# Strategies for rural Minnesota school districts

*A literature review*

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# Summary

The purpose of this literature review is to gain greater understanding of strategies that can be effectively applied in Minnesota's rural school districts to address their education challenges. In particular, we sought to identify strategies that could either: 1) maintain (or improve) students' academic achievement at less cost to the school district, or 2) improve student academic achievement, or that of traditionally less successful subgroups, at the same cost. For some strategies found in the rural education research literature, study results only addressed the strategy's effectiveness in solving a specific problem (e.g., teacher retention) rather than its impact on student achievement or school costs. We employed a "bottom-up" approach in our investigation by focusing on strategies tried by rural school districts and the evidence for their effectiveness.

Wilder Research librarians searched key databases for literature on strategies that address rural school districts' challenges. The search produced approximately 250 documents dating back to 1970, although the focus of the review was on the more recent of these. A rating was applied to each document to indicate the quality of the evaluation methodology used. This rating is an indicator of the confidence that can be placed in the results of each study and consequently how promising each strategy is believed to be given the level of evidence available. Additionally, 13 educators and rural education experts were interviewed to provide a more complete view of the state of rural education and potential strategies that have not been subjected to formal evaluation yet.

## *Strategies*

The strategies examined in the literature review include the following: distance education, four-day school week, collaboration, consolidation, reducing facilities' costs, teacher recruitment and retention, and charter schools. The research available on these strategies was quite limited for rural areas, particularly regarding the strategies' impact on student achievement and costs. We rated the quality of the methodology of the studies available using the following scale: *high* – the researchers used an experimental design, one which randomly assigns groups to treatment and control conditions prior to treatment, *medium* – the researchers used a quasi-experimental design, *low* – the evaluation methodology substantially limited the ability to conclude that the findings could be attributed to the strategy, or *very low to none* – the evaluation methodology was very weak or nonexistent. The studies identified in this report fell in the medium or lower categories. Highlights of the results of the review are included below.

*Distance education.* Distance education refers to instructional methods that link students and teachers who are not physically in the same place. Study results (medium quality)

indicate that student achievement using distance education, either interactive television or online education, was similar to the traditional classroom. The limited research (low quality or less) on the cost of distance education does not show a clear benefit over the traditional classroom. The primary advantage of distance education is that it can expand the curriculum available to students. School districts' experiences with distance education suggest that it is important to carefully consider the services available from vendors before making a decision and to provide on-site technical and academic support for students.

*Four-day school week.* The research available (medium quality) indicates that student achievement with a four-day week is similar to that with the five-day week, after a short adjustment period. While there are anecdotal reports of substantial cost savings using the four-day week, no rigorous studies of cost savings have been published to date. Because the four-day week has broader community impacts, community support is necessary for successful implementation.

*Collaboration.* School districts may choose to collaborate with other organizations to address issues such as the need to reduce costs or increase services. They may collaborate with other school districts, higher education institutions, community organizations, and other groups (e.g., regional service cooperatives). Regarding achievement and cost reduction impacts, the research literature on collaboration is fairly weak (low quality). However, it suggests that collaboration may maintain or even improve student achievement levels, and potentially reduce district-level costs. School districts' experiences with collaboration indicate that the following factors may help ensure a successful collaboration: strong leadership, recognition of a common purpose, clear expectations, resources, external support, and accountability.

*Consolidation.* Compared to collaboration, better research (medium quality) is available on the impact of consolidation on student achievement and cost reduction. However, research suggests caution in pursuing this strategy. To the extent that consolidation results in larger schools, student achievement may suffer, especially for low-income and minority students. Overall, the evidence indicates that the substantial cost savings expected from consolidation efforts have not been realized. In addition, if consolidation results in the loss of a school in a small community, this may have negative consequences for the community's identity and vitality.

*Reducing facilities' costs*. While facilities represent a significant cost to rural school districts, the available research on this strategy is quite limited (very low to none). The literature available recommends that school districts conserve energy when possible, use energy more efficiently, conduct routine building maintenance, and renovate existing

structures before building new ones. Due to the variety of local conditions, an energy audit or feasibility study is also recommended before proceeding.

*Teacher recruitment and retention.* Rural school districts often face unique challenges in recruiting and retaining quality teachers, and the costs related to teacher turnover and vacancies can be substantial. The research available on the impact of teacher recruitment and retention efforts on student achievement and costs is weak or nonexistent (very low quality). The best research available in this area (medium quality) examines the impact of new teacher induction programs (support, guidance, and orientation efforts for new teachers, such as mentoring) on retention. This research has generally found that induction programs improve teacher retention. Teacher recruitment efforts include initiatives such as targeting specific groups (e.g., local paraprofessionals) or offering incentives (e.g., signing bonus or housing assistance), although there is minimal evidence of effectiveness at this point.

*Charter schools.* Charter schools are public schools that receive per pupil state funding, but operate under a different accountability system. Given the experimental nature of charter schools, successful ones can potentially serve as models to other schools. Although there are few studies (very low quality) on the achievement impact and cost-effectiveness of rural charter schools, there is evidence that some charter schools have raised student achievement while staying at the cost-per-student levels of local school districts. The innovative and effective techniques used by such schools may warrant consideration by other rural public schools.

## *Guidelines for successful implementation*

Rural school districts and the communities with which they are entwined vary greatly across Minnesota. Given this diversity, there is not one strategy or set of strategies that can effectively solve the education problems of rural school districts, but there are common implementation themes that run throughout individual strategies. The literature suggests that the most successful strategies were applied within a local context and adhered to the following guidelines for implementation:

- Define and agree on the specific problem that needs to be addressed
- Focus on increasing student achievement as the motivating force for change
- Build upon a foundation of broad-based community support that emphasizes local values
- Identify a visionary leader who can clearly communicate with stakeholders
- Seek external support and resources as necessary
- Adapt to changes, re-examine practices, and stress continuous improvement

## *Local implications*

This literature review highlights a number of strategies to address rural education challenges, but it is important to note that none serve as a universal prescription. Each rural school district should evaluate their situation and adjust chosen strategies to fit their schools and community. A one-size-fits-all approach is inconsistent with the needs and values of many rural school districts.

All seven of the strategies identified in this review have the potential to solve certain educational challenges in rural school districts. However, the limited amount and low quality of research on rural education, especially regarding cost-effectiveness, does not allow us to broadly recommend one strategy over another. More high quality research that is applicable to the unique challenges of rural school districts is necessary for such conclusions to be made. Consolidation, however, has been more rigorously studied and the findings suggest that school districts proceed with caution in pursuing this strategy. Although consolidation has the potential to solve some problems, it has not been shown to improve student achievement or cut costs.

In addition to the specific strategy selected to address the challenges faced by local school districts, the process of improvement also carries serious implications for success. Strategies that "serve as a catalyst to stir school personnel and community leaders to reexamine their practices and dream of better things" are often the most effective in traditional Midwest communities (Nachtigal, 1982, p.274). Positive change takes time, so patience is critical, particularly for communities where consensus building is needed. Overall, the best results have come from rural areas that recognize where the community and school district are at, where they want to be in the future, and construct a plan of how to get there together.

