangements take time to develop. When the central actors in a cooperative arrangement are constantly changing, some of the energy available for development must be deflected to re-establishing administrative relationships. Situations where intense inter-community or inter-school district competition exists face a barrier to cooperation that will take special efforts to overcome.

Conclusions About Educational Access and Quality

A primary goal of cooperative arrangements among school districts is providing access to to quality educational programs for rural students. Accessibility and quality are inseparable, for to provide a quality program without accessibility solves nothing, and to provide access to programs that lack quality does little to further the educational opportunities of rural students.

The case study data indicated that educational access is associated with facility configuration but not with organizational structure. Educational access was increased in every instance, in some cases by adding new programs, and in others by making already available programs accessible to more students. Access can be thought of in terms of school districts, (i.e., which districts have what access) and also in terms of students (i.e., within a single district, which students have access to what programs). Two access variables were associated with facility configuration: degree of access and distribution of access. The mobile facilities configuration provided the highest degree of access to all students in all school districts, and distributed access to all programs equally among participating school districts. This is a powerful advantage for this configuration. Centralized and decentralized configurations distribute access differentially, providing a higher degree of access to some or all programs to some districts' students than to others.

Variables identified with educational quality are leadership, facilities, curriculum, program continuity, and capacity for adapting educational program to unique community needs. These variables are associated with either organizational structure or facility configuration. Leadership is strongest in the center structure. Facilities also are likely to be of higher quality in centers. On the other hand, noncenters appear to be more likely to have student clubs associated with vocational programs. Program continuity is inhibited by teacher turnover, which was great in the mobile unit facility configuration where the distances between unit locations were too great to allow teachers to commute. The mobile unit has the greatest capacity to adapt a particular program to the unique needs of the community.

Conclusions About Forms of Inter-School District Cooperation

This section presents conclusions regarding the five forms of inter-school district cooperation studied in depth (centralized center, decentralized center, centralized noncenter, decentralized noncenter, and mobile unit center). Each of the categories of findings--i.e., defining features, critical factors in the operation of cooperation, setting, and educational access and quality--are applied to each form of cooperation and general conclusions about each form are discussed.

Centralized Center

Individual school district autonomy and flexibility with regard to operation and use of the centralized center is relatively low. This relationship appears to be associated with sizable dollar investments by individual school districts, relatively low reversibility of the cooperative arrangement due to the formality of the organizational structure and addition of employees, and some synchronization of member school districts' daily schedules.

School districts' sense of ownership is likely to be relatively weak in the centralized center due to the lack of a physical presence of the center in all but one district; the formal distribution of power, which modifies and equalizes the power of individual school districts; the primary locus of power and control being lodged in individuals and a group whose identity is the center, not the school district; the advisory and policy implementer versus policymaker role of school district superintendents and principals; the flow of students each day away from all but one member district; and the absence of the opportunity for individual school districts to share their programs with other districts.

In the centralized center, costs of participation are likely to be perceived as greater because of the tax principle (versus an exchange principle) used in financing centers. School districts are assessed (taxed) and dollars are pooled and used toward the common good. Where the individual good is not synonymous with the common good, negative perceptions regarding benefits and costs are likely to occur. Added costs for centers are relatively high both in terms of total costs and per-student costs. Higher costs make for higher opportunity costs from a school district perspective and also higher risk. Higher risk in centers is also influenced by relatively high sunk costs (especially when buildings are purchased), added personnel, and the formal organizational structure, which has its own separate identity. Costs for transporting students to the center are relatively high since all districts or all but one district must transport students daily.

Individual districts bear lower costs when there are more member districts since fixed costs are spread over more members. More members may mean fewer services (benefits) available for each member, however.

An individual school district's perception of benefits in a centralized center is likely to be influenced negatively when a relatively low proportion of students in the district is served. When

the services (benefits) provided by the center do not duplicate services or programs that the individual school districts offer or are able to provide on their own, perceptions of benefits received are more likely to be positive.

An important aspect of cost/benefit perception by individual districts appears to be the costs and benefits of participation a school district perceives for itself relative to the costs and benefits to other member districts. An equality-principle based cost distribution (such as the use of an equal flat fee for all districts) may lead to more positive perceptions of relative costs and benefits than equity-principle based cost distribution methods (such as the ability to pay, school enrollment, or usage rate). Of the equity principle-based cost distribution methods, a usage rate basis may be the least problematic. Consistency between the basis for cost distribution and representation in decision-making may be an important factor in center design.

There are few incentives for individual school districts to cooperate in a centralized center. School districts give up rather than gain income; enrollment in school district programs is likely to decrease as students elect instead to enroll in center programs. This in turn means that school district equipment, facilities, and teaching staff are used by fewer students--a loss in efficiency. Student time is spent in travel--another loss in efficiency. While individual school districts may experience an increase in access for their students to programs not previously available, they can quickly see that the centralized center does not provide the degree of access for their students that another delivery pattern might or that would be available if the center were located in their own community. In addition, an individual school district has relatively little control over the quality of center programs since it is only one voice among several.

The setting in which the centralized secondary center appeared was characterized by less sparse pupil population, and by relatively short distances between participating communities.

Frequent regular communication among member school district administrators characterized and was a strength of the centralized center. The "dumping ground" approach to student selection for center programs was reportedly used by some member school districts. Access of students to facilities was distributed unequally among the school districts.

The centralized center appears to have a relatively long list of negatives associated with it, at least from the perspective of individual school districts. It is in the final set of variables, which deal with program quality, that the strength of the centralized center (and for the most part, the center concept in general) is apparent. Leadership for the delivery mechanism is clearly assigned to a specific individual. This means that planning and evaluation, in addition to operational details, are likely to receive attention; responsibility and accountability for these functions are clearly associated with a single person. The quality of facilities is likely to be good because they are typically constructed or remodeled when the center is formed. These two dimensions of quality are clearly important advantages. The centralized center has the added advantage of being easier to supervise since it is in one location rather than being spread out across a geographic area that might require considerable travel on the part of the director. However, this advantage also limits the director's opportunities to physically be in member communities and districts to establish rapport, gain understanding of each district, and facilitate communication.

