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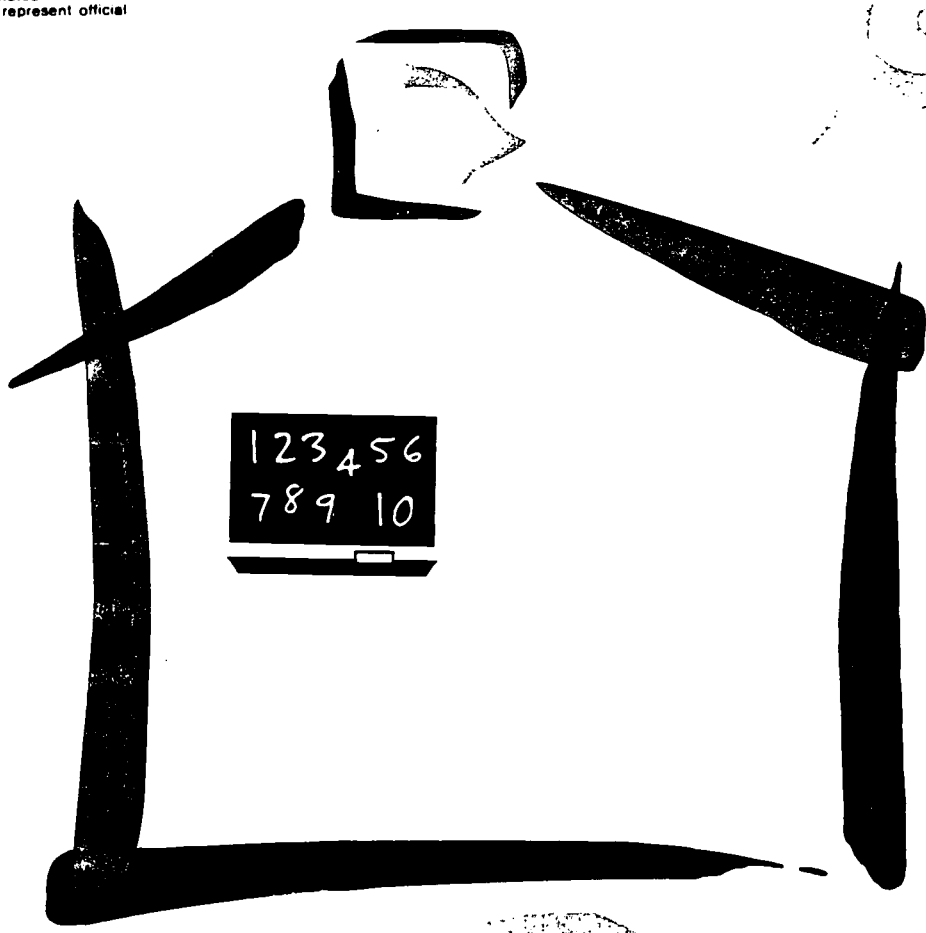
ABSTRACT

This synthesis aims to provide policymakers with a comprehensive overview of issues surrounding the reorganization of small rural school districts. The report draws on research findings and describes examples of various organizational arrangements to address rural education needs. Seven sections examine the following: (1) current social and economic conditions in rural communities and common challenges, including the high percentage of at-risk rural students, leading to renewed interest in district reorganization; (2) research addressing relationships between school size and school effectiveness, curricular offerings, dropout rates, student achievement (especially that of disadvantaged and at-risk students), and financial efficiency; (3) background and history of rural school consolidation; (4) positive and negative effects of school consolidation on schools and communities; (5) arrangements between districts and other organizations that provide alternatives to total school reorganization; (6) information about distance education technology as it relates to district reorganization; and (7) conclusions. The research shows not only that larger schools do not guarantee improved quality or efficiency, but also that small schools are positively associated with achievement and many factors that promote it. Partial reorganization alternatives involve cooperative efforts between districts or between districts and other organizations, thus increasing the size of the population served or of the resource base without the negative effects of total mergers. Distance education provides a means to expand curriculum and facilitate district cooperation. Contains 142 references. (SV)



Alternative Organizational Plans: Options for Consideration

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INTRODUCTION

Purpose and Audience
This synthesis is intended to provide state and local policymakers with a comprehensive overview of issues surrounding the question of small rural district reorganization. The report draws on research findings related to the issues and describes examples of different approaches to addressing rural education needs through organizational arrangements. Specific objectives are:

- to describe a sociological and historical context that will help to clarify the various issues surrounding school district reorganization;
- to provide research-based information regarding the effectiveness and fiscal efficiency of small and rural schools and the effects of total and partial reorganization of school districts;
- to provide information regarding alternatives to school district consolidation;
- to provide information regarding viable organizational arrangements for serving rural at-risk students; and
- to provide information regarding aspects of distance education systems that relate to school organization.

Definitions
For many years "school district consolidation" has been the traditional term used to describe the merging of two or more districts into a single administrative unit. It is the term most consistently used in historical descriptions of school and district mergers beginning in the first decade of the century. During the 1980's, the term "school district reorganization" was introduced to describe district mergers, and Stephens (1991) reports that both "consolidation" and "reorganization" are used by the courts and in state statutes. Both terms are used interchangeably in this synthesis. The term "partial reorganization" is used here to describe an organizational arrangement whereby two or more school districts and/or other organizations join together to operate a cooperative program, but each administrative unit continues to exist and retains its autonomy (Monk, 1990).

The terms "rural communities" and "small rural school districts" are also used extensively, and an explanation of how they are treated in this report will be helpful. The literature is replete with discussions of the complexities involved in defining these terms (Hillman, 1991; Stephens, 1991; Hobbs, 1989; Sher, 1988). For certain purposes, such as policy development and specific research projects, specific definition of "rural" and "small" would be required. However, since this synthesis focuses on organizational arrangements, SEDL staff took a broad approach, reviewing articles and reports identified under the topics of both small

and/or rural schools and communities and school organizational arrangements. Thus, for the purposes of this report, SEDL has defined "rural" and "small" to include any school, district, or community so designated in the literature.

It should be noted that it was necessary to separate "ruralness" and "smallness" in studying the literature. Although some information regarding observed conditions in rural communities and schools is available, there appears to be little research regarding rural schools per se. Staff attribute this problem to the lack of resources to conduct such research coupled with the relatively small audience for rural issues compared to that for other educational issues. However, the 1980's produced a body of research on small schools that looks especially promising for helping policymakers involved in rural education, and this information was reviewed and included.

Information in the literature regarding the effects of total and partial reorganization is for the most part anecdotal rather than research-based. Several research studies did, however, describe conditions present in successful cooperative programs, and this information is included.

One of SEDL's major concerns in developing this paper was to locate and present information regarding effective organizational arrangements for serving rural at-risk students. This task proved difficult; such information appears to be quite scarce. However, the research on small schools reveals some interesting data on the effects of school size on disadvantaged and at-risk students, which should be useful to educators planning programs for similar students in rural settings . Examples of cooperative programs for at-risk students were found, and these are also included.

Rural schools have much to offer and have come up with effective and creative solutions to the limitations posed by geography and economics, and these are described throughout the synthesis. In establishing a context and a rationale for the renewed interest in rural school reorganization in the 1980's, Section 1 presents a group of specific conditions and challenges in rural communities and schools that have caused educators and policymakers to search for innovative ways to improve the rural school resource base. There was no intent to present a comprehensive picture of rural education or to present a negative view of rural education.

Organization of the Report

This report is presented in seven sections:

Section I. Rural Communities: Thrust Toward Consolidation describes current social and economic conditions in rural communities and common challenges, including the high percentage of at-risk students in rural schools, that are prompting renewed interest in district reorganization.

Section II. Effects of School Size reviews small-versus large-district research addressing relationships between school size and school effectiveness,

curricular offerings, dropout rates, student achievement (especially that of disadvantaged and at-risk students), and financial efficiency.

Section III. History of Consolidation Movement provides the background and history of rural school consolidation.

Section IV. Effects of the Consolidation Movement discusses the positive and negative effects of school consolidation on schools and communities.

Section V. Partial Reorganization Alternatives describes organizational arrangements between districts and other organizations that can serve as alternatives to total school reorganization.

Section VI. Distance Education reviews information about technology as related to school district organization.

Section VII. Conclusions summarizes the major findings of the report.

Section I
Rural Communities: Thrust Toward Consolidation

Rural communities have always faced unique challenges in providing educational programs for their students. During most of this century, educators and policymakers with interests in rural education have attempted to address the challenges presented by small numbers of students, low population density, and isolation. Conditions have vastly improved in many ways, but many rural school districts continue to be hard-pressed to meet the challenges caused by their "ruralness" and their "smallness." Furthermore, increasing pressures on all schools to improve educational programs have coincided in many rural communities with serious economic and social difficulties. These problems have placed added pressures on rural local governments, including school districts, in providing basic services.

Descriptions of social and economic conditions in rural communities across the country suggest that most of these communities share to varying degrees a common set of conditions that have direct implications for educational program planning and policymaking. It is important, however, to recognize that not all rural communities are equally stressed.

The stable and conservative agriculture-based community represents only a small part of rural America today. Many farm towns close to urban areas have become bedroom communities (Nachtigal, 1982). Others have been transformed by industrial and energy development and newly created recreational areas (Thompson, 1990; Nachtigal, 1982). While some rural communities have experienced rapid economic and/or population growth, many others are experiencing economic and population decline. Another group of rural communities has been persistently poor. These communities are clustered primarily in the South (Hobbs, 1990; Thompson, 1990; Nachtigal, 1982). Researchers and writers emphasize the importance of acknowledging the diversity of rural communities since different communities will have differing capabilities and resources to address the issues that they face (Stephens, 1991; DeYoung, 1990; Thompson, 1990; Beckner, 1983).

Common Rural Community Problems

Economic Difficulties.

The 1980's were hard times for rural America. The farm crisis was a major contributing factor, but, as discussed above, agriculture is no longer the only important economic force in rural areas. Hobbs (1989) cites a United States Department of Agriculture (USDA) study showing that while 29 percent of the

2,443 non-metropolitan counties are farming-dependent, 28 percent are dependent on manufacturing, 11 percent are retirement-dependent, and 8 percent are mining-dependent. (Ten percent of non-metropolitan counties are federal land counties, and 13 percent are specialized government counties.) The problems of the eighties have resulted from a combination of economic, social, and political trends that have especially affected agriculture, manufacturing, and energy production.

The fact that agriculture has relinquished its place as the primary source of income in rural areas does not minimize the devastating losses experienced by this industry during the 1980's. Honeyman and others (1989) cite a 1989 report by Duncan that paints a graphic picture of the current situation in agriculture:

- The real value of farm property (per farm, in 1982 dollars) has fallen from a high in 1980 of $430,000 to a low in 1986 of $250,000.
- Real net income (per farm, in 1982 dollars) dropped from a high of $26,000 in 1973 to a low of $15,000 in 1981. This figure increased to $22,000 per farm in 1988, but Stephens (1991) attributes much of the gain to corporate farms, which have absorbed small and midsize-farms.
- The number of small and midsized farms declined from 390,000 in 1981 to 290,000 in 1989, a 25 percent decrease.

Industries in America have historically located their components requiring more highly paid managerial and technical positions in urban areas, while the divisions requiring less well-paid production-oriented jobs have been placed in rural areas (Hobbs, 1991). During the 1960's and 1970's even more manufacturing firms were relocated to rural areas, primarily to reduce labor costs. Hobbs, citing a 1989 study by Falk and Lyson, reports that much of this relocation has taken place in the South, which has the lowest average levels of adult educational attainment. As a result of this industrial restructuring, rural communities, especially in the South, tend to have a disproportionate share of low-wage labor-intensive industries (Rios, 1987; Stephens, 1991).