## *Policy implications*

Besides actions taken by rural school districts to address educational challenges within the current policy framework, state policies have the potential to alleviate some of the hardships that districts currently face. An exhaustive policy analysis is beyond the scope of this review, but policy plays a critical role in any comprehensive approach to address rural education problems. The literature review highlights the importance of flexibility in order to address these challenges. Therefore, policies created to address the needs of Minnesota's rural school districts should create options and opportunities for districts to reach a determined outcome instead of mandate a fixed plan.

There are a number of existing policies, both within and outside of Minnesota, that provide flexibility and decentralized decision-making within a given parameter to ensure

certain standards are met. For example, Minnesota law allows local districts to approve flexible school week schedules, usually consisting of four or five days of instruction per week, as long as the total time requirement is met. This flexibility allows districts to choose the schedule that works best for their community without forfeiting accountability measures tied to total instructional hours. Also, one charter school highlighted in this review utilizes project-based learning that emphasizes interdisciplinary education, but embeds multiple state standards within each single project. Although traditional subject classes are not taught, students still learn the required material in each subject area. Finally, in a number of Midwest states, districts are required to provide some sort of new teacher induction program, which studies have shown improves teacher retention. Specific components and details of the support program are left up to the local district. States with such policies have a higher percentage of all districts, and especially small rural districts, that provide some sort of new teacher induction program, and these programs are generally more comprehensive than those in states that do not have a policy in place (Hare et al., 2001).

The three examples mentioned above are brief illustrations of policies that embrace the singularity of rural school districts without sacrificing standards or accountability. While such policies may be difficult to enact, the problems facing rural school districts cannot be fully solved within the constructs of the current system. Policy change is needed for Minnesota's rural school districts to be able to successfully educate our students.

# Introduction

## *Background and purpose*

Over a third of Minnesota's school districts are classified as rural, enrolling 27 percent of the public school student population (Johnson & Strange, 2007). The majority of these school districts are facing declining enrollments, changing cultural values and demographics, and an increase in financial challenges due to loss of per-pupil state revenue and depressed economic circumstances (Kyte, personal communication, November 19, 2008; McMurry & Ronningen, 2006). Furthermore, the new era of accountability has changed the goal of education from "access for all" to "achievement of all," creating a competitive environment for which the current school system is not designed (Graba, personal communication, November 3, 2008; Warne, personal communication, November 6, 2008).

The consequences of increased strain are severe. As schools lose revenue, they must "make deep cuts in existing staff, programs, and resources" (Jimerson, 2006, p.6). Persistent revenue loss "affects staff morale, professional growth, and makes strategic planning extremely difficult" (ibid, p.6). Many districts feel that they have already cut everything possible without causing detrimental harm to student learning (Warne, personal communication, November 6, 2008). Declining enrollment may also result in the closure of small schools, potentially creating longer commutes to larger schools, which have been linked to "declines in parental involvement, decreases in student participation in extra-curricular activities, and a severing of close connections between school and community" (Jimerson, 2006, p. 6).

Clearly, it is essential that action be taken to alleviate the educational challenges facing our rural communities, many of which already face other hardships and distress. The Minnesota constitution states, "it is the duty of the legislature to establish a general and uniform system of public schools" (Article XIII, Section 1). Moreover, it is our moral and ethical obligation to provide the same quality of education to all children, regardless of whether they remain in rural communities or not.

The purpose of this literature review is to gain greater understanding of strategies that can be effectively applied in Minnesota's rural school districts to address their current education challenges. In particular, we sought to identify strategies that could either: 1) maintain (or improve) students' academic achievement at less cost to the school district, or 2) improve student academic achievement, or that of traditionally less successful subgroups, at the same cost. We employed a "bottom-up" approach in our

investigation by focusing on strategies tried by rural school districts and the evidence for their effectiveness.

## *Organization of the review*

The literature review begins with a summary of the methods used in the review, including the search procedures and the rubric used to judge the rigor of each study's evaluation methodologies. The strategies section then describes the key rural education strategies that emerged from the review in detail. Each strategy's description includes general findings, quality of evidence, case examples, and implementation considerations, as appropriate. Finally, the conclusion section summarizes the review.

# Literature review methods

## *Search procedures*

Wilder Research librarians searched the following databases for literature on strategies that address rural school districts' challenges: ERIC, MegaFile, Electronic Collections Online, Periodical Abstracts, WilsonSelectPlus, and WorldCat. They also conducted a general web search using the Google search engine, focusing on the following sites: Center for Rural Policy and Development, Rural Information Center, Center for Rural Education, Rural Policy Research Institute, North Central Regional Education Laboratory, National Education Association, Rural School and Community Trust, Center for the Study of Small/Rural Schools, Foundation for Rural Education & Development, and the Rural Assistance Center.

The search produced approximately 250 documents including research studies, program evaluations, policy briefs, and anecdotal case examples dating back to 1970. However, this approach produced a limited amount and quality of evidence on many of the strategies. To address this problem, we both constructed criteria for identifying strategies with the best evidence of effectiveness and provided additional explanations regarding the rigor of evaluation methodology used in each strategy. Due to the low quality and general lack of research on rural education, higher quality studies dating back to 1980 were accepted for this literature review. Additionally, a number of educators and rural education experts, particularly those connected to Minnesota, were identified through the literature and research centers listed above. Thirteen were interviewed to provide a more complete view of the state of rural education and potential strategies that have not been subjected to formal evaluation yet. Their expertise is integrated throughout the review and was particularly useful in writing the background section. A full list of the interviewees can be found in the Appendix.

## *Quality of the studies*

Strategies were given a rating for the quality or rigor of the evaluation methodology. The rating scale is as follows: *high, medium, low*, and *very low to none.*

While the ratings were assigned somewhat subjectively, the following definitions provide examples of the types of evaluation studies that fall into each category. Due to the limited nature of research focusing on rural education, all of the evidence falls into the lowest three categories.

- *High* – the researchers used an experimental design (i.e., participants in the treatment and control groups are randomly assigned prior to program entry), allowing one to draw confident conclusions about the strategy's impact and the size of the effect.
- *Medium* – the researchers used a quasi-experimental design (e.g., matched comparison groups, statistical analyses with multi-variate controls, or meta-analyses) that allowed one to conclude that the general results are likely to be reliable. However, the size of the effect may not be accurate given the limitations of the study design.
- *Low* – the evaluation methodology substantially limited the ability to conclude that the findings could be attributed to the strategy alone and not to other factors (e.g., due to convenience sample comparison groups, or systematic examination of effects lacking a comparison group or statistical controls for key factors).
- *Very low to none* – the evaluation methodology was very weak or nonexistent (e.g., case examples, briefs, or anecdotal evidence) to the extent that it was difficult to judge whether the findings were meaningful, even if they appeared to be favorable. Much of this evidence is susceptible to significant biases.

Additional explanations about the quality of the studies for individual strategies are provided below. Besides the quality of the studies, we also share the study findings regarding the effectiveness of the strategy.