The centralized center may be unable to establish and maintain a student organization, a disadvantage from a curriculum quality standpoint in vocational education. The centralized center is likely to have continuity in programs, at least from the standpoint of minimal teacher turnover.

The centralized center may have some opportunity to adapt programs to the needs of individual communities. If a program is scheduled from 8-10 a.m. and five students from each participating district are taught during those hours, there is little opportunity for adaptation to community uniqueness. If, on the other hand, four sections of the program are offered at four different times, and students from four member districts each have one of these sections designated for them, program adaptation can occur.

In summary, the strengths of the centralized center are in its ability to provide quality. Its major liabilities are in its limitations on school district autonomy and flexibility, school districts' sense of ownership, perceptions on the part of school districts of benefits in relation to costs, and incentives for individual school district members. It appears to be better suited to less sparsely populated areas in which communities and school districts are relatively close to one

another. Dissimilarity of community philosophies, inter-community and/or school district competitiveness, wide variation in size and financial resources of member school districts, and frequent administrator turnover would be expected to negatively affect centralized centers as they would any other form of inter-school district cooperation. Thus, while not unique to centralized centers, these community and school district setting variables are potentially important to the success and continued existence of centers.

Decentralized Center

Like the centralized center, school district autonomy and flexibility is low in the decentralized center due to sizable dollar investments by each district, low reversibility of the cooperative arrangement, and some daily schedule synchronization.

School districts' sense of ownership is likely to be somewhat stronger in the decentralized center than in the centralized center, primarily due to the physical presence of center programs in more than one community and flow of students into more communities. This stronger sense of ownership is likely to be observed in communities in which programs are located but not in communities without shared programs. The sense of ownership in the decentralized center would not be expected to be as strong as in delivery mechanisms where policy-making and control over programs is lodged within the school district. The formal distribution of power is likely to operate in the same way in decentralized centers as in centralized centers, contributing to a minimal sense of ownership. However, the decentralized center offers more opportunity for a school district to share one of its programs, potentially enhancing the district's sense of ownership in the center operation.

As with the centralized center, school districts are likely to perceive costs of participation in the decentralized center as high because of the tax principle used in center financing. Added costs are similar to those for the centralized center, although costs for facilities may be lower since there is likely to be more adaptation of existing facilities and less extensive construction of new facilities. Costs and risks are similar to those in the centralized center, although risk may be modified somewhat if new facilities are not constructed. Costs for transporting students can be less, as much, or greater than in the centralized center depending on the location of programs and student enrollment patterns.

Like the centralized center, a decentralized center with many members will incur lower costs for each member. A higher proportion of a district's students may be served in the decentralized center than in the centralized center if a program is located in the district. This latter factor would be likely to increase the perception of benefits received beyond the benefits perceived by school districts involved in centralized centers. As was the case for the centralized center, selecting programs that do not duplicate those already offered by a school district is likely to increase perceived benefits.

Districts' perceptions of costs and benefits of cooperation relative to other districts are likely to be more positive in the decentralized center than in the centralized center. This is because locating programs in more than one community distributes access more broadly. The same relationships concerning cost distribution methods and representation patterns that applied to the centralized center apply to the decentralized center.

The same disincentives for participating in a centralized center exist for the decentralized center, but they are modified. As in the centralized center, school districts give up income to the center, but they may also receive income from the center as rent payments for the use of school district facilities. Enrollment declines in school district programs and the attendant loss of efficiency in use of facilities, equipment, and staff are likely.

A district involved in a decentralized center may lose more or less student time to travel than one involved in a centralized center depending on the number of students enrolling in programs located in other districts. Like the centralized center, the decentralized center provides students in all districts with access to more vocational programs than were previously available. For students in any district, access to programs located in other districts is less than for programs located in their own district. Since all center programs are administered by the center, the school district has a similar degree of control over programs in the decentralized center as in the centralized center.

Decentralized centers were found in areas with moderately sparse pupil population and moderate distances between communities. Like the centralized center, there was frequent and regular communication among member school district administrators. Also like centralized centers, the "dumping ground" approach to student selection into programs tended to be used. In the decentralized center, some districts had better access to some programs than did other districts. The degree of access was high if the program was located within the district, moderate if the program was located in a nearby district, and low if the program was located in a district on the far side of the center membership area. If centrally located districts served as locations for programs in this delivery pattern, instances of low access to programs for students in any of the districts would be reduced.

While the decentralized center appears to modify some of the negatives associated with the centralized center, it also modifies to some extent the positive features. Leadership is clearly assigned in the same way as in the centralized center. Supervisory functions connected with the leadership role are more difficult to perform in the decentralized center than in the centralized center because of the multiple locations of programs and the travel between sites that is demanded. The positive side of this characteristic is that the director is more likely to regularly visit member districts and so learn more about them and build communication lines with school officials.

Facilities are less likely to be specially constructed new structures in the decentralized center than in the centralized center. Because the amount of space needed in any one location is considerably less than the amount of space required for a centralized center, it is more likely that usable existing spaces will be found within member school facilities. Existing facilities that can be used with minimal adaptation cost less and thus are likely to be preferred even though newly constructed facilities might better meet the specific needs of a program.

Problems with student organizations are as likely to occur in decentralized centers as in centralized centers. Program continuity is not likely to be a problem. The capacity of programs to adapt to the unique needs of each member district would be similar to that of the centralized center and, like the centralized center, would depend on whether students from different communities are taught together or separately.