The agriculture, manufacturing, and energy production industries in rural areas have also been adversely affected during the last decade by the growing international marketplace (Stephens, 1991). All of these industries were at a disadvantage in competition with other countries because of lower foreign production costs, increased international energy supplies, and a strong United States dollar (Stephens, 1991). The tendency of specific rural regions to be dependent on a single industry has exacerbated rural economic problems (Huang & Howley, 1991; Vaughan, Boethel, Hoover, Lawson, & Torres, 1989). A community that is dependent on only one industry is more vulnerable to industry recessions and finds recovery more difficult than an area with a broader industrial base. Overall, rural income was 25 percent lower than metropolitan income in 1990 (Hillman, 1991; Hobbs, 1991).

Poverty

Poverty has always been a pervasive problem in rural America, but during the 1970's it appeared that rural economic conditions were improving significantly (Huang & Howley, 1991). However, the recessions of the early 1980's reversed that trend. The overall non-metropolitan unemployment rate steadily increased throughout most of the 1980's (Huang & Howley, 1991). The 1987 national unemployment rate for non-metropolitan counties was 11.4 percent, while it was 8.7 percent for metropolitan counties (Vaughan et al., 1989). In the Southwest Region, which was heavily impacted by the precipitous drop in energy prices, the 1987 non-metropolitan unemployment rate was 12.28 (Vaughan et al., 1989).

By 1989, overall unemployment rates in rural areas had improved. By that year, the nonmetro unemployment rate was 5.7 percent, which was the lowest rate since 1979 and only one-half percent higher than urban rates (Mazie, 1990). However, the lower unemployment rates have not resulted in much improved real per capita income because of low wages. The 1989 per capita income in nonmetro areas remained less than 75 percent of that of metro areas (Mazie, 1990).

A combination of unemployment and low wage jobs has resulted in a higher poverty rate for rural areas than for urban areas. In 1988, the poverty rate in rural areas was 16 percent compared to 12 percent in urban areas (Mazie, 1990). Hobbs has observed that unlike the urban poor who tend to be unemployed, "a majority of the rural poor are members of intact nuclear families who hold one or more jobs" (1989, p. 10). He found that in 1986, more than two-thirds of the nonmetro poor families had at least one employed member, and a fourth of them had at least two employed members (1988).

Using 1987 data, Shapiro (1989) studied the rural poor and reached similar conclusions. He found that the majority of rural families living in poverty were two-parent families and that it was not unusual for both parents to be working.

In 1985, 10 percent of the 2,443 non-metropolitan counties were classified as persistent poverty counties by the United States Department of Agriculture (Hobbs, 1989). This classification is given to counties that have been continuously ranked in the poorest 20 percent of the nation's rural counties since the 1950's (Hobbs, 1989). The rural poor tend to be concentrated in certain areas of the country, especially in the South, but all states and regions have pockets of rural poverty (Thompson, 1990).

Population Decline

Except for a brief period during the 1970's, when the non-metropolitan growth rate exceeded the metropolitan growth rate, the 20th century has seen a massive migration of rural residents to urban areas (Hobbs, 1991; Stephens, 1991). Additionally, Hillman (1991) reports that out-migration during the 1980's has been greater than at any other time in the 20th century. He estimates the net rate of out-migration as 2 percent of the rural population.

Rural population decline has not been evenly distributed over all rural areas. As discussed above, some communities have suffered large population losses, while

others have experienced rapid growth. According to the *Statistical Abstract of the United States*, approximately one-third of the non-metropolitan counties experienced significant population losses from 1980 to 1985, and most of these counties were in the traditionally agricultural areas of the midwestern and Great Plains states (Stephens, 1991). The southwestern states have not followed the general pattern of rural population decline that has occurred in other regions during the past decade. Most non-metropolitan counties in the southwestern region have grown or have remained stable. The only large areas of significant rural population decline have been in the Texas Panhandle, in southwest Oklahoma, and along the Mississippi River in eastern Arkansas and Louisiana (Vaughan et al., 1989).

From 1986 to 1988, the overall nonmetro population growth rate showed a slight recovery, increasing from a low of 0.5 percent for 1984 to 1986 to 0.8 percent. The rate varied significantly across the country, however. Mining and agriculture dependent counties actually continued to decline, while many other nonmetro counties, especially in the Southwest and Florida, experienced growth rates of five times the national rate. Many of these counties are retirement destinations (Mazie, 1990).

Rural School District Problems

Small rural school districts, like rural communities, are also beset by a common array of problems, many of them, of course, stemming from conditions in the community and the world at large. Not all small rural districts are having difficulties, but the vast majority are facing some problems to varying degrees. These can be grouped into financial problems, student problems, staff problems, and curriculum problems. The education reform movement has further increased pressures on rural schools through state mandates such as those for expanded curriculum requirements, for improved teaching competencies and skills, and for programs for at-risk students (Stephens, 1991).

Financial Problems

Most rural school districts have experienced competing financial pressures during the last decade: declining revenues combined with increasing expenditures. Admittedly, this condition is not unique to rural schools, but it has been exacerbated in rural areas by the major economic problems of rural America in general, the continued dependence on property taxes while rural land values have decreased, declining enrollments in some communities, and, simply, the greater proportional impact that a given reduction has on a smaller budget as opposed to a larger one. Along with diminished resources has come the necessity for increased expenditures because of new curriculum mandates, pressure to provide more-responsive programs for at-risk students, and additional federal requirements for special programs (such as those for children with disabilities.) And, compounding all of these factors, the cost per student tends to be higher for small rural schools than for urban ones (Honeyman, Thompson, & Wood, 1989).

Student Problems

Students who attend rural schools come from backgrounds just as diverse as those of their urban counterparts. They are highly heterogeneous in terms of ethnicity, race, place of origin, socio-economic status, lifestyle, and value orientation (Phelps & Prock, 1989). The needs of students in rural school districts are generally very similar to those of students in urban districts. However, in many rural districts, meeting those needs is more problematic for at least three those reasons:

- The percentage of students from low-socio-economic-status families is higher than in metropolitan areas (Hobbs, 1988; Smith & DeYoung, 1988; Walberg & Fowler, 1987).
- The number of years of formal education attained by the adult population is lower than for metropolitan areas (Hobbs, 1981).
- Family and community expectations for educational attainment are often lower than in metropolitan areas (Hillman, 1991; Helge, 1984).

It is difficult to assess the actual numbers of at-risk students, but available information suggests that this at-risk population is significant. In a national study comparing rural and urban at-risk students, rural administrators estimated higher percentages of children in most of the twelve at-risk categories listed in the study (Helge, 1990). Helge found that "rural children fared worse than non-rural children in 34 of 39 statistical comparisons" (p. 4). She concluded that the incidence of at-risk students in rural areas was at least as high as that in urban areas.

Other authors suggest that rural students are placed at risk of not finishing or of not benefiting from school by external circumstances resulting from certain characteristics of the rural environment. Elliott (1988) found that geographic isolation was a primary factor affecting the educational process for rural students. Isolation resulted in limited access to student services and programs, student fears of the unknown, lack of cultural diversity, and negative effects on career aspirations and expectations. DeYoung (1988) suggests, however, that consolidation and economic decline have placed many rural students at risk through the removal of the aid and support of parents and interested adults in the community.

The traditional indicator of the severity of the at-risk problem is the dropout rate. While Helge (1989) speaks of a rural dropout rate higher than the national norm of 25 percent, rural dropout statistics from some individual states indicate extremely low rates. A 1989-90 survey of Texas school districts with fewer than 500 students (not necessarily rural) showed that 293 of 379 districts had fewer dropouts and that the highest dropout rate was 4.6 percent (Morris, P., 1992). The 1986-87 dropout rate for Nebraska's rural schools was less than one percent (Sher, 1988).

Most authors agree that there is little definitive data to show that rural students as a whole perform less well than urban students when other factors, such as socio-economic status, are controlled (Beckner, 1983; Hobbs, 1991; Phelps & Prock, 1989). In a study of factors affecting student test scores in Texas, Ferguson (1991) found that differences in the test scores of students from cities, suburbs, rural districts, towns, and non-metropolitan cities were captured by other variables in his analysis. Beckner (1983) found that the performance of the academically inclined and motivated rural student is about equal to that of similar students in metropolitan schools. However, he found that disadvantaged students in rural areas are more likely to enroll in school at an older age, progress through school more slowly, score lower on national achievement tests, and complete fewer years of school than similar students in urban schools.

If attainment of postsecondary education is used as a measure of rural student educational performance, the rural student population does not compare as favorably with the urban student population. According to "the percent of rural youngsters going on to post-secondary education is far below that of metropolitan students Hillman (1991, p. 11)." He cites a 1988 report on higher education in Pennsylvania that showed that rural students were underrepresented even in state universities located in rural areas. Although 30 percent of the student population in Pennsylvania attend rural schools, only four out of 14 universities had rural student populations of over 10 percent. Twelve of the universities are located in non-metropolitan areas.

Staff Problems

Small rural schools have significant difficulties in recruiting and retaining quality instructional and support staff even when financial resources are available. Often certified staff are simply not available, especially for mathematics, science, foreign languages, counseling, and special programs (Barker, 1985; Beckner, 1983; Stern & Matthes, 1993). Also, conditions in the school and community sometimes contribute to making rural assignments less desirable. This is generally a greater problem for more isolated districts, and key contributors to the problem tend to be issues such as lack of housing, entertainment, and cultural amenities (Beckner, 1983). Two other factors also contribute to the problem of recruiting and retaining personnel:

- Salaries in rural districts are generally lower. In a comprehensive national study of rural schools conducted in 1984, it was found that salaries for rural teachers averaged 20 percent lower than the national average for the 1982-83 school year (Barker, 1985).

- More preparation time is often necessary for teachers in rural schools. Elementary teachers may have multi-grade classes, and secondary teachers may teach multiple subject areas and levels. In a nine-state study of the staff development needs of rural teachers, 45 percent of the elementary teachers reported teaching two or more grades, 43 percent of the secondary teachers reported four or more preparations per day, and 9 percent of the secondary teachers reported teaching three or more separate disciplines (Reece, 1984). Similar findings were reported in a study of New

Mexico rural schools, which revealed that 44 percent of the teachers taught in multi-grade situations (Tingley, 1986).

Curriculum Problems

Closely related to staff problems are curriculum problems. The rural school curriculum may lack breadth and depth, and special programs, such as those for students with disabilities and for at-risk and gifted students may not be available (Beckner, 1983). The numbers of students may not be large enough to generate resources for courses, or specialized personnel may not be available. In his national study of rural schools (1985), B.O. Barker found the improvement of school curriculum to be one of the most serious challenges facing rural school superintendents.

The Effects of Education Reform

In response to "A Nation at Risk" and other imperatives for reform, most state departments of education have increased curriculum requirements, and many state higher education coordinating boards have raised their entry requirements for colleges and universities. Small rural schools have found it particularly difficult to meet the new requirements especially in mathematics, foreign language courses, advanced science courses, and computer sciences (Dale & McKinley, 1986; Honeyman, Thompson, & Wood, 1989). In addition to insufficient funds to expand programs, rural schools have had serious problems in recruiting teachers for these courses (Dale & McKinley, 1986). An unforeseen effect of the increased requirements for academic courses has been a shift in enrollment from vocational courses to academic ones (Dale, 1986; Haller & Monk, 1988). This has exacerbated staffing problems in rural districts and has resulted in many students having to give up vocational training, partly because the distances between regional vocational education centers and home schools are sometimes too great for students to take part in both programs. Dale and McKinley (1986) reported a 20 percent reduction in the public vocational-technical schools in Oklahoma.

