

A Look at the Condition of Rural Education Research: Setting a Direction for Future Research

Michael L. Arnold, John H. Newman, Barbara B. Gaddy, and Ceri B. Dean
Mid-continent Research for Education and Learning

Citation: Arnold, M. L., Newman, J. H., Gaddy, B. B., & Dean, C. B. (2005, April 27). A look at the condition of rural education research: Setting a difference for future research. *Journal of Research in Rural Education*, 20(6). Retrieved [date] from <http://jrre.psu.edu/articles/20-6.pdf>

The authors searched the ERIC and PsycINFO databases for K-12 rural education research studies conducted in the United States and published in journal articles between 1991 and summer 2003. This search was conducted in order to identify topics that appear in the rural education research literature and determine the quality of this research. Only 21% of studies in this database met the requirement of employing a "comparative" (broadly defined) research design to investigate a rural education problem. These articles were then reviewed using quality-of-research criteria developed by McREL. No truly experimental studies were found in this review. The strongest studies identified were quasi-experimental and causal-comparative research designs. Of the 106 articles that used some kind of comparative research design, only 10 were rated as higher-quality research, and only 48 were considered to be of medium quality. Forty-eight studies were rated as lower quality. The authors conclude with a proposed research agenda.

Introduction

Like all schools, rural schools face many pressures. Increasingly diverse student backgrounds, learning styles, and needs; new federal and state accountability requirements; and debates about the allocation and availability of education funding are challenges in every U.S. community. But rural schools face a unique set of challenges, largely due to their geographic isolation. Although some rural schools have successfully met these challenges, many still struggle. The need to attract and retain highly qualified teachers, for example, is especially pronounced in rural schools. Given the demonstrated link between teacher quality and student achievement, the need for evidence-based guidance concerning teacher recruitment, preparation, and professional development is even more paramount for superintendents and principals in rural communities. Rural school leaders also are eager for information about research-based inter-

ventions and strategies that enhance student success in rural communities.

Identifying such interventions is difficult, however, due to a lack of high-quality research conducted in rural settings. Relatively few scholars are studying rural education issues, and almost no funding is available to conduct education research in specifically rural contexts (Sherwood, 2000). Randomized field trials are rarely, if ever, completed in rural settings, and methodological limitations are common throughout the rural literature. Khattri, Riley, and Kane (1997) argue that rural education research often lacks adequate controls or comparison groups—a point that will become apparent in this report. Fan and Chen (1999) contend that this problem contributes to inconsistencies among findings from rural education studies.

A substantial proportion of rural education research is driven by a belief that there is a quality inherent in rural communities and schools that should be preserved (Khattri et al., 1997). This viewpoint is evident in all aspects of the research process, from the selection of the research questions, to the methods employed and the interpretations made. While this belief may be valid, it has not been substantiated by rigorous research. Such research would identify which of these characteristics can sustain meaningful reforms. Additionally, Arnold (2003) argues that this perspective can draw attention and resources away from issues of critical importance to rural schools. Without a research base to build upon, these beliefs do not represent an efficient approach to identifying proven strategies for addressing unique rural issues.

This document has been funded at least in part with federal funds from the U.S. Department of Education under contract number ED-01-CO-0006. The content of this publication does not necessarily reflect the views or policies of the Department of Education nor does mention of trade names, commercial products, or organizations imply endorsement by the U.S. Government. Michael Arnold is now with Education Strategy Group, and John Newman is at Kutztown University.

Correspondence concerning this article should be addressed to Chris Briggs-Hale, McREL, 2550 S. Parker Road, Suite 500, Aurora, CO 80014. (cbriggs-hale@mcrel.org)

Further obscuring our understanding of rural school improvement are the multiple definitions of “rural” used in rural education research. The number of students who attend rural schools, depending on the definition one uses, can range from 1.1 million to 11.6 million.¹ The lack of a common, consistent, and explicit definition of “rural” makes it difficult, if not impossible, to compare results among the studies conducted on any particular rural issue.

The apparent lack of high-quality rural research, limited funding for rural education research, and inconsistent definitions of “rural” have led many to conclude that rural education research is limited and of poor quality, but to date no systematic investigation has been conducted to support such an assertion. The purpose of this report is to describe the results of a literature study conducted by Mid-continent Research for Education and Learning (McREL) on the condition of rural education research and to lay out a research agenda for future studies regarding rural education. McREL’s study centered around the following questions:

1. What topics appear in the rural education research literature?
2. What is the quality of the rural education research?

The balance of this report is divided into three sections. In the first section, we identify the topics that appear in the rural education literature and discuss the relative frequency with which they appear. In the second section, we address the second question regarding the quality of the rural education research. The third section presents a summary of the condition of rural education. Finally, we present a research agenda that investigates ways to address apparent gaps in the rural education knowledge base and overcome key obstacles to improving rural schools.