In summary, the strengths of the decentralized center are its ability to moderate many of the negative features of the center. Decentralization allows a stronger sense of ownership for a greater number of member districts and is likely to result in a somewhat more positive cost/benefit ratio from the perspective of individual school districts. It appears to be more suited to a situation where distances between communities vary widely than is the centralized center. While it provides better access for some students to some programs, some students may have quite limited access to other programs. Unfortunately, the decentralized center appears to moderate the strengths as well as the weaknesses of the centralized center. As with the centralized center, community philosophies, competitiveness, similarity of school district size and financial condition and administration turnover rate would be factors to consider in identifying school districts for cooperation.

Centralized Noncenter

Individual school district flexibility and autonomy is greater in the centralized noncenter than in either center pattern studied. This is because school districts make smaller dollar investments, the arrangement is more reversible since agreements and structures are less formal and few if any personnel are added, and schedule synchronization is simpler because classes are scheduled only the first hour(s) in the day.

School districts' sense of ownership in the cooperative arrangement is likely to be stronger in the centralized noncenter than in the centralized center pattern since power is not modified and distributed by formal structure and more depends on the initiative and prerogatives of school districts. Further, school district superintendents and principals are the decision-makers and the locus of power and control for the cooperative arrangement. School districts' sense of ownership is not likely to be as strong, however, as in the decentralized noncenter since that pattern has all the elements just described plus a physical presence (a program) in more districts, students flowing into more districts, and more districts contribute sharable programs.

School districts' perceptions of costs and benefits are likely to be more positive in the noncenter than in the centralized center because an exchange principle is used, and added costs and total cost levels are lower. These in turn reduce opportunity costs. Risk is lower due to fewer sunk costs (no building purchases), no added personnel and no added formal organizational structures.

Transportation costs, as in the case of centralized centers, are likely to be high. The proportion of students served may also be similar to that in centralized centers, i.e., relatively low due to limited accessibility.

The number of schools involved in the cooperative enterprise is not likely to affect the costs for each in the decentralized center pattern as much as in the center patterns because there are few fixed costs. Participating schools typically pay for teachers, space, and materials proportionately based on the number of students each has enrolled in the shared courses.

As was the case for centers, benefit perceptions are likely to be more positive when services made available through centralized noncenters do not duplicate those available in participating districts.

Usage-based cost distribution appeared to be the primary cost distribution model in the noncenters. This equity-principle based approach did not seem to negatively affect participating districts' perceptions of their own costs and benefits relative to other districts. Representation in decision-making for school districts was not linked to usage rate.

The school district that offers shared programs in the noncenter has more incentives to participate than school districts in the center patterns. This school district receives income from the other districts; experiences an increase in enrollment in its programs; finds its facilities, equipment and teaching staff used more efficiently, since greater numbers of students are now using essentially the same resources; loses no student time to travel; maintains high access to programs for its own students; and has direct control over program quality.

Other districts participating in the centralized noncenter are not without incentives either. Their students have at least moderate access to programs that would cost more to offer through a center arrangement. They do not, however, receive income. Enrollments in their programs and efficiency of operation are likely to decline. Some student time is lost to travel. The districts have little direct control over the quality of shared programs except to stop enrolling students. The school district offering shared programs, then, has more control over program quality than does any participant in a center pattern. In the noncenter, when a district stops enrolling students in a program, its costs drop proportionally. In the center patterns, a district that elects not to send students to a program still pays its full share of center operation fixed costs and, if a flat fee cost distribution method is used, all other fees as well. Student access to programs in the centralized noncenter is limited by geography and by the number of program slots the offering school makes available.

Centralized noncenters are likely to be found in less sparsely populated areas with relatively short distances between communities. Another important setting factor is that one district have sharable programs that are not duplicated in the other districts.

Irregular, infrequent group communication among school district administrators characterizes the centralized noncenter. Communication tends to occur between individual administrators and to concern operational details. A careful screening approach to student selection into programs is more likely to be used in this form than in centers.

Access for students in the centralized noncenter is high for only one district and lower for all other districts--an unequal distribution of access similar to that in the centralized center. Further, students in the offering district may not experience an increase in vocational programs available to them unless one or more new programs are initiated.

Like the centralized center, quality variables are mixed. Leadership is not assigned to a specific individual and consequently is ambiguous and tends to be limited to operational details, leaving planning and evaluation of the operation unaddressed. The administrator of the school offering the program may take a primary leadership role but, because there is no formal structure or mechanism to vest leadership in a position, assumption of a vigorous leadership role by such an individual may be a sensitive issue. Facilities are likely to be existing space that may be adapted to accommodate additional students.

Vocational student organizations are offered if they are available in the program that is shared. Students from other districts can participate but it is clear that the name of the organization will bear the offering school's name and that students from other districts need to arrange transportation unless meetings are held during class time.

Program continuity is similar to that for any program in the offering school district. There is likely to be little adaptation of the programs to unique needs of each participating community since students from all communities are likely to be taught together. The needs of the community of the offering school district are likely to prevail.

In summary, the strengths of the centralized noncenter are in its ability to expand the number of educational programs available to students in several school districts at a relatively low cost. It provides appealing incentives to the offering school district and reduces several of the disincentives associated with centers for the other participating districts. Its chief advantages are in its efficiency, reversibility and relatively low cost. Disadvantages are in quality (ambiguous leadership role and potential for less-than-ideal facilities) and the need for one of the group of participating schools to have sharable programs. There is no reason that sharable programs could not be added if none exist, but to add them would increase costs, thereby reducing the cost advantage of this pattern.

Administrator turnover and similarity of participating community philosophies appear to have particular importance in this pattern. Since it is likely that the offering school will be larger than the other participating schools (i.e., a school with sharable programs that other schools do not have is likely to be larger), the other participating schools are unlikely to be sports competitors with the offering school. The financial condition of participating districts may be different. However, since schools are not business partners but rather providers and purchasers of services, this factor is not as critical as in the center patterns.