The combination of increased pressures brought on by the education reform movement and the economic difficulties of the 1980's has fueled a renewed interest in rural school district reorganization. This has been the traditional response to rural school problems for the better part of this century. Haller and Monk (1988, p. 479) conclude that "there is an unmistakable congruence between the long standing efforts to consolidate rural schools and the `hard' dimension of the current school improvement effort, with its emphasis on enhanced academic offerings and accountability." They note that at least eight states have renewed efforts to consolidate small districts. Haller and Monk (1988) express concern that attention to the "hard" dimension of school reform may cause school people to overlook what they term the "soft" side of reform – that is, "the social and moral side of students' schooling, the development of a climate of trust and shared responsibilities, and a stronger role for parents and building administrators in school affairs" (p. 471). These are qualities that small schools seem best to offer.

Section II
Effects of School Size

In terms of increasing the size of many small school districts, the consolidation movement has been a very successful policy effort; several researchers call it the most successful in education (Beck, 1983; Sher, 1978). However, research shows no conclusive evidence that consolidation has either improved the quality of rural education or led to significant financial efficiency. Literature regarding the comparative effectiveness of small versus large schools indicates a growing consensus that a larger school enrollment does not in itself guarantee improved quality or efficiency. Furthermore, some studies are suggesting that, in fact, small schools are positively related to student achievement.

School size is addressed in studies of school effectiveness, curriculum comprehensiveness, dropout rates, and cost efficiency. It should be noted that the research studies reviewed involved small schools, but not necessarily rural schools. Additional or different factors that may be at play particularly in small rural schools may limit the applicability of the findings.

School Effectiveness Studies

The work of Walberg and Fowler is frequently cited in literature addressing the relationship between school size and effectiveness (Hobbs, 1988; Honeyman, Thompson, & Wood, 1989; Smith & DeYoung, 1988). In a study of 1984-85 data from 293 high schools in New Jersey, they investigated relationships between school size and other school characteristics and student outcomes (Fowler & Walberg, 1991). Consistent with other such studies, they found the most strongly related variable to be the district's socio-economic status, followed by the percentage of low-income students in the school. The next two significantly related variables were school size and the number of schools in the district. An inverse relationship between student achievement and school size and between student achievement and the number of schools in the district was found. As a preface to their study, Walberg and Fowler reviewed eight other studies of school size, primarily of elementary schools. These studies consistently found small school size to have "an independent, positive effect on student achievement, extracurricular participation, student satisfaction, and attendance" (Fowler & Walberg, 1991, p. 191). They concluded that "public school size and district size both influence school outcomes, and although evidence of this relationship has sporadically appeared in school effectiveness studies, education policymakers have not been made aware of the finding and its significance" (1991, p. 200).

Another study of small elementary schools found that quality education can take place in schools with as few as 15 students. In attempting to determine at what point elementary schools are so small that they should be closed, Marshall (1985) found that even schools with multi-grade classes do not adversely affect student achievement, and in fact offer additional benefits in the area of affective

development. He did qualify his conclusions by saying that such schools require special staff and curriculum and that the effects of either a good teacher or a bad teacher are magnified. The positive effect of small-scale schooling was further substantiated in a study conducted by Friedkin and Necochea (1988) using data from California high schools. They found that small schools located in poor urban districts were more effective than large schools in poor urban districts and concluded that there is a negative relationship between school size and the achievement of students from low-socio-economic status backgrounds.

Since many small schools tend to have small classes (Smith & DeYoung, 1988; Sher, 1988), staff also reviewed research related to student achievement and class size. The results of those studies are not as clear-cut as the conclusions of studies of school size. There is certainly no linear relationship between class size and overall student achievement, In fact, one researcher (Tomlinson, 1988) observed that during the sixties and seventies, standardized test scores decreased along with the average class size! The conclusions of two recent studies, however, provide support for the view that certain students fare better in smaller classes. Ferguson's (1991) study of almost 900 school districts in Texas revealed that in grades one through seven, students in school districts with a ratio higher than 18 students per teacher made lower test scores than students in districts with an 18-to-one ratio. Reducing the ratio to below 18 to one did not improve test scores. A district-level ratio of 18 students to one teacher results in class sizes in the low twenties.

In a meta-analysis of class size studies, Robinson (1990) found that smaller classes can have positive effects for students in kindergarten through the third grade and for disadvantaged and ethnic minority students in the following areas:

- reading
- mathematics
- student attitudes
- student behavior

In the studies that Robinson included in her analysis, "small" classes ranged from 13 to 29 pupils while "large" classes ranged from 22 to 40 students.

Curriculum Studies

Another area in which some educators and policymakers have questioned the quality of small rural schools is in the breadth and depth of the curriculum—especially at the secondary level. Monk's (1986) study of 1984-85 curriculum offerings in New York State's high schools is often referred to in discussions of this issue. Although he found that larger schools generally offered a greater number of different courses, large size did not automatically ensure a more comprehensive, well-articulated curriculum. In studying offerings of advanced courses such as calculus, inorganic chemistry, advanced English, and foreign languages, Monk found no consistent relationship between size and the availability of these subjects. He observed, "A remarkable percentage of the large schools failed to offer these advanced courses" (p. 23). The additional courses in larger schools tended to be more of the introductory level courses. Furthermore,

Monk found that less than 10 percent of the students in large schools enrolled in courses not available in small schools.

Access to courses, however, did prove to be more of a problem in small schools. Although in large schools students sometimes had difficulties scheduling certain classes, scheduling problems in the small schools were found to be more serious.

As another indicator of the quality of the curriculum in small and large schools, Monk also looked at teacher load and teacher specialization. He found that teachers in smaller schools had heavier teaching loads but smaller average class sizes. He also found that teacher specialization within subject areas did not increase substantially once an enrollment of 400 students was reached.

From his findings, Monk concluded that benefits to the curriculum gained by size of enrollment peaked at 400 students, and that students in larger schools were not necessarily benefiting from a broader or more coherent curriculum. He recommended that high school enrollments be maintained at around 400 students.

Using data from the High School and Beyond survey of 988 high schools conducted by the National Center for Educational Statistics, Haller, Monk, Bear, Griffith, and Moss (1990) studied offerings in mathematics, science, and foreign language. They found that even the smallest schools offered the base courses for each curriculum area. Furthermore, they determined that at no particular school size is comprehensiveness in a subject area assured.

In a report on rural education in Nebraska, Sher (1988) also observed that the number of curricular offerings available in a school does not automatically ensure a quality education. He cited several authors who called for "a narrower, more focused, core curriculum" (p. 15). (These included Powell, A., Cowen D., & Farrar, E. (1985); The Shopping Mall High School. Boston: Houghton Mifflin.; Adler, M. (1982); The Paideia Proposal. New York: Macmillan.; Sizer, T.D. (1984) Horace's Compromise: The Dilemma of the American High School. Boston: Houghton Mifflin.) Sher concluded that "there is no solid, reliable research establishing a cause and effect relationship between the number of high school courses and the educational attainment (or achievement) of high school students in Nebraska—or anywhere else" (p. 16).

Dropout Studies

Small schools have also been studied in relationship to the dropout problem. Two such studies used information from the High School and Beyond data base (Bryk & Thum, 1989; Pittman & Haughwout, 1987). Although dropout studies can be problematic because of inconsistencies in measuring dropout rates, the use of operational definitions developed by the researchers, along with the sample sizes of the studies, lends credibility to the outcomes.

Bryk & Thum (1989) conducted a study of 160 high schools and 4,450 students to determine the effects of certain school characteristics on dropout rates and absenteeism, which is the strongest predictor of dropping out. An emphasis on

academic pursuits and an orderly environment were found to be the most important factors, but the effects of school size were found to be substantial although indirect, "acting to either facilitate (in small schools) or inhibit (in larger schools) the development and maintenance of a social environment conducive to student and faculty engagement in school" (p. 26). These three conditions, an emphasis on academic pursuits, an orderly environment, and small school size, were shown to be of special benefit to disadvantaged and at-risk students.

Using data from 988 high schools, Pittman and Haughwout (1987) also attempted to find out if school size influenced the dropout rate. They found that "for every 400-student increase in the high school population, there would be approximately a one percent rise in the dropout rate at that school" (p. 343). They also found that size was negatively related to social climate, which in turn had a strong negative influence on dropouts.

Effective School Correlates

One of the most promising developments in education during the eighties was the growing consensus on the necessary conditions for effective schools. Although the school effectiveness research has been conducted primarily in urban settings, the education community, including state departments of education, has enthusiastically adopted the effective schools correlates; as Stephens (1991) declares, "there is simply too much support for the general propositions advanced for them to be ignored" (p. 38). The body of effective schools research is extensive, and numerous syntheses of correlates have been developed (Stephens, 1991). Sher's (1988) synthesis of the work of several educator/ researchers includes the correlates generally set forth. He lists ten interpersonal and institutional factors: (1) strong positive leadership; (2) high expectations of student and teacher achievement; (3) respectful relationships among students, teachers, and administrators; (4) individualized instruction and attention; (5) an emphasis on the academic basics; (6) parental/community involvement and support; (7) fair and frequent feedback to both students and teachers on their performance; (8) a friendly but businesslike classroom and school climate; (9) a healthy balance of activities fostering the intellectual, physical, emotional, and social development of students; and (10) a tolerance for individual initiatives and for trying new approaches to learning.

Both Sher (1988) and Stephens (1991) note that school size is not an issue in relation to the school effectiveness correlates and that the correlates are not only attainable by small schools but that small schools are also in an advantageous position to achieve some of the desirable conditions. The smaller class sizes generally found in small schools potentially can allow more individualized instruction and attention, and as discussed above, school climate is positively associated with smaller schools. Also, small community schools should be at an advantage in developing positive relations with parents and the community.

Fiscal Efficiency

The perceived fiscal inefficiency of small schools has been another prime motivating factor behind the support for consolidation—at least equal in

importance to concerns about the quality of the education program. In addressing the question of cost efficiency in schools, educators have borrowed from the field of economics the theory of economies of scale. In its simplest form, this theory says that there is an inverse relationship between size and per-unit operating costs. That is, per-unit operating costs for an organization go down as the size of the organization increases. However, in a 1981 study of the relationship between school size and costs, Fox determined that the school-cost function is represented by a U-shaped curve (Monk, 1989; Dale, 1986; Hobbs, 1989). That is, the cost of producing educational outcomes in very small schools and very large schools is higher than that is mid-size schools.

At the low end of the range of school size, economies of scale appear to be reached at fairly small sizes, but no definitive answers concerning an optimal school size were found in the literature. Riew (1986) examined data from 150 elementary and secondary schools in Maryland and concluded that scale economies for elementary schools were reached at 200 to 400 students and for high schools at 600 to 800 students. Monk (1987) determined from his study of New York high schools that scale economies were realized when the enrollment reached 100 students per grade level. In their study of New Jersey high schools, Walberg and Fowler (1987) found that economies of scale were exhausted by the time a school reached 120 students per grade level.

After a review of several cost studies, Marshall (1988) proposed that most differences in costs associated with school size result from personnel costs reflected in pupil-teacher ratios and administrator time. For example, Monk (1987) found that in high schools with more than 100 students per grade level average class sizes did not increase beyond 26 students, which was the norm for schools with 100 students per grade level.

At the district level, Walberg and Fowler (1987) found that districts with fewer than 300 students spent significantly more per student than larger districts. They attributed the higher cost to administrative costs and some minimum staff and equipment that were needed no matter how small the district was. They also found that low-enrollment districts were more likely to be in sparsely populated areas, which increased transportation costs.

The cost of rural education certainly cannot be thoroughly addressed without considering the major implications of transportation costs. In rural areas, population density is a key factor, and small-enrollment districts are more likely to be sparsely populated (Hobbs, 1988; Walberg & Fowler, 1987). Alexander (1990) found the density factor to be a major variable when calculating transportation costs. In fact, except for the number of students transported, density is the factor most used in state formulas to determine local transportation needs.