# Strategies

## *Distance education*

Distance education refers to a variety of instructional methods that link students and teachers who are not physically in the same place. Some of the earliest forms of distance education took the form of mail correspondence courses and radio broadcasts. However, distance education strategies of today almost always utilize some form of modern technology. Advocates of this strategy believe that cost savings can be realized through reduced teacher salary costs while maintaining current levels of academic achievement. Use of distance education has the potential to cut transportation and facility costs if students do not attend school at all on certain days of the week, or increase revenue through fees acquired by providing courses to students from other districts (Hobbs, 2004). The quality of the studies available on this strategy is *medium* for achievement studies and *low to very low* for cost studies. These studies have generally found that while student achievement remains about the same, the evidence for cost savings is mixed when distance education is used.

### Interactive television (ITV)

ITV allows teachers and students to see and hear each other in real time allowing for interactions similar to those in a traditional classroom. Brent (1999) expands the literature on ITV by utilizing both primary and secondary data to compare academic results for a given cost (Brent et al., 2004). Cavanaugh (2001) employed a meta-analysis approach using 19 experimental and quasi-experimental studies focusing on interactive distance education. Based on these results, there is strong evidence that ITV expands the curriculum for participating schools, and student achievement is comparable to traditional instruction (Brent, 1999; Brent et al., 2004; Cavanaugh, 2001). However, even though academic achievement is similar, the cost-effectiveness of ITV remains unclear. Brent (1999) examined the efficacy of ITV using budget and expenditure data as well as observations and interviews in nine rural and suburban New York school districts that are part of a regional service cooperative (collaborative organization that provides programs and services to school districts and other entities). In all districts, Brent found that the cost to provide individual courses on-site was far less than providing it via ITV due to ITV's capital, maintenance, and other hidden costs, such as scheduling conflicts, insurance, teacher and course preparation, and lost instructional days. However, the costs have the potential to change in favor of ITV if it is also utilized for professional development and community education; no teacher is available to teach in-person; a volunteer supervised the classroom; or a grant covered start-up expenses (Hobbs, 2004).

Before implementing ITV, each district should examine its needs, resources, and goals given the mixed cost savings results.

## Online education

Online education allows for a student or group of students to access text- or graphic-based instruction via the Internet. Communication is often delayed by the use of email or chat boards, and students work at their own pace within given parameters. Students may take a single online course in a subject that is not offered at their school or enroll full-time. Minnesota law requires online courses to be rigorous with standards equivalent to non-online courses, and "actual teacher contact time or other student-to-teacher communication" is an expected learning component (Minnesota House of Representatives, 2003, p.1). Minnesota does not have a state-designated virtual school, but rather relies on charter schools, school districts, higher education institutions, regional service cooperatives, and private firms to design and deliver online courses. Districts considering this venture as a way to increase revenue by enrolling student from other districts in their courses should conduct a feasibility study as start-up costs can be quite high.

While limited, the research on the academic- and cost-effectiveness of online education is generally favorable, especially given its variability and relatively recent development. One meta-analysis of 14 web-delivered distance education programs found no significant positive or negative effects on academic achievement, suggesting that its impact is comparable to traditional instruction (Cavanaugh et al., 2004). However, most educators agree that online learning is not appropriate for all students and achievement may depend more on the context and quality of instruction (Cavanaugh et al., 2004; Stafford, 2006). A knowledge brief comprised of expert interviews and recent literature recommends the following to encourage the academic success of students enrolled in online classes: use quality online curriculum both in terms of pedagogical approach and content standards, provide students with academic and technological support, and assess students' progress through monitoring (Aronson & Timms, 2004). Even though online education's impacts are unclear, particularly regarding cost savings, experts consistently reported that they expect the online learning trend to continue growing in the future.

## Implementation considerations

Research suggests the following guidelines be followed before implementing a distance education program:

- Research vendors, including private firms, regional service cooperatives, and local school districts, for both curricular and technical expertise before deciding who will supply and receive courses. Arrange for onsite academic and technical support as necessary (Marcel, 2003).

- Agree on cost and scheduling details including how many students and courses will be shared, time and length of the class, and specific days in the semester, excluding holidays, or accept the amount of instructional time that will be lost because of scheduling conflicts and malfunction (Stafford, 2006).
- Talk with teachers or the teachers' union to make sure they are comfortable with the proposed changes (Brent, 1999).

**Wyoming E-Academy of Virtual Education (WeAVE) operated by Ft. Washakie Charter High School (FWCHS)**

Students from the Wind River Indian Reservation traveled long distances to school, had highly inconsistent attendance, and a 60-70 percent drop-out rate. To address this community's needs, a public online high school was created, accredited, and embraced after some initial skepticism. FWCHS is the only online public high school in Wyoming and the only one operated by a Native American school district in the country. It is a creative solution given the need for flexible scheduling, non-competitive learning styles, self-paced coursework, and visual and hands-on learning. The admissions process is rigorous, carefully screening for motivated and self-disciplined learners. Many of the students had previously dropped out of high school, were below grade level, or otherwise at-risk. Some are part-time students from other districts looking to take advantage of an online course not offered at their school, such as oceanography. All students have an Individualized Education Plan, and while most instruction occurs online, traditional face-to-face support is available as well as some onsite classes and extracurricular activities, such as the art of pipe making. Since the school's inception in 2004, enrollment has averaged 50 full-time and 50 part-time students. After two years of operation, five students have graduated. While it may seem like a small number, the community and educators are proud and feel that it proves that taking a risk can be successful (Stafford, 2006).

## *Four-day school week*

Motivated by long bus rides and diminishing financial resources, some rural school districts have turned to the four-day school week. Longer but fewer days have the potential to save money through decreased transportation, energy, and maintenance costs without losing any instructional time or impacting student achievement. While it generally seems like a cost-effective solution, and Minnesota law does allow local districts to approve flexible school week schedules, the quality of studies available on this strategy is *medium* for achievement studies, and *very low to none* for cost studies. Study findings generally conclude that although student achievement is generally unchanged by the implementation of the four-day school week, the evidence for cost savings is inconclusive.

## Achievement

Daly and Richburg (1984) gathered longitudinal student achievement data from five rural Colorado school districts that all switched to the four-day school week in the early 1980s. They examined test scores from the Iowa Test of Basic Skills (ITBS) over a total of four years, from two years before the change and two years after the change, both by student cohort and single-grade analysis. They concluded that there was no systematic change in student academic achievement after a short adjustment period. In other words, the students enrolled in the four-day school week scored comparable to when they were enrolled in a five-day school week and to students in the same grade who were enrolled in a five-day school week (Daly & Richburg, 1984). These findings are also in alignment with tentative results produced by the earliest known evaluation research on the four-day school week, by Richburg and Edelen in 1981 (Daly & Richburg, 1984).

Sagness and Slazman (1993) utilized a pre-post cohort design to examine the ITBS and Tests of Achievement and Proficiency (TAP) student achievement scores of the same students in an Idaho suburban school district one year before and one year after the district implemented the four-day school week. Average test scores before and after the schedule change were then compared using statistical tests to determine any significant differences. The study found that student achievement increased for some grade levels on some subtests, and was generally comparable with achievement in previous years in other grade levels and subtests (Sagness & Slazman, 1993).