Decentralized Noncenter

In this pattern, school district autonomy and flexibility is higher than in the center pattern and similar to the centralized noncenter pattern. School districts make smaller dollar investments, the arrangement is highly reversible, and when shared classes are offered the first two hours in the day the need for schedule synchronization is minimized.

School districts' sense of ownership in the cooperative arrangement is likely to be strong among all or several participating districts, primarily due to the physical presence of programs in two or more communities, student flow into two or more communities, and the contribution by several communities of a sharable program. The distribution and locus of power and control and the role of the school district superintendents and principals as policymakers are similar to the centralized noncenter and also contribute to a strong sense of ownership on the part of each district.

Perceptions of costs and benefits on the part of participating school districts are likely to be positive for several reasons. Added costs are relatively low due to the absence of administrative and faculty costs. Reversibility is great because existing services are simply amplified, avoiding costs of buildings and the development of organizational structures.

Costs for student transportation are present in this pattern unless the teacher travels between sites, an arrangement which would require duplicated facilities in more than one site, fewer program options for students, and costs for teacher travel. While the proportion of students from a member school district that is served through the cooperative arrangement may not be high, neither are the costs--and the districts pay mostly for services rendered. The proportion of students served can be enhanced by identifying for cooperation only those programs that are not duplicated in any district.

As in the centralized noncenter, the number of schools involved has little impact on the cost each district pays since few fixed costs are involved, but is likely to affect the availability of services to any one district. For example, if ten slots are available in a program at one school, and if three districts are involved, the two non-offering districts will have five slots each. If six districts are involved, five non-offering districts will each have two slots.

The usage rate cost distribution method is used in the decentralized noncenter. Representation in decision-making was not linked to usage rate.

In the decentralized noncenter, the same incentives that accrue to a single school district in the centralized noncenter are available to several school districts. Districts with a sharable program have the opportunity to receive income from the other districts as well as increase the enrollment in the program and so increase their efficiency in staff and facility use. Enrollment in other programs may decrease as students enroll in a program in another district instead, but this is offset at least to some extent by enrollment increases in the shared programs.

Some disincentives are also present. Some students lose time to travel. Students only have moderate access to programs in other districts--both in terms of geography and slots available. School district control over the quality of programs offered by other districts is limited to consumer choice.

The decentralized noncenter is likely to be suited to areas with a semi-sparse population and moderate distances between communities. Like the centralized noncenter, the availability of sharable programs is an important variable--and in the decentralized noncenter, two or more districts must have at least one sharable program.

Like the centralized noncenter, group communication among school district administrators in the decentralized noncenter tends to become irregular and infrequent as operation of the cooperative arrangement becomes more routine. One-to-one communication is more frequent, typically focusing on operational detail. Students appear to be carefully screened for selection into shared programs in the decentralized noncenter.

Access of students in participating districts to programs in other districts is moderate, limited both by geography and available slots. Schools on the outer perimeter of the geographic area may have limited access to programs in each other's districts. Access is more equally distributed, however, than in the centralized noncenter.

Quality variables for the decentralized noncenter are similar to those for the centralized noncenter. The unspecified, ambiguous leadership structure provides little opportunity for planning and evaluation of the cooperative arrangement. Facilities are more likely to be less than ideal because available structures are likely to be used. Programs are unlikely to be adapted to the unique needs of each community because classes include students from several participating communities. On the other hand, vocational student organizations are likely to function in the school that offers the progam, and program continuity is likely to be as high as for any unshared program.

In summary, the strengths of the decentralized noncenter are its relatively low cost, efficiency of instructional and facilities resources use, high reversibility, ability to engender a sense of ownership and positive cost/benefit ratio in participating districts, and ability to provide incentives for cooperation to several districts. Its disadvantages are in quality, particularly the ambiguous leadership role and structure and the likelihood that less than ideal facilities may be used. It might also be difficult to identify a group of schools with several sharable, unduplicated programs among them.

As in all the forms of cooperation, similarity and compatibility of community philosophy are important factors. Inter-community competitiveness may be more of a factor in this approach than in the centralized noncenter because communities are likely to be of more similar size and consequently to be competitors in school sports.

Mobile Unit Center

In this model, individual school district flexibility and autonomy is high. Dollar investment for facilities are not as large as for permanent structures. Trailers, because they are movable and less permanent, allow more reversibility than do the permanent structures in other types of centers. Classes housed in the trailers are adapted to each individual school district's schedule although the number of sections must fit the teacher's contract. No daily schedule synchronization with other districts is needed. Yearly calendar synchronization is needed only for the time at which trailers are exchanged if the exchange occurs during the school year.

School districts' sense of ownership in the cooperative enterprise is likely to be relatively strong, primarily due to the physical presence of center programs in all member school districts. No students need to travel. The locus and distribution of power and control and the role of school district superintendents is similar to that in other center patterns and does not tend to contribute to a sense of ownership. Neither is there likely to be contribution of a sharable program since all trailer programs are likely to be added ones.

Perceptions on the part of school districts of the cost/benefit ratio of cooperation is likely to be more positive in the mobile unit design than in other center patterns because some costs (i.e., trailers versus new buildings) are likely to be lower, and risk is a little less with an investment in a trailer than in a new building for which resale may be difficult in a small rural community. Costs for periodically moving trailers among communities are less than for daily transportation of students. All of these factors contribute to lower costs. On the benefit side of

the cost-benefit ratio, the proportion of a district's students served can be very high. No geographical or allotment limitations are imposed except for the capacity of the trailers. In the site studied some schools allowed underclassmen and junior high students to enroll. If programs provided do not duplicate those in member school districts, perceptions of benefit will be greater. If duplication does occur it is a worse problem than in any other pattern because, if trailers are rotated to every member district, a trailer program on the same grounds as a school district program will provide very direct competition unless some type of curriculum articulation is arranged.