A frequently cited transportation study conducted by White and Tweeten in 1973 showed that population density was a major factor to consider in defining optimum district size in terms of cost efficiency (Hobbs, 1988; Thompson, 1990). With a student density of 0.6 per square mile, maximum cost efficiency was

reached at an enrollment of 300; with a student density factor of 3 per square mile, maximum efficiency was reached at 1,075 students (Hobbs, 1989).

In addition to transportation costs in dollars, there are transportation costs in terms of decreased student performance. Lu and Tweeten (1973) conducted a study of 27 Oklahoma school districts to determine the impact of time spent riding a bus on student achievement. They found that each hour per day spent on the bus reduced scores on the SRA (Science Research Associates) achievement test by 2.6 points for fourth-grade students and 4.0 points for eighth-grade students. The researchers controlled for socio-economic status and other intervening variables.

Despite the complications involved in determining the relative fiscal efficiency of small and large schools, educators and researchers who study the issue agree that the actual per-pupil cost for students is higher in small rural schools than in schools in metropolitan areas (Canter, 1986; Phelps, 1989; Sher, 1988; Stephens, 1991). Honeyman, Thompson, and Wood (1989) justify the higher cost "on the basis of societal investment in all individuals to the ultimate good of the society as a whole" (p. 270). Other authors, especially those involved in sociological studies, justify higher costs based on the fact that rural schools educate many students who leave the rural community to go to larger towns and cities, which enjoy the benefits of their productivity (Hobbs, 1989; DeYoung, 1990). Whatever the rationale, the fact remains that the higher cost of education in rural areas, coupled with the revenue problems that most rural districts experience, requires the best possible use of the resources available. Therefore, as a means of maximizing resources many policymakers continue to look to school district reorganization.

The effectiveness of consolidating schools in solving problems related to quality education programs and fiscal efficiency is at best unclear and is, in fact, disputed by much of the research conducted during the seventies and eighties. New issues and circumstances today are causing rural educators and policymakers to look anew at ways to increase the size and effectiveness of the rural school resource base.

Section III
History of the Consolidation Movement

In their comprehensive history of rural school consolidation, Henderson and Gomez (1975) describe the movement as "one of the most significant innovations in American education" (p. 13). Although the concept of merging smaller schools into larger ones in order to improve the efficiency and quality of the schools was being touted in the late 1800's, it was not until the early 1900's that the consolidation effort began to take shape as a sustained movement. Henderson and Gomez (1975) associate the movement primarily with the Country Life Movement beginning in the early 1900's, which was a major effort spearheaded by the federal government to improve conditions in rural areas. Others relate the effort to the arrival of the industrial age. Hobbs (1988) says the move to consolidate schools appears to have been heavily influenced by emphasis on increasing specialization and economic efficiencies. Others place responsibility for the consolidation movement squarely on the shoulders of educational bureaucrats. Thompson (1990) says that the consolidation concept was strongly enforced by the emergence of state departments of education in the nineteenth century, because state superintendents were invariably drawn from among the ranks of urban educators who openly held rural schools in contempt. Reinforcing this position is an observation by DeYoung (1990): "Only as state school superintendents began to have powers to make rural schools accountable for state education subsidies (typically at the turn of the twentieth century) were systematic pressures put on rural schools to conform to state guidelines" (p. 10). Many small schools, especially one-teacher schools, were consolidated in order to meet state standards. The first attempt to encourage consolidation was in Massachusetts in 1869, where legislation was passed to provide funds for free transportation for students to be brought to centralized schools. The first school to offer publicly supported free transportation was in Quincy, Massachusetts, in 1874.

During the late 1800's, urban schools were being standardized, primarily to aid students in their adjustment to an industrial society and to instill a sense of teamwork in the replication of standard tasks (Stephens, 1991). Evidently, professional educators expressed concern about the lack of standardization in the curriculum, and in the 1890's the National Education Association's Committee of Twelve agreed on remedies necessary to standardize the curriculum in the nation's schools:

- consolidation of schools and transportation of students
- expert supervision by county superintendents
- professional training programs for teachers, and
- the development of curriculum that was related to the everyday life of the community (Stephens, 1991, citing Tyack, 1974)

During the late 1800's, rural residents began to migrate to urban areas in large numbers. This phenomenon was closely tied to the industrial age and the availability of employment in cities and the mechanization of agriculture in the country. It was looked on with great concern by President Theodore Roosevelt, and in 1908, he appointed the National Commission on Country Life to study the rural situation and to find solutions for rural problems. The commission held 30 hearings in 29 states and received over 100,000 responses to questionnaires sent to farmers across the country. Many problems were identified, and the commissioners wrote that "the schools were held to be largely responsible for ineffective farming, lack of ideals, and the drift to town" (Fuller, 1982, p. 220). The recommendations of the National Commission on Country Life addressed the development of a rural school curriculum that was relevant to country living and inspired the development of agricultural and home economics courses.

The Country Life Movement had a pervasive influence on the curriculum in rural schools for decades and on other aspects of rural life, but what is important to this discussion is that the Country Life advocates believed in consolidation as a way to improve the schooling situation in rural areas. State superintendents embraced the idea enthusiastically, and the consolidation movement gained momentum. By 1909, schools across the country were consolidating, and between 1908 and 1925, many books advocating consolidation were written. According to Guillford (1984), one of the most influential was *Rural Life and Education*, written in 1914 by Ellwood P. Cubberly, professor of education at Stanford University. He wrote that consolidation was a way to "redirect and revitalize" country schools and "a system better adapted to the needs of rural people" (p. 43). In 1919, the federal government's Bureau of Education published a pamphlet titled "Rural Education" (Guillford, 1984), which reported that there were 200,000 one-teacher schools in rural America, and that they were characterized by "inadequate supervision, desperate financial needs, and below-standard curriculum" (p. 43).

From the thirties through the fifties, the consolidation movement accelerated. The Depression spurred the movement along, as the collapse of land values forced many districts to merge with others or compelled entire states to reorganize their systems of public instruction.

After the first wave of consolidation, which resulted in the closing of more than half of the one-teacher schools by the early 1950's, rural residents began to place increasing value on their high schools as the centerpieces of their expanded communities (Fuller, 1982). Much of this was due to the programs championed by the Country Lifers, such as the 4-H Clubs and Future Farmers of America (Fuller, 1982). The idea of community or continuing education was growing also. The result was that rural high schools became more of a focus of community social and sports activities.

In the late 1950's the launching of Sputnik brought on a new wave of school reform explicitly identifying children as "national resources." Aspirations for community based teachings were replaced with an emphasis on pre-college and scientific school curriculum (DeYoung, 1990). In 1959, a book by James Bryant Conant, President of Harvard University, was essentially the last word on small

schools (Dale, 1986). *The American High School Today: A First Report to Interested Citizens* set forth 21 recommendations for improving schools. According to Dale (1986), the one receiving the most attention was reducing the number of small high schools in America in order that they could offer advanced classes in areas such as mathematics, science, and foreign languages. Although Conant's work was later questioned by education researchers, it was generally felt by the education community that the book inspired the last wave of reorganization, which during the sixties halved the number of existing school districts (Dale, 1986). This phase of the consolidation movement led to much larger schools. The big push was to consolidate high schools with fewer than 400 to 500 students (DeYoung, 1990).

During the 1970's, consolidation practically came to a standstill. In New York State, where during the sixties an average of 20 mergers a year took place, during the seventies, an average of one merger a year took place. Part of the reason behind the slowdown was the rapid increase in transportation costs. It might also be reasonable to think that most of the consolidations that were possible had taken place, but this was not the case. There were and are many small rural schools that have resisted consolidation for one reason or another.
In 1930, there were 128,000 school districts in the country, and by 1985, there were 15,700 (Hobbs, 1982). While much of this 88 percent decrease in governmental units was attributable to the dissolution of one-teacher schools and non-operating districts, Stephens (1991) notes that the dramatic reductions occurred at the same time school enrollments were increasing substantially.

In looking back at the movement, Stephens (1991) identified four approaches used by the states in the policy initiative:

- the enactment of legislation promoting reorganization
- the enactment of state aid formulas containing fiscal incentives or disincentives
- the enactment of new or strengthened standards for the operation of districts (especially those concerned with the scope of the program, personnel, facilities, and the financial aspects of district operation)
- the use of extra-legal measures to promote attainment of the same policy goal (especially advocacy of reorganization by the professional communities, by many in academe, and by state officials (pp. 18-21).

Section IV
Effects of the Consolidation Movement

The consolidation movement literally changed rural education in this country from the ungraded system of the early part of the century to the graded program common to virtually all public schools today (Dale, 1989). The effects have been both positive and negative. The first wave of consolidations, that is, those that took place from the early 1900's through the early 1950's, should be considered separately from the results of later consolidations. Early consolidation efforts significantly improved conditions for rural students and teachers. One of the most basic advances was in facilities and equipment (Henderson & Gomez, 1975), before consolidation many students attended school in inadequate, unsafe, and unsanitary school buildings (Muse, 1980). Teacher salaries were improved, as well as teaching conditions (Henderson & Gomez, 1975). Henderson and Gomez consider one of the most important changes to be the standardization of school terms. Many rural students were now in school longer. The social lives of rural children were also enhanced by consolidation (Henderson & Gomez, 1975).

But some problems persisted despite the early consolidation efforts. The influence of the still predominantly agrarian society in rural America was evident in several respects. The establishment of larger schools did not automatically change the attitudes of rural residents toward the value of schooling. Since educational attainment was not considered of great value as preparation for a career in agriculture, the dropout rate for older boys was very high (Gulliford, 1984). It was relatively easy for these students to find employment in the area, usually at a salary that was higher than the teacher's. There were also few role models espousing postsecondary education for rural students (Guillford, 1984). The severity of this problem depended much on the area of the country and cultural factors in the community.

One problem that was pervasive across the country, though, was low population density. It was still difficult for a school district to cover a large enough area to generate enough students so that multi-graded classes were not necessary (Henderson & Gomez, 1975).

Beginning in the 1950's and 1960's, as consolidated districts encompassed larger and larger geographic areas, problems associated with consolidation itself began to emerge. Although many conditions in rural schools had been improved and the financial situation was better, other aspects of the educational task claimed more attention (Henderson & Gomez, 1975). Transportation costs and hardships and community- related issues were two examples. In a study of small rural schools in 1981, superintendents perceived the advantages of consolidation to be fiscal and curricular, related to a broader tax base and a higher enrollment. They reported the negative consequences to be loss of community cohesion and control and increased transportation problems (Carlsen & Dunne, 1981). A study of the

views of school board presidents who had gone through a consolidation, yielded similar results. They listed the advantages of consolidation as a broader curriculum, a broader tax base, better extracurricular programs, and more competition academically. They saw the disadvantages as loss of local control, busing problems, higher pupil-teacher ratios, and less individual attention to students (Bartling, 1989).

A study of school districts that were involved in shared superintendencies found the following reasons for the districts' resistance to full reorganization:

- the desire to participate in controlling the school's primary educational functions
- reluctance to relinquish control of school property taxation
- economic dependence on school district operations and
- social cohesion and identity afforded by school activities (Sederberg, 1985).

Case studies of school districts that have been successful and unsuccessful in accomplishing mergers confirm that these are important reasons behind community resistance to consolidation. In one case in New York State, the school people who were initiating the reorganization effort thought that involving the community in the decision-making process would lead to a decision to support the merger. They implemented a carefully planned community participation approach; all of the residents who served on the various study committees supported the merger because it was evident to them that reorganization would, in fact, lead to improved opportunities for some students. However, the reorganization was rejected by community vote. Community members were not convinced that their schools were inadequate, and they did not see increased curricular offerings as beneficial to a large enough percentage of the students. Moreover, the community members were unsure about the details of the reorganization (Galvin, 1986a).