## Cost-effectiveness

The limited amount and quality of data focused on the actual cost savings associated with the four-day week found that school districts anticipated saving money in the following areas: building costs related to heating fuel, electricity, water, sewer, and general wear and tear; substitute teacher salaries; support staff salaries; and transportation including fuel, supplies, and personnel. Unfortunately, to the best of our knowledge, there has not been a rigorous comprehensive study that calculated the overall savings for a four-day school week. The only evidence is comprised of specific examples from school districts that reported a wide range of savings. For example, Sagness and Slazman's (1993) impact study found a savings of 1.6 percent of the total operating budget. Richburg and Sjogren (1983) averaged cost-savings across 12 rural school districts and found that gasoline and electrical consumption decreased 23 percent, heating fuel use decreased 7-25 percent, and the districts used substitute teachers an average of 24.5 fewer days. However, they did not analyze how these consumption declines impacted actual budget savings. It should also be noted that not all districts realized savings (Beesley, 2007).

### Additional factors

While this review focuses on student achievement and cost in evaluating the merit of the four-day schedule, there are a number of unintended benefits and weaknesses associated with this strategy. Limited evidence (anecdotal) mentions the following advantages associated with the shortened school week: ease in making up canceled school days quickly, student and teacher attendance improvements, fewer distractions leading to more focused learning, and fewer disciplinary referrals. Alternatively, some reports cite concerns regarding childcare, possible learning retention loss over the three-day weekend, student fatigue related to the long length of the school day, and loss of wages or jobs, particularly for support staff (Beesley, 2007; Chmelynski, 2003; Dam, 2006; Grau & Shaughnessy, 1987; Johnston, 1997; Mitchell, 2006; Reeves, 1999; Yarbrough & Gilman, 2006).

### Implementation considerations

Due to the schedule change's impact on the broader community, widespread support is necessary for successful implementation. While case examples report high levels of community satisfaction with the four-day week, a 2003 Gallup poll found that only 24 percent of rural residents favored a four-day school week with longer days (Dam, 2006; Ray, 2003; Sagness & Slazman, 1993).

## *Collaboration*

Rural areas have a strong tradition of working together to accomplish large projects. Collaboration within and between communities may provide one of the most immediate and feasible strategies for districts that wish to reduce costs and increase educational services while retaining independence. The quality of the studies available on this strategy is *low*. The available reports generally do not provide data on student achievement or cost-effectiveness, but do offer a number of examples where collaborative efforts helped solve a specific problem.

### Collaborate with school districts and other partners

#### Resource sharing

When school districts are faced with a challenge that extends beyond their resources, they can informally work with a neighboring district, create a more formal cluster district with neighboring school districts, or turn to a regional service cooperative (RSC). Unlike neighboring districts that informally share resources, cluster districts are comprised of three of more school districts and tend to have a contractual, long-term relationship with each other. Regional service cooperatives are independent organizations that provide cooperative purchasing, education services, special programs, insurance, and other

services to school districts, nonprofit organizations, and government agencies (Minnesota Services Cooperative, nd). These three partnership options provide various levels of formality, commitment, and resources for any given problem.

Brent and colleagues (2004) identified three tangible lines of evidence suggesting that RSCs are cost-effective. The review of several studies suggested that school district administrators were satisfied with both the quality of services and the cost-effectiveness of services provided by the RSCs. Third, when the costs of locally provided versus RSC-provided services were compared, RSC-provided services were generally less expensive (Brent et al., 2004). However, Galvin (1995) warns that benefits are not distributed equally and depend on organizational characteristics such as the size, location, and wealth of each partner.

Some of the most common shared resources include:

- Staff including teachers, therapists, counselors, nurses, technology coordinators, curriculum coordinators, business managers, custodians, bus drivers, and other support staff (Berliner, 1990; Jolly & Deloney, 1993; Plucker et al., 2007)
- Supplies and equipment including paper and other office supplies, curriculum including textbooks, computers and other technology, food, fuel, and machinery including snow plows and lawn mowers (Berliner, 1990; Jolly & Deloney, 1993)
- Professional development and other opportunities to reduce professional isolation (Berliner, 1990; Jolly & Deloney, 1993)
- Classes including foreign language, vocational, advanced-level, and special education, or an entire grade level is combined (Berliner, 1990; Jolly & Deloney, 1993)
- Early childhood, adult basic, and continuing education services (Berliner, 1990; Jolly & Deloney, 1993)
- Extracurricular activities (Berliner, 1990; Jolly & Deloney, 1993)
- Grant applications written and applied for together (Jolly & Deloney, 1993)

**Partial reorganization**

Partial reorganization alternatives are intended to increase the size of the population served with certain services while retaining organizational autonomy. There are numerous combinations of arrangements, but some of the most common are outlined in the table below. Reports on this alternative do not include student achievement or cost-effectiveness data.

### 1. Partial reorganization alternatives

| Type of partial reorganization | Membership | Services provided |
|---|---|---|
| Shared superintendent | Two or more school districts | Superintendent duties for each local school district reporting to two or more school boards (Decker & Talbot, 1991) |
| Shared central administrative office | Two or more school districts | Superintendent duties, business manager services, technology, curriculum coordinator, food service, and transportation duties for each local school district reporting to each school board (Plucker et al., 2007) |
| Central high school | Two or more school districts | School districts combine their high school programs, but retain authority over elementary schools (Monk & Haller, 1986) |
| Cross-functional administrator[a] | One school district and a local social service agency or government entity | Broad leadership and general management duties for the school district and the social service agency or government entity reporting to each member board (Monk, 1991) |
| Cross-functional administrative office[a] | One school district and a local social service agency or government entity | Broad leadership and general management duties, business services, technology, food service, and transportation duties for the school district and the social service agency or government entity reporting to each member board |

[a] *An additional education consultant would need to be hired for curriculum development, teacher performance reviews, or other specialized tasks (Monk, 1991).*

### Implementation considerations

It is clear that some forms of collaboration, such as sharing a lawn mower, are much easier to achieve than others, such as sharing a superintendent. Some educators recommend starting with a relatively small project, and gradually adding components as opportunities arise, such as the retirement of a staff member (Graba, personal communication, November 3, 2008). Regardless, there are a number of steps that can be taken to promote the success of collaboration efforts:

- Identify and recruit suitable member school districts. The most successful cooperative arrangements generally contain two to eight member districts of similar size within a reasonable distance (Jolly & Deloney, 1993; Nachtigal & Parker, 1990).
- Establish leadership. Each member district should have a leader who can garner the support of the faculty, school board, and community in the collaboration process. The leaders must make a significant time commitment to the project, and be willing to work with and listen to leaders from other districts as well as their own (Jolly & Deloney, 1993; Nachtigal & Parker, 1990).