The mobile unit has positive effects on perceptions of relative benefits and costs accrued to participating districts. All districts have the same geographical access benefits. An equal flat fee paid by all districts appears to be an appropriate approach to financing this delivery pattern and has the advantages of equalizing costs among districts and being consistent with the representation pattern among the districts if equal representation on the governing body is the approach used.

The impact of the number of members is threefold. First, as in the other center models, the more members, the lower the fixed cost for each member. Second, if the number of members and programs are equal (as they were in the site studied), more members means more trailers and more programs. Third, more members and more trailers and more programs mean that each district has more total programs available over the rotation cycle but that each program is available less often. With the nine schools and nine trailers and semester rotation in the study site, each program was available every four and one half years in each school district. Unless programs were available to underclassmen and junior high students, some programs would never have been accessible to some students.

Incentives for school districts to cooperate are greater than for either of the other two center patterns, more equal than for the centralized noncenter, and about as great as, although different than, the decentralized noncenter. Schools do not receive income from the cooperative mechanism. They give up resources by participating. Enrollments in school district programs are likely to decrease. No efficiencies are gained in the use of school district facilities or staff. On the other hand, no student time is lost to travel and student access to programs is extremely high.

The setting variables of most note in the mobile unit pattern are the extremely sparse population and long distances between communities. While there is nothing to suggest that this model would not work equally well in more populated areas, it is particularly well suited to sparsely populated areas since no daily travel is needed (except by a commuting teacher).

Group communication among member school administrators was regular and frequent, as it was in other center patterns. Access of students in member districts was equally high for all districts.

The mobile unit center is unique and notable in that it seems to be able to incorporate many of the positive attributes and to avoid many of the negative aspects of the other patterns. This was especially true for the quality variables. Leadership is unambiguous and clearly assigned to the center director, along with responsibility for planning and evaluation. Facilities are specifically designed and constructed for the purposes of the center. The mobile unit center has high potential for adapting programs to the unique needs of each community. Since the trailers are located in all communities, teachers have an opportunity to become more familiar with all the communities and to identify and address particular needs. Since only one community's students are taught together, specific curricular adaptations are possible.

Two quality variables are not positive and are more problematic in the mobile unit than in any of the other patterns. The first of these is the vocational student organization. It is almost impossible to gather students from all or even some of the schools together in one location. Holding meetings during class time doesn't solve the problem, since in a quarter, semester, or year's time the program will be gone and will not return for what may be several years. The second negative quality variable is lack of program continuity due to continual teacher turnover. There is some likelihood that teacher turnover was particularly high in the site observed because distances between communities were very great, and so teachers were forced to move every six months rather than commute. In a setting where school districts are within commuting distance of each other, program continuity may not be so adversely affected. A second dimension of program continuity is the reputation and curricular position a program develops over time in a school district. Infrequent presence of a program in each community is a barrier to establishing a program's reputation with students who might enroll in the program in the future.

To summarize, the strengths of the mobile unit center include its ability to provide strong leadership along with a relatively high degree of school district autonomy and flexibility; to contribute to a strong sense of school district ownership; to lead to school district perceptions of a positive cost/benefit ratio; to provide appealing incentives for school districts to cooperate; and to make high quality programs available. Disadvantages are its problems in maintaining a student organization, and program continuity. The latter problem could be reduced by offering fewer programs in fewer school districts than in the site studied. As in the other patterns, similarity of community philosophies is likely to aid the joint decision-making that must be done in any center arrangement. Community competitiveness may be less important in this pattern than in other patterns because of the high degree of school district autonomy and flexibility. Similarity in size of school districts is likely to be an important factor since finding programs that don't duplicate school district offerings will be harder when some larger districts are involved. Similarity in financial status is important since decisions about allocating resources may be viewed more similarly. Administrator turnover is less critical in this model than in the non-center models since a center director is available to provide continuity in relationships and to orient new administrators to the cooperative enterprise.

Summary

Table 14 summarizes a few salient comparison dimensions of the five cooperative patterns for delivering vocational education in rural areas. The table reveals the relatively greater number of advantages of the mobile unit pattern.

In-depth descriptions of each of the patterns summarized here are provided in volumes two through six of this series (see page ii). The reader is encouraged to contact the authors for more detailed information.

Table 14. Comparison of five patterns of inter-school district cooperation for selected variables

	Delivery Patterns				
	Centralized Center	Decentralized Center	Mobile Unit Center	Centralized Non-Center	Decentralized Non-Center
Formal organization	yes	yes	yes	no	no
Economic principle	tax	tax	tax	exchange	exchange
Location of programs	one school district	several school districts	all school districts	one school district	several school districts
Administrator	vocational director	vocational director	vocational director	member school district superintendents and principals	member school district superintendents and principals
Teaching staff	employed by center	employed by center	employed by center	employed by school district	employed by school district
Reversibility	low	low	moderate	high	high
School district autonomy and flexibility	low	low	high	moderate	moderate
School district sense of ownership	weak	moderate	strong	moderate	strong
Cost/benefit ratio perceptions by school district	negative	moderate	positive	moderate	positive
School district incentives	few	moderate	many	many for one district; moderate for other istricts	many

Table 14. Comparison of five patterns of inter-school district cooperation for selected variables (continued)

	Delivery Patterns				
	Centralized Center	Decentralized Center	Mobile Unit Center	Centralized Non-Center	Decentralized Non-Center
Setting	less sparsely populated; shorter distances between communities	moderately sparse population; moderate distances between communities	sparsely populated; long distances between communities or more densely populated areas	less sparsely populated; short distances between communities; requires availability of sharable programs	moderately sparse population; moderate distances between communities; requires availability of sharable programs
Access	high for one district; low for other districts	high for several districts for one or more programs; low for some districts for some programs	high for all districts for all programs	high for one district; low for other districts	high for several districts for one or more programs; low for some districts for some programs
Quality	high	moderate	high	moderate	moderate
Student transportation required	yes	likely	no	yes	likely

CHAPTER V

RECOMMENDATIONS

This chapter addresses the fifth research objective of Phase II by presenting recommendations for local, regional, and state educational planners, designers, and policymakers, and for researchers interested in rural development and education, educational policy, and vocational education. Recommendations are based on the findings and conclusions presented in Chapters III and IV and concern applications of the findings to the development of an educational planning model and new approaches for educational delivery in rural areas, and the need for further knowledge about the delivery of education in rural areas.