In another New York State reorganization case in which two districts were merged, school-related issues engendered conflict and dissent among community members as a result of mistakes that were made in the merger process:

- The supporters of the merger moved through the process too rapidly, which created distrust and disharmony.
- The votes in the two towns were mingled before they were counted, and members of one community felt that the vote would have shown that a majority in their community were against the merger.
- The school presented an over optimistic feasibility study predicting benefits that did not materialize (Canter, 1986).

The critical importance of a sense of community and the consistent concerns about loss of local control and community cohesion, more than any other factors, are reason to question consolidation as a "simple" answer to rural education problems. Henderson and Gomez (1975) observed that in areas where there was an effort to identify a "sociological community" of towns, villages, cities, service areas, or trade areas in which to base the consolidation, the results have been more successful in terms of reducing community conflict and resistance. However, in southern states where counties were often used as the unit of organization, school/community relations have been more problematic. Henderson and Gomez concluded that "ignoring community interests and boundaries leads to educational absenteeism and community disintegration" (pp. #21).

A recent case study of a successful consolidation illustrates these conclusions. The Cherry Valley and Springfield school districts in New York State were both faced with declining populations, increased state mandates for educational programming, and outdated buildings with high maintenance costs when the school boards of both districts agreed to approach their communities about the possibility of consolidating. Schrader (1990) found the strong ties between the two communities to be an important factor behind the successful campaign to merge the districts. The economies of both school districts' depended to a large extent on dairy farming, and both districts had been very community-oriented. Families in each community included members who had attended either school district. Schrader reported that "the ties between the communities appeared stronger than residents of either district were perhaps aware" (p. 21).

Section V
Partial Reorganization Alternatives

The consolidation movement produced many positive effects, and consolidation continues to be a viable policy alternative where local conditions support such a strategy. However, it does appear that consolidation has reached its limits in many areas of the country, and it can be concluded that this one strategy cannot solve all of the problems of rural schools. The research on small schools also suggests that there are clear advantages to smallness, especially for the at-risk student. The importance of schools to the survival and development of rural communities also cannot be ignored (Hobbs, 1989; DeYoung, 1990).

But, the traditional challenges related to curriculum, staff, and finances in most small rural schools persist and in some cases have reached critical proportions. Increasing the size of the population served to make better use of resources is a viable policy measure for addressing some of these problems, policy planners have devised strategies for achieving this end without resorting to consolidation or total reorganization. Termed "partial reorganization alternatives" by Monk (1990), these strategies, like consolidation, are intended to increase the size of the population served through cooperation between two or more administrative entities. The reorganization is "partial" because each administrative unit continues to exist and retains its autonomy.

The primary advantages of partial reorganization are that the schools involved remain small, the negative effects of removing schools from communities are avoided, and there is less community resistance (Monk, 1990). The loss of scale economies because of the continued existence of separate administrative units is the primary drawback (Monk, 1990). Potential issues in partial reorganization center on administrative complexities and the increased uncertainty regarding the future that results from the involvement of multiple parties. The magnitude of such problems varies with the purpose and complexity of the shared programs (Nachtigal, 1990; Monk, 1990; Dale, 1986). Programs such as a one-time gathering of instructional staff for an inservice or a plan to share a piece of equipment have much less potential for problems than programs involving the instruction of students or curriculum development.

The possibilities for organizational arrangements that fall under the umbrella of partial reorganization are many, and the great potential exists for further development. For purposes of discussion, these alternatives can be categorized by the kinds of administrative units involved: (1) two or more local districts; (2) local district(s) and other educational institutions; and (3) local district(s) and noneducational organizations.

Although the espoused goal of rural school district reorganization—whether partial or total—has been to improve the quality of educational programs while

maximizing financial efficiency, virtually no information about the effectiveness of such programs is available in the literature about partial reorganization alternative arrangements. Although the complexities of determining program effectiveness are acknowledged, this should be considered a limitation on the applicability of the information presented here.

Interdistrict Sharing

Organizational arrangements between school districts can range from simple pairings of districts in order to share the cost of particular supplies, equipment, and services, to institutionalized ongoing programs such as special education and vocational education cooperatives. The idea of banding together to accomplish large tasks in rural areas is not new. Nachtigal (1983) compares it to the traditions of barn raising or harvest crews. Dale (1986) also credit the agricultural industry with the first cooperative efforts. He recounts the success of farmer cooperatives and the United States Cooperative Extension Service initiated in 1914, which he claims is responsible for making the United States the most productive agricultural nation in the world.

An ERIC search by Galvin (1986b) found that the subject of shared or cooperative services in education has been of interest since the 1960s. While little has been done to systematically evaluate the consequences of sharing, Galvin found widespread acceptance of the concept. This may be due to conditions in small rural school districts that are conducive to the acceptance of combined efforts with other districts. A study by Stephens (1988; 1991) of the factors that cause an organization to be receptive to engaging in relations with another organization supports this contention. He found that the prospect of cooperation with another organization becomes tenable:

- when the organization is faced with resource scarcity or other perceived need
- when the organizational leadership perceives the benefits to outweigh the costs
- when the organization has a mission in common with that of another organization and perceives that attainment of its goals is more likely to be realized through interorganizational arrangements than by acting alone
- when there is a history of good relations and a positive view of each other, and both are in relatively close geographic proximity
- when the organization can preserve its organizational identity
- when the organization members can maintain their prestige and authority and
- when the organization has few or no other alternatives (Stephens, 1988, p. 14).

Although many districts have initiated sharing arrangements on their own, Stephens determined from his study that **widespread implementation** is dependent on outside inducements, including

- pronouncement of a state policy commitment to promote interdistrict relations;
- provision of guidelines on functional areas that lend themselves to sharing;
- provision of criteria for organizational configurations;
- provision of financial incentives and disincentives (Stephens, 1991, p. 63).

Successful district sharing programs result in part from already established good relationships and a history of cooperation between the parties involved. The recognition of the importance of already existing networks between districts can go far in improving the chances for success of interdistrict sharing ventures. Holmes (1990) describes one such informal network in Indiana that has been in place for ten years. Once a month the superintendents from a three-county area assemble for a JAWS (Jay, Adams, and Wells counties) meeting to discuss issues and problems. Several interdistrict sharing programs have resulted from the network, including an open enrollment policy for vocational education students in two counties and the sharing of athletic facilities and coaches.

Interdistrict sharing arrangements can take different forms. Addressed below are shared superintendencies, district pairings, district cooperatives, and other interdistrict sharing arrangements.

Shared Superintendencies

One interesting and promising idea is that of the shared superintendency—or "multiple-district administration," as it is termed by Sederberg (1985). His study of shared superintendencies in rural school districts in 21 states showed the strategy's potential for taking advantage of the efficiencies related to large-district administration while retaining the benefits of small-school operation and local community autonomy. The study found that the number of shared superintendencies was increasing slightly each year. Most arrangements were between two districts, but some included up to eight districts. School boards initiated most efforts, but some state departments of education were exerting pressure for such arrangements. The state of Vermont strongly supported such a plan and consequently had the most shared superintendencies at that time.

The primary benefit determined in Sederberg's study was reduced administrative costs, with savings of up to 33 percent reported. The study showed that the effectiveness of a shared superintendency could be improved through a shared administrative team consisting of the superintendent, a business manager, a K-12 curriculum director, and a pupil personnel/special education director. Also considered important was a common management information system, which would allow uniform data collection and processing.

As would be expected, shared superintendencies are not without pitfalls. The superintendents in Sederberg's survey reported higher stress levels than with single district administration, because of such issues as conflicting district and community expectations and relations with school board members. In fact, 73 percent of the superintendents participative in the study identified school board relations as their most difficult task. But, despite the problems, over 80 percent of the superintendents indicated moderate to high job satisfaction.

Another study of the shared superintendency conducted by Decker and McCumsey (1990) essentially supports Sederberg's findings, but it presents a slightly more negative view of the arrangement. At the time of Sederberg's study, the state of Iowa had two shared superintendencies. By 1989-90, the number had risen to 56. The primary reason for the rapid growth in the number of shared superintendencies was the availability of financial incentives offered by the state of Iowa for various sharing arrangements. The legislature had established the incentives to deal with declining enrollments and new mandated program requirements. In their study, Decker and McCumsey surveyed school board presidents to investigate their perceptions of the advantages and disadvantages of the shared superintendency. This study was a follow-up to a similar study they had conducted a year earlier through which the superintendents were surveyed. After comparing the results of the two studies, Decker and McCumsey drew several conclusions:

- Although there were other positive outcomes, the chief reason schools entered such an arrangement was financial.
- Local communities and district personnel had much difficulty adjusting to the fact that the superintendent was less visible and less accessible.
- The position was extremely demanding. The shared superintendents averaged 70-hour work weeks.
- Strong individual principals were essential.

Decker and McCumsey concluded that additional time and study were required to determine whether shared superintendencies serve the best interests of education or whether they are best considered stopgap measures to address school financial problems.

District Pairings

In other situations where very small districts have difficulties providing needed educational offerings, district pairing may offer solutions. Two districts simply establish a working relationship in order to share services when appropriate. Holmes (1990) describes two such districts, where the communities involved had repeatedly rejected merging. The two superintendents found that by pooling resources they can provide educational services that would have otherwise been impossible. For example, both districts identify preschool children with disabilities for a program operated in one of the schools. They also have collaborated on a joint proposal for a federal Drug-Free Schools grant. Although neither district has a large enough enrollment to be separately funded, together they were able to come up with a program that provided a drug education specialist for each district.

District Cooperatives

As program objectives become more complex in terms of resource requirements and the number of administrative entities involved, more formal arrangements are called for. Termed cooperatives, clusters, consortia, or collaboratives, these arrangements operate more like separate organizational units than the other interdistrict sharing arrangements discussed. Since these terms are used by different authors to refer to basically the same organizational arrangement, in this discussion the term "cooperative" will be used generically and will include the following common characteristics: (1) the involvement of three or more local districts; (2) the intent for a relatively permanent arrangement; and (3) relatively complex program objectives. A cooperative may or may not have a separate management component. A cooperative may be formed for a single purpose or for multiple purposes. Although some cooperatives are initiated and maintained by local districts acting independently, most involve intermediary agencies such as state departments of education, intermediate educational services agencies, institutions of higher education, or professional associations. Nachtigal (1990) and Stephens (1991) point out that the involvement of such intermediaries improves the chances of success; however, they are by no means essential to a cooperative arrangement. The literature offers numerous examples of local school districts' acting on their own to form cooperative programs. In rural Illinois three districts formed a high school cooperative to expand secondary course offerings (Ditzler, 1984). The students in the districts were able to take courses in any of the three schools. Even though the cooperative was set up primarily to enhance the curriculum, the districts found that they saved funds and also freed up some teachers to teach advanced courses, including chemistry, advanced English, calculus, and computer science. There have been some increased transportation costs, which, for the most part, have been picked up by the state. Scheduling problems have been minimized by scheduling all cooperative classes as first-period classes. The students give up study hall to allow for travel time.

Many schools are also finding that cooperative extracurricular programs work well. In two districts where football teams were merged in order to have enough players for a team, one school incurred no extra expenses, while the other saved funds because it no longer needed assistant coaches on its staff (Ditzler, 1984). It should be noted that such cooperative athletic programs are not permitted in some states (Ditzler, 1984; Hanuske, 1983).