- Define and agree upon a common purpose. The reason for collaborating must address a specific and common problem clearly defined by member school districts (Jolly & Deloney, 1993; Nachtigal & Parker, 1990).
- Outline expectations. Member districts should be aware of the short- and long-term goals of collaborating as well as the proposed reciprocal benefits (Decker & Talbot, 1991). Nachtigal and Parker (1990) recommend a three-year commitment, at least, in order to establish a trusting relationship and develop and implement programming.
- Commit resources. Member districts must be willing to commit financial and human resources, including regular attendance at collaborative meetings (Nachtigal & Parker, 1990).
- Identify and seek out potential sources of support. Personnel from local colleges, the state department of education, or outside social service agencies can be useful in providing technical and strategic support as well as serving as a facilitator of the process. However, it is crucial that these outside agencies empower member districts and not create dependency (Jolly & Deloney, 1993; Nachtigal & Parker, 1990, Warren & Peel, 2005).
- Establish an accountability framework. While a highly bureaucratic organizational structure is undesirable, sufficient documentation and periodic assessments are essential to future planning and for reporting purposes (Nachtigal & Parker, 1990).

These elements of successful collaboration in rural education are consistent with the general research literature on collaboration (Mattessich et al., 2001).

### Collaborate with higher education institutions

Colleges located in rural areas are a great resource to local school districts. Partnerships between these institutions have the potential to improve student achievement with very few to no additional costs for the school district. Some of the most common examples include:

- High school students can enroll in a Post Secondary Enrollment Options (PSEO) program that offers expanded curricular offerings and allows students to earn college credits by taking college classes on campus free of charge (Jolly & Deloney, 1993).
- College faculty and staff can be helpful in aiding school districts in strategic planning and larger reform initiatives (Warren & Peel, 2005).
- College faculty and staff can provide professional development opportunities for teachers and other school staff in person (Jolly & Deloney, 1993).

- College faculty and staff can provide professional development through webcam observation and feedback sessions (Vernon-Feagans, personal communication, November 17, 2008).
- College students can serve as tutors at a local school, and education students can be recruited to fill teacher vacancies once licensed (Elliot, 2008; Hare et al., 2001).
- College campuses can host summer programming for local students to help them improve academic achievement while being exposed to a new environment (Jolly & Deloney, 1993).

## Collaborate with communities

Small rural communities and school districts have the ability to engage in a reciprocal relationship to provide educational, social, cultural, and recreational opportunities for community members of all ages. By utilizing the strengths of each partner in the school district and community, both student achievement and costs can potentially be improved. However, the available studies do not provide any data regarding achievement or cost savings for the following initiatives:

### School as a community center

- Schools can lease unused space to local businesses or social services agencies. This provides districts with additional revenue and students with better access to counseling, health, or other support services that the local school may not be able to provide on its own. During the summer, temporary programs or camps can rent unused school space (Lawrence, 2004; Miller, 1993).
- The media center can be opened to the public; a small fee can be charged for printing or faxing materials to help offset the costs while providing a valuable service. School gyms can be used as workout facilities and kitchens for community meals (Lawrence, 2004; Scheie, 2001).
- Reliance on volunteers can go beyond tutoring and classroom support to include building repairs, clerical tasks, and assistance with extracurricular activities (Lawrence, 2004).

### Community as the curriculum

- Community members can serve as supplemental education guides during classes on topics related to their career, interests, or talents. Examples include community fire fighters teaching about safety; hospital staff speaking on health topics; and a local meat locker integrating math, science, and communication skills into a three-month sausage project (Miller, 1993; Scheie, 2001).

- Students can conduct historical research by interviewing local elders; monitor groundwater, air, and local lakes for quality providing useful information to county and regional officials; or write and produce the local newspaper. One district purchased a farm where model irrigation techniques were taught to students and farmers (Gjelten, 1982; Scheie, 2001).

**School-based enterprise**

- After surveying the community to find out what business needs exist, students can start and operate those businesses with the aid of a teacher. Examples include repair shops for bicycles, engines, and shoes; convenience stores specializing in coffee, school apparel, or produce grown in the school garden; website design and development; and a heavy equipment operation and maintenance service. Students learn valuable business and technical skills while filling a community need (Miller, 1993; Gjelten, 1982; Rosenfeld, 1983; Scheie, 2001).

### Birch Grove Elementary School & Birch Grove Foundation

In 1986, Birch Grove Elementary was shut down by a district that concluded it was too small to be cost-effective. Students were bused to a neighboring elementary school, many riding nearly three hours per day. This northern Minnesota community was distressed by the school closure, and after much discussion and consultation, they decided to create the Birch Grove Foundation. The foundation is a private entity with one paid employee whose job is to build partnerships to help create opportunities for the community utilizing the elementary school building to defray costs.

The foundation leases the entire building from the district and then leases a portion back to the district for use as a school. The rest of the building is rented to other users who do not interfere with its primary use as a school. A medical clinic rents space to offer a foot care clinic for senior citizens, and also provides care for students and community members. A job training center opened in the school after a major employer left the area. The foundation raised funds to create a media lab staffed by a volunteer. It also serves as the location for technology-related community education classes as well as a summer computer camp for senior citizens. In addition, a national program rents the facilities for a summer camp where students conduct mutually beneficial community service projects. Parts of the school are even turned into a youth hostel on weekends and during vacation given the school's proximity to recreational areas (Lawrence, 2004).

In 2007-08, Birch Grove enrolled 46 K-5 students and made adequate yearly progress (based on No Child Left Behind criteria) for the third year in a row. About three-quarters of students were proficient in reading and math. Six in 10 students are considered low-income and 2 in 10 qualify for special education services (Minnesota Department of Education, 2008). Additionally, Birch Grove was granted a 2008 School Finance Award for financial management (Birch Grove Community School, 2008). Although 'making it all fit together' is a continual challenge, the community believes that it is well worth it if it means keeping their elementary students close to home (Lawrence, 2004).

## *Consolidation*

The idea and practice of consolidating multiple small rural school districts into one larger school district in the name of increased efficiency has been around for over a century, but its lasting power does not mean that it is without controversy. Multiple studies have been conducted on the topic of consolidation, but the overall quality of the studies available on this strategy is *medium*. These studies generally found that small schools have at least comparable and sometimes greater levels of academic achievement in relation to larger schools. Small schools also mitigate the negative effects of poverty on achievement better than larger schools. On balance, the studies have also found that consolidation has not reduced costs in any significant way. Given the level of evidence and these findings, consolidation is not generally recommended since it has not been shown to improve student achievement or cut costs.

### Achievement

Lee and Smith (1997) investigated how students' academic growth is influenced by high school size, with a particular focus on which high school size has a more equitable distribution of achievement. They conducted a two-level analysis (students nested in schools) on a large nationally representative sample of students followed through high school. Findings from this study showed that student achievement is higher in small- to medium-sized schools than in large schools when controlling for characteristics such as race, income, and gender. Furthermore, the smaller enrollment size has a stronger positive effect on learning in schools with high concentrations of low-income and minority students (Lee & Smith, 1997). This is a particularly noteworthy finding given Minnesota's projected demographic changes in the coming decades. A number of state-specific studies report similar findings regarding the academic benefits of smaller schools (Caldas, 1993; Coldarci, 2006; Howley & Bickel, 1999; Johnson, 2006).

In addition to school size, research from the past two decades clearly shows that location does not necessarily adversely affect student learning. Academic achievement results from the National Assessment of Educational Progress (NAEP) showed that on a national level, rural twelfth-grade students outperformed non-rural students in math achievement, and these effects go beyond the influence of school-level composition and individual-level student characteristics (Lee & McIntire, 1999). Additionally, in Midwestern states, rural students generally scored higher than their non-rural peers, particularly in science (Teixeira, 1995).