- The mobile unit in particular warrants further study and development. While this facility configuration is well suited to areas with long distances between communities, it need not be limited to these kinds of situations. Experiments with this model in noncenter organizational structures and in situations involving shorter distances and fewer schools and programs than in the case observed should be undertaken, given the educational quality and access achievable in this approach and its ability to address the four school district perspectives identified in this study.

- Variations of the noncenter approach to educational delivery should be explored because of the incentives it entails for school districts and its relatively low cost. Special attention should be focused on developing ways to assure quality in educational programs provided in this manner and to solve the problem of ambiguous leadership. Alternative solutions to the leadership problem (e.g., a system of rotating leadership, identification of one individual as the continuing administrator with the school providing the administrator being compensated by the other schools, assigning the leadership role to one of the vocational teachers and providing time in his or her assignment for this function) should be tested.

- The center concept deserves attention because of the educational quality it is capable of providing. Ways should be sought to reduce costs. New ways of configuring its administration so that one administrator works with more school districts is one possible avenue for cost reduction. The satellite center is an example of this strategy and should be explored further as should county, multi-county and regional approaches to administration of centers. Special attention should be given to financing formulas with usage and exchange approaches receiving emphasis and tax approaches minimized.

- Other variations of cooperation identified in Figure 1 should be studied in a manner similar to that used here to further validate the conceptual model presented in Figure 1 and to verify the existence of variations not included in this study. Cooperation between secondary and post-secondary institutions in delivering vocational education in rural areas should be given special attention.

- Nonschool- and combination school/nonschool-based approaches should be studied, particularly as they might be coordinated with school-based approaches. For example, the potential for community-based youth groups, the Agricultural Extension Service, and secondary home economics and agriculture programs to better serve the needs of rural people by coordinating their needs assessments, planning, and educational delivery efforts should be investigated.

- New forms of educational delivery should be created by combining approaches identified in this study and by choosing and combining desired levels of identified variables. For example, the mobile unit approach might be combined with a secondary/postsecondary approach to yield a pattern whereby mobile units are dispersed from a postsecondary vocational institution to serve surrounding school districts on a rotating basis. Or a model might be created in which quality is maximized, access is moderate, and school district autonomy and flexibility are emphasized. These new forms should be developed and implemented on an experimental basis to expand the repertoire of alternatives for educational delivery in rural areas.

- The potential of new technology for producing new forms of educational delivery should be investigated. For example, the use of closed circuit television or computer networks among school districts should be explored and evaluated. The potential of technology for linking educational resources in post-secondary vocational schools with surrounding school districts should be considered and studied. The potential for technology to reduce problems of educational access makes it particularly appropriate for experimental application in rural settings.

- Research should be conducted on both state and national levels to test the hypotheses generated in this study. Particular emphasis should be given in the design of such research to the critical factors identified in this study, since these are controllable in the design and implementation of cooperative arrangements. The applicability of these factors to inter-organizational cooperation in other areas both in and beyond education should be explored. Setting variables should also be emphasized, since these appear to have implications for the selection of co-participants in cooperative endeavors. Particular attention also needs to be given to relationships between facility configuration and students' access not only to programs but to information about them as well.

- Special attention should be focused on helping administrators develop administrative and leadership skills that address the need of cooperating rural school districts for a sense of ownership in the cooperative enterprise and retention of a high degree of autonomy and flexibility, and that enable administrators to develop quality in educational programs. These skills include the ability to involve school district administrators and officials in decision-making processes; develop a support base for the cooperative enterprise within participating communities through advisory committees and other means; initiate and guide long range planning, program development, and evaluation; and acquire resources effectively and fairly and manage them efficiently. Clarification of the role of the cooperative enterprise administrator is needed in relation to that of school district superintendents and principals.

- The forms of inter-school district cooperation presented in this study should be investigated for generalizability to nonvocational subjects, particularly elective courses. Rural schools often face problems in offering these subjects similar to those encountered in providing vocational programs--i.e., obtaining sufficient student enrollment, qualified teaching staff, and appropriate facilities and equipment. The mobile unit concept may be as applicable to providing a foreign language laboratory equipped with tapes and sound equipment as it is to providing an electronics laboratory.

- State-level policies and procedures regarding reimbursement and approval of vocational programs and practices concerning foundation aids should be analyzed for incentives and disincentives for school districts to cooperate with each other and for influence on perceptions of individual school districts regarding costs and benefits of cooperating. School district perspectives and the related variables identified in this study should be used in evaluating new policies being considered for implementation by the state. For example, reimbursement might be provided on a sliding scale according to varying degrees of cooperation or educational access. Such analyses can facilitate increased precision in the use of policy to accomplish goals and objectives. State-level policies that prescribe the degree to which agreements between school districts must outline conditions for initiating and discontinuing cooperation would provide useful guidance to districts in developing cooperative agreements and would reduce problems and disagreements when a district withdraws from a cooperative arrangement.

- A model for local and state level policy-makers to use in making decisions about and planning interschool cooperation in given situations should be developed. Such a model would provide a guide to considerations and questions that should be addressed in the planning process and a format for processing information to produce choices that are appropriate for specific situations.

- The long-run impact on a school district, its curriculum, on students, and on a community of alternative means of providing access to vocatioanl programs in rural areas should be investigated. Longitudinal studies should be undertaken to provide comparative impact data concerning such strategies for providing educational access to rural students as interschool district cooperation, the comprehensive high school, and consolidation. Changes in educational delivery are likely to affect several parts of an educational and community system and require study over time to ascertain the direction and nature of these impacts.