Topics Appearing in the Rural Education Literature

Identifying the topics found in the rural education literature required a systematic approach to sorting through the relevant literature. A considerable amount of literature is published each year that purports to be rural education research, yet some of it is related only peripherally to rural education. Carefully sifting through these publications is necessary in order to provide a valid snapshot of the topics found in rural education studies. This section begins with a description of the abstract search and review process used by McREL, which is followed by a discussion of the topics that emerged from this process.

To identify the topics that have received attention in the rural education research literature, a comprehensive abstract search and review process was conducted by McREL staff members. The abstracts were identified through a search

of the Educational Resources Information Center (ERIC) and PsycINFO databases for K-12 rural education research studies conducted in the United States and published in journal articles between 1991 and summer 2003.² This search resulted in a preliminary database of 716 abstracts. Following a cursory review of the abstracts, 136 were deleted from the database because they were miscoded; that is, they were not about K-12 education or concerned studies not conducted in the United States. This process resulted in 580 abstracts—401 from ERIC and 179 from PsycINFO.

Two McREL staff members separately reviewed all of the abstracts and coded each one according to the primary topic of the abstract. This closer review resulted in the identification and subsequent elimination of an additional 66 abstracts that did not fall within the study’s parameters (e.g., they were not published in journal articles or were not about K-12 education) and 16 abstracts that were duplicated between the ERIC and PsycINFO searches. The resulting 498 abstracts were coded according to the focus or primary topic of each abstract. This coding process initially resulted in 108 topics, 50% of which were associated with only one or two abstracts. A second review was conducted to merge similar topics and refine the topic labels. Table 1 presents data on the number of abstracts coded for each of the resulting 40 topics.

As a result of this review process, it became clear that there are at least two ways in which research is conducted in rural school settings. First, there is research that is conducted to specifically study rural education issues. For example, Howley, Howley, and Larson (1999) examined how rural principals differ from their suburban counterparts in their approaches to planning. This study was specifically aimed at understanding a rural education issue (i.e., how rurality influences principal behavior). We refer to studies such as this as “Rural Specific.”

A second type of rural education research encompasses studies conducted in a rural context; in these studies, there was no apparent intent to investigate a rural education issue or explain how rurality influences some aspect of schooling; these types of studies occurred only incidentally in rural contexts. For example, a study of classroom discourse during science lessons on topics both familiar and unfamiliar to the teacher (Carlsen, 1997) could have been conducted

¹See Appendix A for a description of the three most common classification schemes for rural schools and districts and data on the number of rural school districts and students by classification definition.

²The year 1991 was chosen as the base year due to the publication that year of the U.S. Department of Education’s *An Agenda for Research and Development on Rural Education* (Federal Interagency Committee on Education, Subcommittee on Rural Education, 1991), which identified six priority areas to guide rural education research.

Table 1
Rural Education Research Topics by Research Type, 1991-2003

Topic	Rural Specific	Rural Context Only	Total
Programs and strategies for students with special needs	49	29	78
Instruction	20	20	40
School safety and discipline	16	12	28
Student life and work planning	16	6	22
Factors influencing academic achievement	14	7	21
Students' attitudes and behaviors	12	9	21
Education leadership	18	2	20
Staff recruitment and retention	18	2	20
Teacher preparation and development	10	10	20
Teachers' beliefs and practices	13	5	18
Curriculum	13	3	16
Parent involvement	6	10	16
School community relationship	14	1	15
Health education	0	13	13
Teacher and staff characteristics	11	1	12
Teacher student relationships	6	6	12
Consolidation	11	0	11
Drug and alcohol use	8	3	11
Early childhood education	8	3	11
School finance	7	2	9
Cultural diversity and education	4	4	8
Literacy development	2	6	8
School reform	5	3	8
School choice	7	0	7
School counseling	3	4	7
Shared decision making	6	1	7
Grade configuration	6	0	6
Characteristics of rural schools	5	0	5
Dropouts	3	2	5
Educational collaboration	4	0	4
School health services	3	1	4
Assessment	2	1	3
Scheduling	2	1	3
School effectiveness	2	1	3
Multiage grouping	1	0	1
Rural education indicators	1	0	1
School law	1	0	1
School size	1	0	1
State school district relationship	1	0	1
Transportation	1	0	1
Total	330	168	498

in a classroom in any locale. These types of studies were coded as “Rural Context Only.” We classified 66% ($n = 330$) of the studies as Rural Specific and 34% ($n = 168$) as Rural Context Only. The frequency of both types of research is recorded for all topics listed in Table 1.

Topics Most Frequently Addressed

Table 2 lists the top 10 topics found in the rural education research base. To provide a better understanding of the literature base, these topics were examined more closely for subtopics. For each topic, subtopics with four or more abstracts were identified. Each of the top 10 topics and related subtopics is described briefly below.