Some of the most extensive development and study of educational cooperatives has been conducted by Paul Nachtigal and his associates as part of the Rural Education Project at the Mid-Continent Regional Educational Laboratory (McREL). As a result of a national study of efforts to improve rural education, Nachtigal (1983) developed the concept of clusters of small rural schools to improve and expand educational opportunities. Nachtigal recounts that the cluster concept was originally conceived as an informal arrangement between neighboring schools to share inservice costs and bring teachers together to share ideas for curriculum planning (Nachtigal, 1990). Over the past decade the idea has grown into a wide range of applications, which Nachtigal categorizes as:

- loose coalitions formed for purposes such as inservice, curriculum development, and sharing students for specialized classes, stage productions, and sports teams

- formal clusters for significant development activities, such as new programs, arrangements with colleges and universities to provide advanced placement courses to high school students, and curriculum-based performance assessment measures for judging teaching and learning and

- institutionalized consortia embedded in state policy, such as the Minnesota "education district" legislation, which allows for the formation of special cluster districts with taxing authority to provide instructional and administrative services

The cluster concept incorporates the following basic principles:

- A group of schools, within a reasonable driving distance of each other, forms a network with an institution of higher education or the state department of education.

- The agenda for the group is determined by the districts.

- The representative from the institution of higher education or the state plays a support role, helping the districts identify problems and develop strategies.

- An institution such as McREL provides linkage with the larger research and development community and seed money for outside resources, such as consultants, and acts as facilitator/catalyst (McREL, 1985).

One of the first successful cooperatives based on the cluster concept was the South Dakota Small School Cluster, established in 1981 (Jensen & Widvey, 1986). The members of this cluster include seven small school districts, McREL, and personnel from South Dakota State University. The first major activity of the cluster was providing a cooperative program for the annual fall inservice day. Topics, selected through a formal needs assessment, focused primarily on instruction, especially individualized instruction. Management and leadership training has also been offered. Other examples of school improvement activities initiated by the cluster include:

- sharing teachers and specialists

- merging athletic teams

- sharing textbooks, teaching materials, technology, and software

- sharing transportation

- implementing a block schedule to increase course offerings and decrease teacher preparation
- expanding community and adult education and
- sharing community resources and facilities.

Another successful cluster was formed between seven property-poor districts in south central Idaho to provide a comprehensive alternative program for potential dropouts (Holmes, 1990). The state's per-pupil funding level of $2,600 for the alternative program did not allow a single district to attract enough funds for a program. Together, however, the districts are able to provide a successful program. Called Magic Valley Alternative High School, the program is housed in a church in Twin Falls. Other public agencies also contribute staff and other resources to the program W. Dobbs personal communication, May 1992).

The idea of cooperatives appears to be well accepted by the districts involved in them. Intriligator (1985) identifies the following advantages:

- Education and support services to students have been expanded through cooperative programs.
- Students may have access to more programs.
- The quality of educational programs may be enhanced through improved staff development and curriculum development.
- Education is improved when teachers are able to teach in their field of expertise.

Cooperation also has a positive effect on the recruitment and retention of quality personnel (Intriligator, 1985). Helge (1984) found further that teachers who work in cooperative arrangements and receive assistance from regional personnel are more likely to remain in their positions than teachers in single-district programs who provide services in relative isolation. Cooperative educational programs also appear to be more likely to meet program standards. Intriligator (1985) found that special education programs provided through educational collaboratives in Massachusetts were more likely to be providing appropriate special education services. Helge (1984) also found this to be true in a 1980 study comparing rural special education services before and after the implementation of P.L. 94-142. She found greater compliance with federal special education mandates in districts involved in special education cooperatives.

Expanded professional associations resulting from cooperation also provide the potential for improved programs through sharing of ideas on best practices (Jensen & Widvey, 1986; Intriligator, 1985). Shared planning and decision making can also create the moral support necessary for experimentation with alternative organizational and instructional routines. The participants in the

South Dakota Small School Cluster, for example, found that dialogues between McREL, the public schools, and university personnel facilitated personal and professional growth (Jensen & Widvey, 1985). The networks that are formed can remove political barriers and form the basis for support systems that are helpful in dealing with a wide range of problems (McREL, 1985).

More efficient use of funds and actual reduced costs can also be an outcome of cooperatives. In addition, a cooperative may provide the vehicle for very small districts to generate enough funds from grant programs where funds are allocated on a per-pupil basis. Helge (1984) found that funding allocated in this manner through P.L. 94-142 was the precipitating factor in the development of special education cooperatives nationally. If a district had too few eligible children to generate a $7,500 allocation, it could not receive the direct pass-through funds from the state. This encouraged numerous small rural districts to join special education cooperatives (Helge, 1984).

Intriligator (1985) sums up the benefits of cooperatives in these words: "[They] reduce costs, increase services, and accomplish both goals without threatening the identity, diversity, and independence that are the strength of rural education" (p. 13).

Despite the glowing picture painted by advocates of educational cooperatives, however, potential problems do exist. Holmes (1990) found that long-range planning can be difficult if the cooperative is not viewed as a permanent organizational arrangement. She cites the reservations of a staff member of the North Dakota state department of education, who points out that membership in their special education cooperatives and vocational education districts is optional, and, consequently, vulnerable to short-term budget constraints and political priorities of local districts.

Other issues can be discerned from the responses given in a survey of cooperatives in Idaho (Jones & Hendrickson, 1989). When district managers who had elected not to participate in cooperatives were asked for their reasons for not participating, they listed such disadvantages as

- coordination and scheduling problems
- problems with and cost of transportation
- unavailability of shared personnel when needed
- overworked teachers and
- lack of total control over programs and personnel.

Successful and unsuccessful programs have been scrutinized by several researchers to determine what conditions are critical in effective education cooperatives. The elements they have identified are described in the following paragraphs:

Common Purpose. The purpose must address a common problem defined and assessed by the prospective member districts (Dale, 1986; McREL, 1984; Jensen & Widvey, 1986; Nachtigal, 1990). Furthermore, once a program is structured, procedures must be designed to ensure ongoing local input and to foster local commitment. Helge (1984), in her study of special education cooperatives, found that the use of public debate and advisory boards composed of district personnel was particularly effective. Centralized authority should be exercised only when absolutely necessary.

District Size and Location. A successful cooperative will most likely have member districts of similar size and within a reasonable distance of each other (Dale, 1986, McREL, 1984). Nachtigal notes, however, that distance and location are not necessarily issues in distance learning cooperatives (1990). The optimum number of districts appears to be three to eight, but successful cooperatives exist with memberships ranging from two to sixteen (Dale, 1986; McREL, 1984; Nachtigal, 1990). Accessibility to support agencies is seen as a factor affecting success, and intermediate units should be involved if they are in the area (McREL, 1984; Nachtigal, 1990).

Leadership. Strong leadership is essential to the effectiveness and maintenance of cooperatives, and researchers stress the importance of the involvement of all superintendents (Intriligator, 1985; McREL, 1984; Nachtigal, 1990). This participation is especially critical during the initial exploratory stage of planning, because superintendents have the authority to make decisions and move on to adoption (McREL, 1984). The involvement of board members from the outset is also important because of the need for community support and financial implications. Nachtigal and others involved in the development of small school clusters in the Mid-Continental Region advocate the use of a neutral facilitator/convener from an outside organization such as an intermediate unit, an institution of higher education, or the state agency. Jensen and Widvey advise involving faculty in leadership activities. They point out that "'faculty ownership' is essential if school improvement activities are to be successful" (1986, p. 11).

Organizational Structure. The cooperative's bureaucratic structure should be kept as simple as possible, and leadership should be informal, but roles and expectations must be clearly defined. Frequent meetings are necessary initially. Fewer meetings may be required for maintenance of a cooperative, but they should be held at regular intervals (Helge, 1984). Intriligator (1985) found that the frequency of meetings denoted the intensity of involvement of districts, which was related to the success of a collaborative.

The degree of formality needed in the organizational structure of an educational cooperative depends on balancing several considerations. On the one hand, it is desirable that the structure be relatively informal. The more informal the organization, the more local autonomy is retained. Helge (1984) concluded, "As a regional administrative structure becomes more formalized and organized, with its own staff, its operations tend to become removed from the control of its constituents and member districts" (p. 3).

On the other hand, an organizational structure must be adequate to provide the support necessary for the most effective management of a program. The issue of the required formality of an organizational structure was studied by Galvin (1986b), who found five conditions that contribute to "ease of sharing": (1) stability, (2) consensus, (3) evenness in the distribution of benefits, (4) low levels of competition, and (5) low levels of additional expense. Galvin concluded that the easier the sharing, the less formality is required in the organizational structure.

Support Organizations. Access to technical assistance and the involvement of interested people from support organizations was mentioned frequently as conditions for success (Dale, 1986; Nachtigal, 1990; McREL, 1984). Personnel from the state department of education can support member districts by providing technical assistance, addressing policy issues as needed, and helping to remove barriers created by policy. Personnel from universities and colleges have expertise to offer, and the field experience with the cooperative provides valuable information for their institutions. McREL notes that the interest and expertise in colleges and universities are not always limited to schools of education. The best help for the Missouri Small Schools Cluster came from a rural sociologist in the School of Agriculture (Jones, 1985).

Other Interdistrict Sharing Arrangements.
Two additional partial reorganization alternatives that fall under the umbrella of interdistrict sharing are central high school districts and regional vocational/technical schools. Central high school districts are consolidated districts for secondary students only. Two or more districts merge their high school programs while maintaining separate local control of their elementary programs. This approach addresses the complex challenges of providing a comprehensive secondary program while allowing elementary schools to remain under community control and avoids the problems associated with bussing small children long distances (Sher, 1988).

Regional vocational/technical schools allow small districts to share the expense of providing vocational education while maintaining their own academic programs. For example, Area Vocational/Technical Schools (AVTS's) were established in Oklahoma in 1966 to provide services for both secondary and adult students (Dale & McKinley, 1986). These regional schools are somewhat different from cooperatives, since they were created by the state to provide an alternative delivery system, but participation by districts is voluntary, and districts that do participate contribute to operating costs. Minimum requirements for the establishment of an AVTS district include: (1) a population of at least 50,000 or a 50-mile radius, and (2) a minimum of 400 to 500 eligible (junior and senior high school) students. In 1986, the 24 established AVTS's were funded by 50 percent state and federal funds and 50 percent local funds. Since the AVTS facilities were not being fully utilized during the school day, several regional academic programs, including programs for gifted and at-risk students and distance learning programs were being piloted in the facilities (Dale & McKinley, 1986).

Organizational Arrangements between District and Regional Educational Service Agencies

No discussion of alternative organizational arrangements would be complete without mention of possible arrangements between local districts and regional educational service agencies (RESAs) established by the state. More than 500 such intermediate units can be found in 35 states (Sederberg, 1985; Hillman, 1991). RESAs range from large agencies providing a comprehensive array of services, such as the Boards of Cooperative Education (BOCES) in New York State and the Education Service Centers (ESCs) in Texas to Louisiana's organizations established in 1987 with a total of six employees across the state (Hillman, 1991). The governance structures of the RESAs vary greatly, as do the kinds of services provided. Regardless of configuration, the states' motives for establishing RESAs have been based on two assumptions. First, RESAs provide an organizational vehicle for school districts to cooperate with each other, and second, such cooperation can result in economies of scale and improved service delivery (Weiss, 1984). However, two studies indicate that local districts may participate in fewer RESA-sponsored cooperative arrangements than would be expected. These studies provide insight into how school districts and RESAs may work together effectively.

Weiss (1984) studied nine RESAs in five states and concluded that the results of her study offered four useful lessons for the design and management of school district/RESA cooperative arrangements. First, economic benefit was not the primary motive for districts to participate. Second, the importance of norms about cooperation became clear. Districts cooperated when their people thought it was a good idea to cooperate. Furthermore, norms valuing innovation and high professional standards worked in favor of cooperating. Third, the primary reason for districts to cooperate with RESAs is to solve important problems—not to increase efficiency. And last, some districts will benefit more from cooperation than others, and their experience will affect future decisions to cooperate.