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APPENDIX: DATA MATRICES

Matrix A. Data supporting relationship between organizational structure and defining features

Organizational Structure Variables	Centers			Noncenters	
	Decentralized Center	Mobile Facilities Center	Centralized Center[1]	Decentralized Non-Center	Centralized Non-Center
1. Governance structure					
a. Legal basis	. Joint power law	. Multi distrcit organization law	. Joint powers law	. Joint agreement	. Resolution adopted by school boards annually
	. Center by-laws	. Center constitution and by-laws; annual resolution approved by each school	. State approval	. Agreement approved annually by school boards	
	. State approval	. State approval	. State approval	. State approval	
b. Bodies and representation	. 6 member center board (5 member minimum); representation from each district;monthly board meetings	. 8 member multi-district board; representation from each district; monthly board meetings	. center board (5 member minimum); representation from each school district; monthly board meetings	. no formal governing board, superintendents, school district vocational-directors, and principals meet once per year to set policy; communicate individually as needed at other times	. no formal governing board; superintendents and principals meet once per year to set policy; communicate individually as needed at other times.
	. executive committee: vocational director, supervising superintendent, governing board chair	. executive board: superintendents of all districts; advisory to multi-district board; meets prior to each multi-district monthly board meeting			
	. steering committee: community based and advisory to center staff	. citizens advisory council: advisory to multi-district staff			

[1] In some instances where parallel data is not presented for the centralized center, changes in the study data collection procedures after pilot testing are reflected rather than absence of the feature. Since the centralized center was the pilot case, some data are incomplete.

Organizational Structure Variables	Centers			Noncenters	
	Decentralized Center	Mobile Facilities Center	Centralized Center	Decentralized Non-Center	Centralized Non-Center
	. superintendents ex-officio, attend board meetings	. superintendents on executive board; executive board chairperson is official representative to multi-district board meetings	. superintendents advisory to board; attend center board meetings ex-officio		
c. Powers	. center board makes policy, owns or rents facilities, is fiscal agent; does not levy taxes; school district boards approve center policy and levy taxes	. center board makes policy, owns or rents facilities, is fiscal agent; does not levy bonds; school district boards approve center policy and levy taxes	. center board makes policy, owns or rents facilities, is fiscal agent; does not levy taxes; school district boards approve center policy and levy taxes	. school district superintendents and principals make policy; school boards approve policy; school districts own or rent facilities, are fisal agents and levy taxes	. school district superintendents and principals make policy; school district boards approve policy, school districts own or rent facilities, are fiscal agents and levy taxes
2. Fiscal sources and transactions	. state vocational aids received by center	. state vocational aids received by center	. state vocational aids received by center	. state vocational aids received by each school district offering shared program	. state vocational aids received by one school district offering all shared programs
	. center assesses participating school districts for center costs	. center assesses participating school districts for center costs	. center assesses participating school districts for center costs	. participating school districts assess each other for services provided	. school district offering programs assesses other districts for services provided

Organizational Structure Variables	Centers			Noncenters	
	Decentralized Center	Mobile Facilities Center	Centralized Center	Decentralized Non-Center	Centralized Non-Center
3. Staff					
a. Administrative	. 1 part time center director hired by center board to implement board policy and manage center	. 1 full time center director hired by center board to implement board policy and manage center	. 1 full time center director hired by center board to implement board policy and manage center	. 1 school district vocational director (in-kind), 5 school district superintendents and principals (in-kind); no designated director, chairperson or initiator; school principals manage programs offered by their school	. Principal of offering school primary administrator assisted by school counselor and participating superintendents and principals (all in-kind service)
	. 1 supervising superintendent	. 1 part time assistant	. 1 supervising superintendent		
b. Instructional	. 1 full time center teacher; 4 part time teachers	. 9 full time center teachers	. 7 center instructors	. teachers of programs in five participating school districts	. teachers of 8 vocational courses in offering school
c. Support	. 1 center secretary	. 1 center secretary	. 1 center secretary	. all in-kind services from staff of participating school districts	. all in-kind services from staff of participating school districts
4. Services provided	Five programs provided by center	Nine programs provided by center	Seven programs provided by center	Five programs, one provided by each of five school districts	Varying numbers of programs provided by one school district

Matrix B. Data supporting relationship between facility configuration and defining features

Facility Configuration Variables	Centralized Configuration		Decentralized Configuration		Mobile Configuration
	Centralized Center	Centralized Non-Center	Decentralized Center	Decentralized Non-Center	Mobile Facilities Center
1. Facility type, number and location	2 permanent structures: . one center building (17,500 sq.ft.) newly constructed for the exclusive purpose of housing center programs and administration offices; located in one of the participating communities one classroom and laboratory facility located in the high school in the same community	2 permanent structures: . classroom and laboratories and offices in the high school located in one participating community and used for both shared and non-shared classes . one rented facility located in the same community for the exclusive purpose of housing one shared program	3 permanent structures: . one center building (4000 sq. ft.) newly constructed for the exclusive purpose of housing center programs and administrative offices; located in one of the participating communities . classrooms and laboratories in two high schools located in two participating communities	4 permanent strcutures: . classrooms and laboratories and offices in four high schools, located in four participating communities and used by these school districts for other programs and functions that are not shared	9 mobile trailers: . newly purchased 14 x 60 and 12 x 60 ft. trailers specially constructed for the exclusive purpose of providing center classroom, laboratory and instructor office space; located on the high school premises in each of 9 participating communities on a semester rotation basis . 1 small house containing administrative offices located in one of the participating communities
2. What is transported	Students	Students	Students and one of 5 center teachers	Students	Facilities and teachers
3. Means of transportation	Bus	Bus	Bus: students Car: teacher	Bus	Tractor: facilities Teachers: moving van (change residence)