## Cost-effectiveness

Decades of educational economies of scale research have provided no clear consensus on what the optimal school size is or if one even exists. Fox (1981), in his seminal review of size economies research in education, found that research in this area is severely limited both theoretically and empirically. The only consensus that has been reached is that the average cost curve appears to be U-shaped with diseconomies of scale for very small and very large schools (Andrews et al., 2002; Fox, 1981; Lee & Smith, 1997). Specific enrollment guidelines vary so considerably that it is not worth mentioning them until more reliable research is conducted.

Streifel's (1991) comprehensive study of the financial effects of consolidation identified 19 school consolidations across the nation for which longitudinal pre- and post- aggregated financial data were available. Researchers averaged these districts' costs from three years before consolidation and three years after consolidation to reduce the chances of an anomalous year impacting the data. Next, these three-year cost averages were compared to equivalent state data to take into account normal changes due to inflation or other state-wide factors across six expenditure categories. Results indicated that of the six expenditure categories (administration, instruction, transportation, operations and maintenance, total costs, and capital projects), only administration indicated a statistically significant savings as a result of consolidation since administrative costs increased at a slower rate than state averages. Considering administrative costs are generally less than 5 percent of the total cost, a small savings in this area has little impact on total costs, which is consistent with Streifel's results. Furthermore, post hoc analysis found no difference in cost savings when districts of various sizes consolidated (Streifel et al., 1991). Given this study and others, cost savings are not necessarily inherent in the consolidation process, although specific sites results' vary considerably (Bard, 2006; Brent et al., 2004; Rural School and Community Trust, 2006; Sher, 1988).

## Community factors

Small rural schools are not only important for the students who attend them and their families, but are also vital for their communities. Rural communities rely on schools to meet their educational needs; provide social, cultural, and recreational opportunities; provide employment; bring generations together; and forge community identity (Lyson, 2002). In addition to promoting social vitality, local schools are essential for ensuring the economic vitality of rural communities (Beaulieu & Gibbs, 2005).

### Implementation considerations

Although consolidation is not broadly recommended as a strategy to maintain or improve student academic achievement while mitigating the loss of revenue, there may be situations where consolidation is the best strategy for a given school district and community. Given the raw data that some school districts save money through consolidation while others spend more, Streifel (1991) recommends that each school district considering consolidation should closely analyze the various financial implications as well as the educational and community impacts. Chance and Cummins (1998) interviewed rural superintendents who experienced school consolidation in hopes of providing useful information to districts in similar situations. The superintendents emphasized that the primary focus of school consolidation should be on expanding curriculum and opportunities for students. In addition, the superintendents indicated that the consolidation's success depends on a well-written and communicated consolidation plan as well as the following: guarantee of job security, input sessions, joint board meetings, and maintaining all school sites.

## *Reducing facilities' costs*

Facilities represent a significant cost to school districts and serve as an opportunity to reduce spending without directly affecting student achievement. The quality of the studies available on this strategy is *very low to none*. These reports do not include any data on student achievement or cost-effectiveness, but rather give advice on how to use and maintain facilities more efficiently.

Since the following ideas have not been formally evaluated, it is recommended that school districts work with professionals to conduct a feasibility study or energy audit before proceeding:

**Energy efficiency and conservation**

- Create awareness of the issue, and ask staff and students to conserve energy whenever possible (Harmon, 1997; Lawrence, 2002).
- Place timers on heating and cooling systems to reduce usage when the building is not occupied. Require after hours facility users to pay a utility fee (Harmon, 1997).
- Try to install insulation and weather-stripping; thermal windows and doors; energy-efficient machines; and utilize alternative energy forms such as solar, wind, and geothermal for long-term energy savings (Dewees & Earthman, 2000; Harmon, 1997; Lawrence, 2002, 2003).

**Keeping up with maintenance**

- Make small routine repairs rather than waiting until a more serious and expensive problem occurs (Lawrence et al., 2002; Lawrence, 2002).
- Avoid deferring maintenance, since doing so can create poor conditions that negatively affect student learning, health, safety, and morale (Eathman, 2000; Lawrence, 2003).

**Renovation and building considerations**

- Avoid building a new school if another facility can be renovated or adapted; it is often cheaper to renovate after the comprehensive costs of building (including construction of sewer, water, telephone, electricity, and roads as well as demolition of the old site) are considered (Lawrence, 2002).
- Plan with the community and professionals if building new is the best option; build only what you need; use local labor and supplies; support technology infrastructure; and provide flexible space to accommodate various teaching activities and formats (Dewees & Earthman, 2000; Lawrence, 2002).

**Other financial considerations**

- Encourage students and community members to participate in maintenance and repair projects, after appropriate safety precautions are taken (Lawrence, 2003).
- Seek bids and compare prices for all purchases; combine bids with other schools or school districts for additional savings (Harmon, 1997).
- Pay bills promptly when discounts are available (Harmon, 1997).
- Utilize creative financing options such as state capital funds, federal funds, state building authorities, interest-free or tax-credit bonds, and private donations (Dewees & Earthman, 2000; Lawrence, 2002)

### Explore alternate options

Littleton High School was crowded, but instead of building more classrooms, they went to the community's redevelopment program for assistance. The school found out that the local candy store not only needed help in advertising, web design, and their e-business, but they were willing to renovate business building space to house students. Now, the high school's business academy is located in the basement of the candy store and a second academy is located in a Main Street bank studying spatial information technology. The high school obtained two new classrooms in the community at a cost of $3,500, which opened up space at the high school and benefitted the community (Bingler, nd; Lawrence, 2002).

## *Teacher recruitment and retention*

Quality teachers are crucial to any school district, but small rural areas often have unique problems in recruiting and retaining teachers. Minnesota, like most of the nation, does not have an overall teacher shortage, but rather a problem with the distribution of teachers across subject and geographic area. To compound the problem, a survey of 710 principals throughout Minnesota found that principals were much more likely to describe the average teacher leaving the profession as effective or highly effective (57%) rather than ineffective (6%), and nearly three-fourths (73%) of Minnesota teachers leave for reasons other than retirement (Hare & Nathan, 1999; Ingersoll, 2001). Teacher position vacancies and high turnover rates negatively affect the quality of education and school morale. Additionally, costs related to teacher vacancies and turnover conservatively average between $3,000 and $4,000 per teacher according to one Texas-based study (Texas Center for Educational Research, 2000).

Given the negative effects on learning and finances due to teacher vacancies and attrition, steps taken to address these problems have the potential to improve student achievement and cut costs in schools with staffing concerns. The quality of studies available for this strategy is *very low to none* on the topic of teacher recruitment and *medium* with regard to teacher retention. Study findings do not provide any data on student achievement or cost-effectiveness. Studies of induction programs, including those related to teacher support, guidance, and orientation, report favorable results regarding teacher retention.