Local resistance to cooperative arrangements involving RESAs was also noted in a study of New York State school districts that were involved in cooperative arrangements outside the auspices of the regional BOCES (Davis, 1986). It was found that the local districts choose not to work through the BOCES for four reasons:

(1) The superintendents of the BOCES are directly accountable to state officials; or, in other words, the BOCES superintendents are field representatives of the state education department.

(2) The local district managers perceive a lack of control. The BOCES are believed by some to focus on the larger programs requested by larger districts or by large numbers of small districts.

(3) The distance from the BOCES center makes it impractical for some districts to participate in their programs.

(4) The need to abide by the BOCES salary scales causes both morale and budget problems when salaries offered by an individual district are substantially lower.

Despite the political complexities involved in RESA/local district cooperation, the potential for such cooperation is virtually without limit. Numerous successful programs already exist in areas including management services, instructional materials libraries, cooperative purchasing, business administration services, special education, vocational education, technical assistance, and inservice education (Hillman, 1991; Davis, 1986).

Organizational Arrangements Between Districts and Institutions of Higher Education

Organizational arrangements between districts and institutions of higher education hold much promise for the improvement of rural education (Phelps, 1990; Dale, 1986; Stephens, 1991). There is renewed interest among colleges and universities in assisting local districts in improving their schools because of the realization that the quality of postsecondary education depends on the quality of the students received from the public education system (Stephens, 1991). According to Stephens, in 1991 there were 3,155 public and private four-year and two-year colleges and universities in the United States. In addition to assistance in traditional areas such as staff and curriculum development, organizational development, managerial services, research, and grantsmanship, Stephens (1991) offers the following ideas for postsecondary/public education cooperative efforts:

- Vocational/technical programs offered by two-year institutions can be expanded to include senior high school students.
- Both two-year and four-year institutions can provide advanced placement courses for high school students.
- Summer residential programs can be offered for students located too far from an institution to attend daily programs.

Traditionally, university/local school programs have focused on the academically advanced students, but the potential for such programs for at-risk students is also becoming apparent. The literature described several programs that either directly targeted at-risk students or included at-risk students in the population served. Louisiana Tech University and eight high schools in northern Louisiana used Job Training Partnership Act (JTPA) funds to offer a preventive program for young adolescent at-risk students (D`Alonzo, B., 1990). The at-risk students attended an eight-week summer program that immersed them in job, academic, and personal development activities. Although longitudinal tracking will be necessary to determine the ultimate effects of the program, preliminary results showed dramatic improvements in academic achievement, significant

improvements in attitudes toward teachers, and marginal gains in clarity of occupational identity.

The Linking Up program in New York State provides an example of how a university and local districts can cooperate in developing and evaluating new programs (Hamilton & Hamilton, 1990). Cornell University and two school districts teamed up to determine the effects of having adult community members act as mentors to young adolescents. The demonstration program matched seventh and eighth graders with adult mentors in a small rural junior-senior high school and an urban junior-senior high school. Although the program was not targeted for at-risk students, students were selected to represent the risk levels of each school's student population. One of the results of the program was a recommendation that the program should focus only on at-risk students since those students who had the greatest need for mentoring (based on academic and psychosocial measures) benefited most from the program.

A program designed to help develop voluntary, community-based service programs linking youth with the rural elderly in a 20-county area of West Texas is the result of the cooperation of the Texas Tech Health Science Center School of Medicine, the Texas Tech University College of Home Economics, the Texas Agricultural Extension Service, and the local school districts in the area (Stout, 1990). Through the program, high school youth help elderly citizens maintain their independence by assisting with daily living chores. Reportedly, both the elderly citizens and the students have benefited. Although no particular group of students was targeted, program staff observed that at-risk students benefit through increased participation and improved self-esteem (B. Stout, personal communication, July 1992).

The Program for the Academic and Cultural Enhancement of Rural Schools (PACERS) provides an example of how a university can provide on going support to rural schools (R. Lambert, personal communication, May 1992). PACERS is a cooperative of 31 small, rural, mostly poor, schools in Alabama and the University of Alabama's Program for Rural Services and Research. The PACERS staff works closely with the schools to address problems on an ad hoc basis and to improve programs. One of the primary tasks is helping the schools locate external funds and other resources. They also facilitate cooperation between the schools. Some of their accomplishments include the establishment of foreign language and library science certification programs especially tailored to meet the needs of rural teachers, the development of a distance learning system in seven of the schools, and the development of school programs designed to enhance community development and entrepreneurship.

Organizational Arrangements Between Districts and Other Public Service Agencies

Cooperation between schools and other public service agencies is one of the most interesting concepts related to school reorganization under consideration today. Ranging from shared administrative services to total integration of the

administration of programs, the idea could have far-reaching consequences for rural communities. Hillman (1991), for example, describes a program in the County of Nottinghamshire in England in which the schools have become the intake point for all human services. All welfare, senior citizen, preschool, and health services were made part of a community center for social services delivery. Even the region's member of Parliament moved his office to the school building. A similar experiment is being conducted in Rochester, New York (Monk, 1990). Monk points out that this kind of shared administration offers the advantage of preserving local autonomy in the administration of education as well as other social services while increasing the cost efficiency of the administration of public services. Most important, such arrangements offer tremendous potential for improving the effectiveness of services for at-risk children.

Section VI
Distance Education

Distance education and other new technologies introduced during the past decade offer such tremendous potential, both as alternatives to reorganization and as aids to interdistrict cooperation, that no discussion of alternative organizational arrangements for small rural schools would be complete without addressing the topic. The use of technology in schools is a broad and complicated subject, but discussion here will be limited primarily to technology as related to school organization.

The development and rapid growth of distance education technologies in the last half of the eighties have had a significant impact on rural education, and the future impact can be expected to be far greater. Rural districts that make use of distance education will be involved, by the very nature of the medium, in cooperating with other districts or other organizations. While the promise of expanding course offerings through telecommunicated classes may further neutralize arguments for consolidation of small districts, some types of distance education technologies also broaden opportunities for sharing and cooperating with other districts in partial reorganization arrangements.

B. O. Barker (1990) defines distance education—or *telecommunicated distance education*—as "the live, simultaneous transmission of a teacher's lessons from a host classroom or studio to multiple receive site classrooms in distance locations. Two-way live communication in real time, whether audio and/or video, between the teacher and students permits the instruction to be interactive" (p. 203).

Several different types of telecommunicated distance education systems are available to districts. These vary in cost and infrastructure requirements, and each has advantages and disadvantages. B. O. Barker (1990) describes televised satellite transmissions, microcomputer audiographics teleteaching, and two-way interactive TV systems.

Televised Satellite Transmissions

The most widely used distance education systems and the ones receiving the most attention are the interactive televised satellite transmissions. Although televised classrooms are not new, the interactive capabilities made possible by combining satellite technology and regular telephone service are. In the mid-1980s, only a few such programs were being broadcast. Today, according to Quality Education Data, 21 percent of districts with enrollments under 1,000 report using satellite dishes (Kober, 1990). B. O. Barker (1990) reports that interactive satellite broadcasts are available in over 1,000 schools in more than 40 states. Live television broadcasts from a studio or host classroom are transmitted via satellite

to classroom monitors. Students at remote sites use a telephone to call in questions or comments. Students can see and hear the teacher, but not the students at other sites. The teacher cannot see students but can talk to them on the telephone. Usually a classroom facilitator supervises students, operates equipment, distributes material, and provides assistance when needed. The technology is also capable of electronic copy distribution for printed materials.

The largest provider of interactive satellite broadcasts is the TI-IN Network, based in San Antonio, which serves 6,000 students in 30 states (Kober, 1990). Other major networks include Oklahoma State University's Arts and Sciences Teleconferencing Service, the SCI-STAR program in Avon, Connecticut, and Satellite Telecommunications Education Programming from Spokane, Washington.

The major drawbacks to televised satellite transmission are the loss of local control over curriculum content and the potential size of classes. Literally hundreds of students could be participating in a televised class led by one teacher. The TI-IN Network limits its class size to 200, but some classes have as many as 1,000 students (B. A. Barker, 1990). Scheduling also presents problems, especially when students in different time zones are involved.

Audiographics Teleteaching

Microcomputer audiographics teleteaching is another distance education system available to local districts (Barker, 1990). Audiographic systems require a network of compatible personal computers. Computer graphics or text executed from a host monitor appear on all of the monitors in the network. Audio interaction between the teacher and students and among the students takes place via speakerphones at each site. Audiographic teleteaching usually involves a cooperative between two or three school districts. Major strengths described by Barker include:

- the relatively low cost of the system
- the maintenance of local control over curriculum content and class size and
- the capability for interaction between students.

The system requires that teachers prepare graphics ahead of time, record them on floppy disks, and have them delivered to students at the remote sites. As a result, lessons must be pre-planned and prepared.

The Pennsylvania Teleteaching Project (PTP) is a statewide audiographics network, and, according to B. O. Barker, is the largest state-sponsored audiographics system in the country. Forty-eight schools participate in the project. Within the network, two or three school districts may form cooperatives to share courses and teachers. Since connecting audio and video lines between

schools simply involves dialing telephone numbers, cooperative classes can be formed and dissolved as needed. Limiting the number of schools in any one cooperative to three is considered a strength of the program because it allows for the maintenance of local control of the teacher, the programming, and the scheduling. Classes are limited to 30 students.

In Alabama, PACERS, a consortium of 25 mostly poor rural schools and the University of Alabama, instituted an audiographics system to teach low-demand high school courses in seven of its schools. The audiographics system was chosen partly because cost was a major consideration for the schools. The schools' first offerings were Spanish and music and art appreciation. Although using audiographics to teach music and art was unheard of, the classes were reportedly a great success. The schools also plan to use the system for students to share community histories that are being developed through another new cooperative program developed by the PACERS schools (R. Lambert, personal communication, May 1992).

Two-Way Interactive TV Systems

Another distance learning system described by Barker (1990) is the two-way interactive TV (ITV) classroom. Two-way television systems connect classrooms in several locations through the use of video cameras and monitors. Each classroom must be fully equipped. While the image and voice of a teacher conducting a lesson is transmitted via cable, fiber optics, or microwave to remote classrooms, the teacher can "see" the students on monitors. Most models using two-way TV systems are cooperative arrangements between two to five districts. The district cooperatives share their personnel and other resources to provide classes that are available to each member district through the technology. Students at all locations and the teacher can interact freely. As with the audiographics systems, class size and curriculum can be controlled by the districts. The major drawback is the expense involved in establishing the two-way television systems.

In New York State, in the mid-1980's, ITV classrooms were established in three small school districts where consolidation had been voted down. The cooperative program, Interactive Telecommunications, was started to expand curriculum offerings. Teachers involved in the project found that learning to teach and learn with interactive TV posed a number of challenges:

- More preparation time was needed, since materials are delivered to the participating schools by shuttle.
- Since direct contact with students in the other districts was considered important, teachers were required to leave the home district occasionally.
- The districts had to develop common scheduling.

- Discipline presented the biggest problem. It was recommended that no more than four students be in a classroom in the remote sites. Honors students created fewer problems.

- Teachers worried about the elimination of positions (Bilow, 1986).

Often with the assistance of telephone companies and electrical cooperatives, ITV systems are being established in other parts of the country. The Mid-State Educational Technology (MSET) Cooperative in central Minnesota is a project involving eight small rural school districts, Upsala Telephone and Techtronics, and three postsecondary institutions. During the early 1980's, the districts were experiencing difficulties in providing required courses for their secondary students. The system, which was established in 1985, now provides a range of high school courses, special elementary programs, community education programs, and college-level classes (J. Abraham, personal communication, May 1992).