Programs and strategies for students with special needs. As Table 2 shows, Programs and Strategies for Students with Special Needs is by far the topic with the most rural education research journal articles ($n = 78$). This topic includes abstracts about education services provided to students with disabilities, students considered to be at risk of failure, or students identified as gifted and talented. Special Education—education services delivered to students with disabilities—is the subtopic with the largest number of articles ($n = 50$), followed by Gifted Education ($n = 19$) and Approaches for At-risk Students ($n = 9$). If Special Education was categorized as its own topic, it would be the largest topic in the literature base.

Instruction. Of the 40 abstracts coded as Instruction, a substantial number ($n = 16$) are about the use of technology to deliver instruction. This finding reflects the view that technology is one solution to the problem that rural schools face in offering comprehensive instructional programs. As Table 2 shows, a significant number of the Instruction abstracts focus on mathematics, science, or reading instruction ($n = 19$), mirroring the national attention being given to these content areas.

School safety and discipline. Given concerns and perceptions of increasing school violence, rural education researchers, not surprisingly, have focused substantial attention on school safety and discipline. Of the 28 abstracts that address this issue, 50% ($n = 14$) focus on violence in schools and the effectiveness of violence prevention programs. Discipline also has received attention ($n = 9$); this subtopic includes articles about suspension policies and the use of corporal punishment.

Student life and work planning. Twenty-two abstracts were coded under the topic Student Life and Work Planning. The largest subtopic in the group deals with student aspirations ($n = 14$). These abstracts primarily focus on students' plans for pursuing post-secondary education and the factors that influence those aspirations. The second subtopic is Student Career Education and Development ($n = 8$). Abstracts in this subtopic focus on the knowledge and skill students need to succeed in the workplace.

Factors influencing academic achievement. Twenty-one abstracts are about factors that influence the academic achievement of students. Among these abstracts, the only subtopic to emerge relates to the effects of school locale or size on achievement ($n = 8$). Several of these abstracts compare the academic achievement of rural versus nonrural students, while others in this subgroup consider how small school size influenced achievement. The rest of the abstracts in this topic concern the factors that influence student achievement, including socioeconomic status, family characteristics, students' self-esteem, and the institutional characteristics of schools.

Students' attitudes and behaviors. A dominant subtopic did not emerge among the 21 abstracts in the Students' Attitudes and Behaviors topic. The only subtopic that emerged was Students' Views of Curricula and Instruction ($n = 4$). Abstracts under this subtopic dealt with studies of rural students' perceptions of particular content areas (science, physical education, and mathematics), and the effectiveness of specific learning activities. In addition, a number of miscellaneous abstracts were identified that related to students' attitudes and behaviors; these covered a variety of issues including gender differences in students' behavior and attitudes, students' self-esteem, and students' perceptions of their communities.

Education leadership. Education Leadership refers to all aspects of school leadership, including issues related to superintendents, principals, teachers, and school board members. Among the 20 abstracts in this topic, two subtopics emerged. The first subtopic, Administrators' Behavior and Characteristics ($n = 7$), concerns the personal characteristics of administrators and the activities they engage in to fulfill their responsibilities, including how they plan and network with fellow administrators. The second subtopic, Leadership Roles ($n = 6$), is about the functions undertaken by school leaders; this subtopic is not limited to administrators. For example, one study examined changes in teacher leadership roles in rural schools that did not have formal leadership positions. Another analyzed the minutes of school board meetings to better understand the leadership roles of local boards of education.

Staff recruitment and retention. Staff Recruitment and Retention has been a long-standing problem for rural schools. This topic encompasses recruitment and retention issues related to teachers, administrators, and other professional staff. A number of the 20 abstracts coded in this area examine the factors that influence staff decisions to begin working in rural schools and their reasons for leaving ($n = 7$). In addition, several articles address teacher stress and burn-out ($n = 4$), both of which contribute to teacher attrition.

Teacher preparation and professional development. The 20 abstracts identified as addressing Teacher Preparation and Professional Development encompass the career-long teacher professional development continuum from student

Table 2
Top 10 Topics and Related Subtopics by Rural Education Research Type, Number of Abstracts