### Possible recruitment initiatives

While administrators often need to recruit teachers, very few recruitment initiatives have undergone any sort of evaluation process, resulting in limited to no evidence regarding the effectiveness of the following initiatives:

Target specific groups

- Target local paraprofessionals or service-oriented people and encourage them to become licensed teachers through "grow your own programs" that often partner with a nearby college. Current teachers can also be retrained to fill high-needs areas (Beesley et al., 2008; Hare et al., 2001; Hare & Nathan, 1999; Hirsch, 2001; McCaw et al., 2002; McClure & Reeves, 2004).
- Encourage promising students to become teachers individually or start a Teachers of Tomorrow club (Hines & Mathis, 2007; McCaw et al., 2002).
- Target teachers from rural areas as they are more likely to adjust to the unique rural lifestyle (Beesley et al., 2008; Elliott, 2008).

- Lure retired teachers back into the classroom or ask them to delay retirement (Hirsch, 2001).
- Recruit teachers from other countries, particularly to fill foreign language positions (McCaw et al., 2002).

Offer incentives

- Provide targeted incentives such as a signing bonus, differential pay, professional development allowance, sabbatical, gas allowance, generous retirement plan, full benefits package, or scholarship forgiveness, including the facilitation of federal scholarship forgiveness programs. However, monetary incentives alone are not a sufficient recruitment strategy (Beesley et al., 2008; Elliott, 2008; Hare et al., 2001; Hare & Nathan, 1999; Hines & Mathis, 2007; Hirsch, 2001; Osterholm et al., 2006; Rowland & Coble, 2005).
- Provide location-specific incentives such as help in identifying or providing affordable housing; mortgage assistance; reduced interest rates; waived phone, bank, and utility introductory fees; or a parcel of land after a specified term of employment (Beesley et al., 2008; Elliott, 2008; Osterholm et al., 2006; Rowland & Coble, 2005).
- Work with the community to provide employment opportunities for the teacher's spouse, as applicable (Hare, 1991).

Seek broader involvement in the hiring process

- Include building staff or other stakeholders in the hiring process to help convey the culture of the school and community to increase the likelihood of a good match (Beesley et al., 2008; McClure & Reeves, 2004; Osterholm et al., 2006; Rowland & Coble, 2005).
- Establish connections with college teacher preparation programs, especially those located in rural areas or with a rural education focus (Elliott, 2008; Hare et al., 2001).

Offer alternatives to licensure

- Hire under temporary license, support alternative certification, or obtain waivers from state certification requirements (Hare & Nathan, 1999; Harmon, 1997; Hirsch, 2001; McClure & Reeves, 2004).

Make moving easier

- Revise transfer and pension policies to reduce barriers for potential hires from other districts (Hirsch, 2001; Rowland & Coble, 2005).

**Local incentive offered through mixed-use facility**

Moderately priced housing was in short supply on Little Cranberry Isle, Maine, making it difficult to recruit teachers. Recognizing this problem, officials decided to turn the unused spacious attic of the elementary school into an apartment and rent it to teachers. It took some creative thinking, but a teacher and his family now rent the apartment year-round and provide a certain level of security to the building during the summer when much of it is not in use (Lawrence, 2002).

## Potential retention initiatives

Due to the high number of teachers who leave the profession each year, recruitment initiatives must be coupled with retention efforts to address the school staffing problem. Borman and Dowling (2008) conducted a comprehensive meta-analysis of 34 quantitative studies to better understand why teacher attrition occurs and what changes can be made to reduce it. The literature's broad conceptualization of the problem does not allow for much in-depth analysis, but new teacher induction programs, those related to support, guidance, and orientation, show potential for improving teacher retention. Specifically, greater participation in school mentoring programs for beginning teachers, a greater prevalence of school-based teacher networks, and opportunities for collaboration resulted in statistically significant higher rates of retention (Borman and Dowling, 2008). Furthermore, Smith and Ingersoll (2004) found that participation in induction programs had a statistically significant positive cumulative effect. In other words, the more beginning teachers participated in components of a program such as working with a mentor in the same field, utilizing common planning time, and participating in a collaborative network, the higher their retention rates were. However, an important limitation to this research is the lack of specific information regarding the details of induction programs, rendering a cost-effectiveness analysis impossible.

There is strong support for the establishment of mentoring programs in Minnesota; over 80 percent of principals agreed that such programs would help retain teachers (Hare & Nathan, 1999). New teacher programs are also an area where rural districts are lagging behind their peers statewide, as only 59 percent of rural Minnesota districts have some sort of a new teacher support program compared to 89 and 80 percent of suburban and urban districts, respectively.

In addition to induction programs, single studies indicated that higher teacher retention rates are also related to regular and supportive teacher-administrator communication, teacher input into school decision-making, extra help in the classroom, reduced student discipline problems, opportunities for teacher advancement, and lower levels of

administrative bureaucracy (Borman and Dowling, 2008; Ingersoll, 2001; Smith & Ingersoll, 2004).

### Implementation considerations

Retention and recruitment initiatives, like many rural education initiatives, should be strategic, specific, and sustained. Local needs and resources should be analyzed to determine what can be offered most effectively. Efforts should be focused on a particular subject or school to ensure the best fit possible and should be re-evaluated regularly (McClure & Reeves, 2004).

#### Establishing a formal mentoring program

Chinook's Edge School Division (CESD), in a rural area of Alberta, Canada, struggles with recruiting and retaining teachers. Social and professional isolation coupled with a lack of anonymity in the community exacerbate the problem. To address part of this issue, CESD established a series of optional support meetings made up of a structured discussion followed by an informal social gathering. The meetings received mixed reviews, but from them grew the idea of establishing a formal mentoring program and evaluating it through an exploratory study. Through the board's commitment and targeted use of resources, about 20 mentors and 20 protégés enrolled in the first year of the program.

Due to the problems associated with finding mentors in small communities, retired teachers in addition to veteran teachers were recruited and given four days of substitute pay for their service. Mentors also received a small mileage allowance to aid in transportation costs as well as for its symbolic value of appreciation. In addition to their individual meetings, the district organized regular dinner seminars for the mentors and protégés to help with networking. Finally, protégés were encouraged to take two half-days off for reflection, although few took advantage of this component. Survey and interview results from the first year of the formal mentoring program were quite favorable although it is too early to make any broad generalizations. Nonetheless, the following benefits to protégés were highlighted: the opportunity to voice opinions, a sympathetic ear, an 'insider' view of the professional context, help in navigating their first explorations of the 'real world' of teaching, and assistance with establishing routines. The researchers have also recommended making the two reflection half-days mandatory to reduce any stigma associated with taking this time off as they still believe that it is a valuable component of the program.

CESD identified a weakness in their school system and took steps to address it. Although the first attempt at creating a series of support meetings was less than successful, they approached the problem from a different angle instead of giving up. They were innovative in utilizing quality retired teachers to serve as mentors and compensating them within their means. Moreover, they structured multiple components into the mentoring program to address the multiple needs of the new teachers (Goddard & Habermann, 2001).