In Tennessee, the Upper East Tennessee Education Cooperative (UETEC), a consortium of 16 school districts that had been operational since 1970, has recently joined forces with the Appalachian Region Commission, the Tennessee Department of Education, and the Tennessee Valley Authority to establish TAVIT (Two-Way Audio and Video Interactive TV), a demonstration ITV program involving four school districts. TAVIT is one component of UETEC's long-term objective to develop school sites as community learning centers. The system began offering high school courses in the fall of 1991. When fully operational, it will provide for all school districts in the cooperative an enhanced K-12 curriculum, an alternative high school program, college-level classes, job training and workshops for local business and industry, and programming capabilities to county agencies, civic clubs, and local governments (V. Wells, personal communication, May 1992).

The Walsh/Pembina Counties Cooperative, which includes 16 small North Dakota school districts and the county superintendent for Walsh and Pembina counties, initiated an ITV classroom program for eight of its districts in the fall of 1991. Fourteen courses, most of which had not previously been offered in the area, were made available. Although the school districts had agreed to commit local funds when they first came together, grant proposals were developed, and the districts actually spent no local funds on the project. Other districts in the cooperative and the University of North Dakota plan to join the program.

Distance Education Effectiveness

There has been very little research conducted on the effectiveness of telecommunicated distance education as compared to other methods of instruction, but most authors appear to be convinced that distance education compares favorably. B. O. Barker concludes that the research base, though scant at present, suggests that students who study via distance education approaches perform as well as their counterparts in traditional classes (1990, p. 255). Kober (1990) also reports that although little hard data is available about effectiveness,

"limited data suggest distance learning can be as effective as traditional instruction" (p. 20). Students enrolled in the Oklahoma State University programs have been found to perform as high as or higher than their freshman and college counterparts taught by conventional methods (Dale & Davis, 1986). An evaluation of the Teleteaching Project in Pennsylvania, which included both advanced and remedial courses, showed that "the system had the potential to engender student performance at levels comparable to traditional modes of instruction" (Hillman, 1991, p. 41). Since most courses that have been offered thus far through distance education technology have been secondary courses for college-bound students, very little is known about the effectiveness of distance education for either elementary students or at-risk students. B. O. Barker (1990) points out that the success of distance education will depend more upon the quality of instruction delivered than on the type of technology used.

Since distance education and other instructional technology are probably here to stay, information about what conditions will serve to make learning through technology as effective as possible will be essential to schools. For example, several authors advise that facilitators be available at remote sites to offer support and guidance to students—especially those receiving instruction through the satellite telecommunications networks, where classes can be quite large. In a study of students pursuing independent studies using four different kinds of delivery systems, Joiner (1981) found that students were "less [independent] than we thought" (p. 578). He concluded that the facilitator role is critical to the success of independent learning. Kober (1990) cites a study conducted by Robert Threlkeld at California State Polytechnic that showed that "high interactors," students who interacted with the instructor two or more times a week, "received substantially better grades, enjoyed their classes more, and felt more involved than low interactors" (p. 20). An observant facilitator could do much to encourage and support students who are hesitant to participate.

Monk (1990) advises that cooperative arrangements involving telecommunicated distance education will require formal organizations because of the complexity of the programs and their resource requirements. B. O. Barker (1990) lists twelve issues that need to be addressed by administrators who are considering distance education programs:

- extent of course offerings
- selection of teachers for distance education delivery
- teacher training
- local control
- classroom management
- scheduling
- levels of interaction
- remote site visits by teachers
- the "personal touch"
- technical breakdowns
- materials transfer
- class size

Section VII
Conclusions

Rural Communities

Although rural communities differ markedly in their economic, cultural, and political characteristics and, consequently, in their ability to address their problems, most are experiencing to some degree:

- economic difficulties caused by reduced profitability in agriculture, manufacturing, and energy production
- increasing poverty resulting from the financial difficulties in the major industries supporting non-metropolitan areas
- increases in the minority and limited-English-proficient populations in rural areas.

Small Rural School Districts

In addition to the traditional challenges of dealing with small numbers of students, low population density, and isolation, small rural school districts today are facing competing pressures caused by both the serious economic and social problems experienced by rural communities and the school reform movement, which has increased pressures on all schools to improve their education programs. Most rural districts are facing to some degree:

- **Financial problems.** At a time when most of these school districts are experiencing declining revenues, they are under pressure to increase expenditures to meet new curriculum mandates and to expand and develop programs such as those for at-risk students, and to meet increasing federal requirements for special programs such as those for children with disabilities.
- **Student Problems.** Although usually dealing with smaller numbers of students than metropolitan schools do, rural schools have always been challenged to provide for the same spectrum of student needs as schools in metropolitan areas. They are additionally challenged by at least four factors that adversely affect student achievement:
  - the higher percentage of students from poverty conditions
  - fewer years of formal education attained by the adult population
  - lower expectations on the part of parents and community members for educational attainment and

  - the increasing numbers of minority populations, including persons with limited English proficiency.

- **Staff and Curriculum Problems.** Rural school districts have traditionally had difficulties in recruiting and retaining qualified personnel and providing a comprehensive curriculum. The school reform movement, with its increased curricular mandates, has exacerbated the problem. Other factors contributing to difficulties in recruiting and retaining personnel include

  - lower salaries
  - multi-grade or multi-subject assignments
  - the lack of opportunities for professional development and for interaction with other professionals who have similar interests.

The School Consolidation Movement and Its Effects

In addressing problems caused by small numbers of students, low population density, and isolation, consolidation or total school reorganization has been the predominant strategy used since the beginning of the twentieth century

- The consolidation movement was highly successful in terms of reducing the number of school districts and in improving conditions in small, rural school districts (such as school facilities, rural teacher salaries, and teaching conditions) and in standardizing curriculum and school terms. Its overall effects on student learning and financial efficiency are less clear and are subject to much debate.

- As consolidated districts came to encompass larger and larger geographic areas, new problems began to arise, community resistance increased, and the number of successful mergers slowed to a standstill during the 1970's. The most visible problems were the costs of transportation and the hardships on students who were bused long distances, the loss of community schools, and the loss of a sense of community in schools as they were moved further and further from the students' homes and communities.

- The major economic difficulties faced by rural communities during the 1980's, which contributed to declining revenues, coupled with pressures to improve educational services brought about by the school reform movement, have caused a renewed interest in rural district reorganization.

- Rural school district consolidation is still a viable strategy, given conducive local conditions, but the concept of partial reorganization alternatives holds great promise as a means of improving educational programs. Technological advances in distance education also offer much potential for improving rural education without total district reorganization.

School Size Research

Although the scope of this report did not allow an exhaustive study of the entire body of research on school size, the studies included were considered of adequate design and size to be worthy of consideration. It should be reiterated that the small schools in the research were not necessarily rural schools and that other conditions, such as the difficulties encountered by isolated school districts in attracting qualified personnel, must be considered. The research reviewed not only shows that larger schools do not necessarily guarantee improved quality or efficiency, it also suggests that small schools are positively associated with student achievement—especially that of disadvantaged and at-risk students

- School effectiveness studies suggest that small school size and small district size are positively related to student achievement and factors that have been shown to have a positive effect on student achievement, such as school climate, extracurricular participation, student satisfaction, and attendance.

- Monk's (1986) high school (grades 9-12) curriculum study suggests that larger high schools do not necessarily offer programs with greater breadth or depth and that benefits to the curriculum gained by size of enrollment peak at 400 students. Furthermore, there is no conclusive evidence that a larger number of options in high school curriculum contributes to higher achievement or educational attainment.

- The dropout studies reviewed suggest that smaller schools are positively related to conditions that have been found to be related to students' remaining in school. Although school size does not produce a direct effect, small size is positively associated with factors such as school climate and student and faculty engagement, which do produce a direct effect on the dropout rate in a school.

- Although the effective schools correlates do not address school size, not only are the correlates attainable by small schools but many may be easier for small schools to attain.

Studies of the relationship of fiscal efficiency to school size suggest that the cost of education is higher for very large and very small schools. However, economies of scale peak at fairly low numbers—100 students for elementary schools and 400 students for secondary schools. Transportation costs are a major consideration for school districts serving large, sparsely populated geographic areas.

Partial Reorganization Alternatives

Partial reorganization arrangements involve cooperative efforts between districts or between districts and other organizations. Partial reorganization increases the size of the population served and/or the resource base without producing some of the negative effects that total merging of school districts does. Options appear to be limited only by the creativity of program planners and policymakers. However,

although the purpose of such arrangements is to improve the quality of rural education programs while maximizing financial efficiency, virtually no documentation of the effect of such programs on student outcomes is available. As discussed earlier, this lack of information limits the applicability of the material reviewed. For educators interested in exploring options, conditions that facilitate successful cooperative ventures have been set forth by researchers and policymakers involved in the development of cooperative programs.

Partial reorganization arrangements reviewed include cooperative programs between two or more districts and between districts and regional educational service agencies (RESAs), postsecondary institutions, and non-educational public service agencies:

- Interdistrict arrangements include shared superintendencies, district pairing, and multi-district cooperatives. Studies of these arrangements show that their formation is facilitated by favorable local conditions such as common needs, the perception of common and mutual benefits, relative geographic proximity, and already-established good relations. One study found that widespread implementation of interdistrict sharing is dependent on state policy's advocating such arrangements and providing guidance and financial incentives and disincentives.

- RESAs in many states have been involved in facilitating partial reorganization alternatives for many years—through direct participation and through technical assistance and support. Regionalized educational services offer much potential, but one study of districts that preferred to operate cooperatives outside the auspices of RESAs found that there was a perceived loss of local control in arrangements with RESAs and that practical matters such as different salary schedules could cause morale and budget problems in local districts.

- Information regarding arrangements between districts and institutions of higher education and non-educational public service agencies was not as plentiful as that describing interdistrict arrangements. However, the information available indicates that arrangements with such organizations hold promise for tremendous growth in rural areas. In expanding the resource base available to rural districts, such arrangements appear to offer a potential beyond what either consolidated districts or interdistrict cooperative programs can provide.

Distance Education

The use of distance education technology also offers much potential for rural districts, both as a way to improve the breadth and depth of the curriculum and as a way to facilitate cooperation between districts and between districts and other organizations. Three types of distance education systems were reviewed: (1) televised satellite transmission, (2) audiographics teleteaching, and (3) two-way interactive TV systems. Limited information is available on the effectiveness of distance education in terms of student outcomes, but some information regarding

conditions that appear to facilitate learning through technology was examined. For example, the presence of facilitators in remote sites was recommended by two authors.

Cooperative arrangements involving the use of distance education, because of their direct effect on curriculum, teaching staff, and student learning, their requirements for relatively long-term district commitment, and the relative expense involved, will require well-thought-out formal arrangements between the participating parties.

At-Risk Students

Although virtually no information directly addressing organizational arrangements in relation to at-risk students in small rural districts was found, some implications can be drawn from the literature reviewed.

- The information on conditions in rural communities and schools today, such as the high poverty level and the increasing minority and limited English proficient population, indicates that the numbers of at-risk students in rural areas are significant and are increasing.

- Research on the effects of school size on school effectiveness suggests that small schools can provide environments that are conducive to keeping disadvantaged and at-risk students in school and that can facilitate achievement for these students. Although the resource base to serve at-risk students can be expanded through cooperative programs, caution should be exercised so that desirable characteristics, such as a close sense of community, are not lost by moving the students too far away from their home communities.

- Cooperative programs with other human service agencies and community services can benefit the school in general, but are especially important to adequately serve at-risk students. For example, other agencies can help students deal with dysfunctional families, drug and alcohol abuse, and the debilitating effects of poverty.

- At present, the feasibility of distance education with at-risk students is an unknown. Most distance education courses are for the academically motivated student in need of advanced courses. Apparently, the necessity for students in distance education classes to work independently and the lack of personal contact between teacher and student have led to the assumption that at-risk students would fare poorly in such classes.

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