Matrix C. Data regarding operational variables: scheduling and transportation patterns for shared vocational offerings

Variable	Decentralized Center	Mobile Facilities Center	Centralized Center	Decentralized Non-Center	Centralized Non-Center
1. Scheduling					
a. Duration of shared vocational classes	2 periods/day Combination of year-long, semester and quarter courses	2 periods/day Semester	2 periods/day Semester	2 periods/day Combination of full year and semester courses	1 period/day Semester courses
b. Number of shared sections scheduled per day	1-3	3	1-3	1	1
c. Hours of day shared sections scheduled	throughout day	throughout day	throughout day	first 2 periods	first period
d. In-school district schedule synchronization					
1) Yearly		synchronized within a a few days		not synchronized	not synchronized
2) Daily	not synchronized	not synchronized		not synchronized	first period synchronized
3) Emergency	not synchronized	not synchonized	not synchronized	not synchronized	not synchronized
2. Transportation					
a. Number of round trips/week (students)	5-10	0	5-10	5	5
b. Number of round trips/day (students)	1-2	0	1-2	1	1
c. Student time required/round trip,	40 minutes	0	22-30 minutes	30-60 minutes	70-80 minutes

Matrix D. Data regarding operational variables: cost levels and distribution, scale, student selection, and communication patterns

Variable	Decentralized Center	Mobile Facilities Center	Centralized Center*	Decentralized Non-Center	Centralized Non-Center
1. Resources					
a. Annual operation costs of sharing					
1) Administration costs	$30,000 (1979-80)	$ 42,000 (1980-81)		not identified by schools; in-kind	not identified by schools; in-kind
2) Instructional costs	$60,000 (1979-80)	$135,000 (1980-81)			
3) Other		$13,000 (1980-81)			
4) Total	$90,000 (1979-80)	$190,000 (1980-81)	$150,000 (1978-79, approximate)	$32,700 (1980-81, estimated)	
5) Per pupil	$945 (1979-80)	$880 (1980-81)	$645	$150-650	$241
6) Per school		$15,000 (1980-81)		$933-12,697	
b. Method(s) of Distributing Costs Among Participating Districts	Multi-factor formula including school district enrollment, center use level by districts, ability to pay	Flat fee-participating districts charged equal portion of total costs	Multi-factor formula including school district enrollment and center use level by districts	Program use levels by districts	Program use levels by districts
2. Scale					
a. Number of member districts	2	8	4	5	3
b. Enrollment in shared programs					
1) Actual	100	280	225	39	45

* In some instances where parellel data are not presented for the centralized center, changes in the data collection procedures after pilot testing are reflected.

Matrix D (cont'd)

Variable	Decentralized Center	Mobile Facilities Center	Centralized Center	Decentralized Non-Center	Centralized Non-Center
2) Possible	200	324	778		
3) Average class size	17	10	13	17	16.5
4) Student/ Teacher ratio	15	28	38	17	16.5
3. Student Selection	Problem students frequently enrolled	Most elibible school district students enrolled	Problem students frequently enrolled	Careful screening emphasized	Careful screening emphasized
4. Communication Patterns	Regularly scheduled monthly meetings -Center board, school district administrators, center director -Center faculty	Regularly scheduled monthly meetings -Center board, school district administrators, center director	Regularly scheduled monthly meetings -Center board -School district administrators, center director -Center faculty	One yearly meeting or less -School district administrators, school district vocational director	One yearly meeting or less -School district administrators, offering school counselor
	One to one daily, weekly, or periodic communication as needed: -Center director and faculty -Center director and school administrators -Center director and board members	One to one daily weekly or periodic communication as needed: -Center director and faculty -Center director and school administrators -Center director and board members	One to one weekly, or periodic communication as needed: -Center director and faculty -Center director and school administrators -Center directors and board members	One to one daily, weekly or periodic communication as needed: -School district principals and superintendents -School district principal and faculty -School district vocational director and faculty	One to one daily, weekly or periodic communication as needed: -School district principals and superintendents -Offering school principal and offering school counselor -Offering school counselor and participating school district principals

Matrix E. Data regarding curriculum offered cooperatively and students enrolled

Variable	Decentralized Center	Mobile Facilities Center	Centralized Center	Decentralized Non-Center	Centralized Non-Center
Curriculum					
a. Number of Vocational programs or courses offered	5	9	7	5	varies from year to year
b. Specific Offerings	Model Store	Sales and Distribution			Those shared varied from year to year
	Model Office		Model Office		
	Foods Occupations	Quantity Foods Occupations	Food Service		
	Construction Occupations	Building Trades	Building Trades	Building Trades	
	Agriculture	Animal Science			
		Plants and Soils			
		General Metals	Metals		
		Electronics and Electricity	Electronics		
		Auto Mechanics	Auto and Diesel Mechanics	Auto Mechanics	
		Health Occupations	Health Occupations	Health Occupations	
				Graphic Arts	
				Advanced Welding	
c. Course or Program length	Year long and semester	Semester	Year long	Varied by school district	Varied by course or program
Grade levels of students enrolled	9 - 12	7 - 12	11 - 12	varied by school district	varied from year to year

Matrix F. Data concerning school district and community characteristics

Variable	Decentralized Center	Mobile Facilities Center	Centralized Center	Decentralized Non-Center	Centralized Non-Center
Enrollments in Participating School Districts	299-975 (1979-80)	118-667 (1979-80)	390-2,042 (1980)	546-1,571 (1981-82)	382-1,563 (1979-80)
Total Square miles comprised by member school districts	678	10,561	414	843	278
Distance between participating communities	6 - 15	19 - 98	5 - 24	14 - 30	11 - 23
Number of pupils per square mile in member school districts	1.57 - 5.95	.11 - .73	2.7 - 17.9	2.8 - 8.87	4.85 - 9.94