## *Charter schools*

Charter schools are public schools that receive state funding and are designed to "improve or increase pupils' learning opportunities, create different and innovative measures of learning outcomes, create new forms of school accountability, encourage different and innovative teaching methods, or give teachers new professional opportunities" (Larson, 2005, pg. 2). Given the experimental nature of charter schools, successful ones can serve as models of how to improve student achievement using a similar amount of resources. The quality of the rural studies available on this strategy is *very low to none*. The available studies often lack data on student achievement and cost-effectiveness, but there is some evidence of their success in raising student achievement while staying within current cost per student levels.

Some traditional public schools see charter schools as competing for students and the state funds that schools receive on a per pupil basis (Collins, 1999; Ellis, 2008). One Minnesota school superintendent said his district had lost about 300 students to charter schools, equivalent to a loss of around $2 million dollars in funding over the past few years (Robertson, 2003). The community is divided by this contentious topic, leaving little room for collaboration and sharing of best practices between these public schools. In general, the transfer of knowledge between charter and traditional public schools has not taken place even though many educators believe it has the potential to raise student achievement without raising costs (Education Evolving, nd; Ellis, 2008).

Rural communities that have lost their local school sometimes try to create a charter school in its place. However, Jim Griffin, president of the Colorado League of Charter Schools, warns against rural communities converting traditional schools to charter schools solely to address their school closure problem. Instead, he urges "parents and educators to re-examine the way a school operates, how its children are taught, and its academic goals" rather than merely changing the name (Richard, 2004; Wittmeyer, 2006). The potential strengths of charter schools include focusing on accountability, being mission-driven, teaching for mastery, valuing professional learning, and providing student support services (U.S. Department of Education, 2006). The innovative and effective techniques that are leading to increased student achievement at some charter schools may also benefit traditional public school instruction as well.

### Minnesota New Country School

Based in rural Henderson, Minnesota New Country School (MNCS) has become a national leader in project-based education and was recently featured in a national report on successful charter schools (U.S. Department of Education, 2006). Instead of required courses, students work with teachers to create an individualized plan of multi-disciplinary projects that meet state standards. Projects are presented to the community three times per year and are evaluated by a team of school staff to determine the number of credits awarded. The idea is that students learn best when they are motivated to explore what interests them, and that most professions call for problem solving, reading, writing, math, technology, communication, and management skills to be used in unison. Examples of projects include a study of chemicals in fast food that developed into a presentation on nutrition; working at an auto mechanic shop to build a dune buggy and a super mileage car; researching the Victorian era and sewing 18th century clothing; and developing and maintaining websites for area businesses (Nathan & Accomando, 2007; U.S. Department of Education, 2006).

MNCS's focus on college preparation is clear: approximately 75 percent of students enrolled in Post Secondary Enrollment Options classes at a local college prior to graduation; the majority of students take the ACT and average more than two points higher than the national average; nearly all students are accepted into college; and it has one of the lowest percentages of students needing to take a remedial course once enrolled in college in the state (Nathan & Accomando, 2007; U.S. Department of Education, 2006). In 2007-08, about three-fourths (73%) of MNCS students raised their reading levels one year or more through an individualized reading plan (Sonnek et al., 2008). Furthermore, MNCS is achieving these results with a higher percentage of special education students (37% v. 14%) and low-income students (29% v. 22%) than the local high school (Minnesota Department of Education, 2008). While the open-space, no-bells, and no-grades charter school may not be the best fit for all students, and the math program lags, some of the project-based learning concepts could be incorporated into parts of the traditional public school system to raise achievement within the current state funding level.

A summary table of the strategies and level of evidence available is located in the Appendix.

# Conclusion

All of the strategies identified in this review have the potential to solve certain education challenges. Given the level of evidence and variety of rural school districts and communities, one strategy is not recommended over the others, although consolidation should be pursued with caution. It may matter *how* the process of improvement is carried out as much as *what* is being done to address the unique challenges of rural school districts. Strategies that "serve as a catalyst to stir school personnel and community leaders to reexamine their practices and dream of better things" are often the most effective in traditional Midwest communities (Nachtigal, 1982, p.274). Positive change takes time, so patience is critical, especially for communities in transition. The best results have come from rural areas that recognize where the community and school district are at, where they want to be in the future, and construct a plan of how to get there together.

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# Appendix

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Key Informant Interviewees**:**

Belinda Biscoe, University of Oklahoma
Thomas Farmer, National Research Center on Rural Education
Joe Graba, Education Evolving
Jill Hamm, University of North Carolina at Chapel Hill
Matt Irvin, University of North Carolina at Chapel Hill
Charles Kyte, Minnesota Association of School Administrators
Chris Richardson, Northfield Superintendent
Kai Schafft, Pennsylvania State University
John Sipple, Cornell University
Paul Theobald, Buffalo State College
Doug Thomas, EdVisions Cooperative
Lynne Vernon-Feagons, University of North Carolina at Chapel Hill
Lee Warne, Minnesota Rural Education Association

## *Summary of strategies and available level of evidence*

| Strategy | Strategy components | Student achievement[a] | Cost-effectiveness | Other | Implementation considerations |
|---|---|---|---|---|---|
| | | Level of evidence including quality of studies and effectiveness of strategy | | | |
| Distance education | interactive television (ITV) | *Medium*: similar level of achievement | *Low*: potentially not cost-effective, but inconclusive | *Medium*: Expands the curriculum | Research vendors; Have onsite technical and academic support available |
| | online education | *Medium*: similar level of achievement | *Very low to none* | *Medium*: Expands the curriculum | |
| 4-day school week | | *Medium*: similar level of achievement | *Very low to none* | | Widespread impact on community |
| Collaboration | with school districts and other partners | *Low*: potentially maintain or improve achievement, but inconclusive | *Low*: potentially cost-effective, but inconclusive | | Recognize a common purpose and develop clear expectations |
| | with higher education institutions | *Very low to none* | *Very low to none* | | Be aware of power dynamics; college personnel should empower districts |
| | with communities | *Low*: potentially maintain or improve achievement, but inconclusive | *Low*: potentially cost-effective, but inconclusive | | Create mutually beneficial relationships |
| Consolidation | | *Medium*: small schools have equal to greater levels of achievement, especially for low-income and minority students | *Medium*: consolidation has not reduced costs in a substantial way | *Low*: Rural communities rely on schools socially, culturally, recreationally, and economically | Focus on expanded opportunities for the students |
| Reducing facilities' costs | | *Very low to none* | *Very low to none* | | Conduct a feasibility study or energy audit |
| Teacher recruitment and retention | teacher recruitment | *Very low to none* | *Very low to none* | | Initiatives should be strategic, specific, and sustained |
| | teacher retention | *Very low to none* | *Very low to none* | *Medium*: induction programs improve teacher retention | |
| Charter schools | | *Very low to none* | *Very low to none* | | Replicate the successful innovations |

[a] *"Similar level of achievement" means similar to the traditional classroom or school, or school week.*

***Note:*** *Level of evidence including quality of studies refers to the following definitions (also found in more detail on pg. 8): Medium – the researchers used a quasi-experimental design, Low – the evaluation methodology substantially limited the ability to conclude that the findings could be attributed to the strategy, or Very low to none – the evaluation methodology was very weak or nonexistent to the extent that it was difficult to judge whether the findings were meaningful.*