Topic	Rural Specific	Rural Context Only	Total
Programs and strategies for students with special needs	49	29	78
Special education	33	17	50
Gifted education	11	8	19
Approaches for at-risk students	5	4	9
Instruction	20	20	40
Technology in instruction	10	6	16
Science	6	5	11
Reading	1	3	4
Mathematics	0	4	4
Other	3	2	5
School safety and discipline	16	12	28
Violence and violence prevention	8	6	14
Student discipline	6	3	9
Other	2	3	5
Student life and work planning	16	6	22
Student aspirations	9	5	14
Student career education and development	7	1	8
Factors influencing academic achievement	14	7	21
School locale and/or size	7	1	8
Other	7	6	13
Students' attitudes and behaviors	12	9	21
Students' views of curricula and instruction	1	3	4
Other	11	6	17
Education leadership	18	2	20
Administrators' behavior and characteristics	6	1	7
Leadership roles	6	0	6
Other	6	1	7
Staff recruitment and retention	18	2	20
Influences on retention	6	1	7
Stress and burnout	3	1	4
Other	9	0	9
Teacher preparation and development	10	10	20
Effects of professional development on practice	2	6	8
Other	8	4	12
Teachers' beliefs and practices	13	5	18
Classroom techniques and practices	4	2	6
Reading programs and strategies	3	2	5
Other	6	1	7
Total	186	102	288

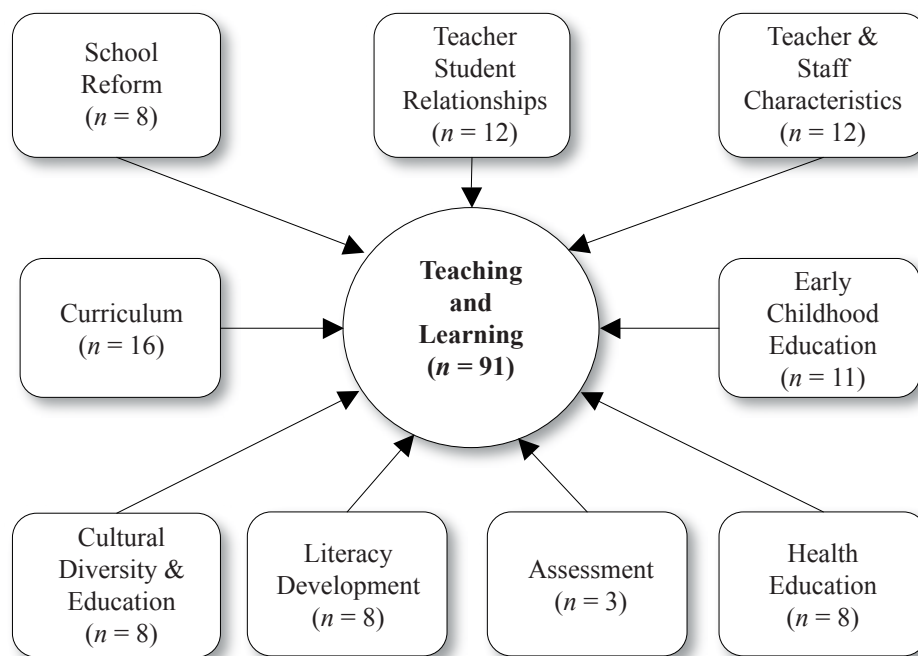


Figure 1. Teaching and learning cluster

teaching experiences to the in-service training teachers receive to improve their practice. In addition, a number of abstracts concerned professional development related to technology. Several others focused on the success of specific professional development strategies such as teacher study groups.

Teachers' beliefs and practices. As shown in Table 2, 18 abstracts were coded as Teachers' Beliefs and Practices. The first subtopic, Classroom Techniques and Practices ($n = 6$), included abstracts of studies investigating differences in beliefs and practices between rural and nonrural teachers about classroom management, as well as differences in terms of assessment and grading. The second subtopic, Reading Programs and Strategies ($n = 5$), encompasses abstracts related to teacher knowledge and beliefs about reading programs.

Clusters of Topics Less Frequently Addressed

The remaining 30 topics were grouped into clusters in order to provide additional insight into the issues studied by rural education researchers. Of the 498 abstracts, 210 (42%) were organized into the following clusters: Student Growth and Development Support, Teaching and Learning, Organization of Schooling, Schools and Communities, and Education Policy. Each cluster is discussed below.

Teaching and learning. The Teaching and Learning cluster (see Figure 1) has the largest number of topics ($n = 9$) and abstracts ($n = 91$), reflecting a healthy curiosity among

rural education researchers about what occurs in classrooms. This cluster complements the Instruction topic, which is the topic with the second highest number of abstracts.

Curriculum tops the list of topics in the Teaching and Learning cluster with 16 abstracts. A rather broad range of issues is examined among the abstracts in this topic including reading curricula, advanced placement programs in rural schools, and physical education. This topic also includes a number of rural-specific abstracts. Two abstracts, for instance, focus on agricultural education. Another abstract of particular note concerns a study regarding the perceived conflict between meeting state content standards and providing locally relevant curriculum.

Health Education and Literacy Development are two other topics in the Teaching and Learning cluster. Both topics are about the content and delivery of instruction. Cultural Diversity and Education concerns how racial and ethnic diversity is incorporated into curriculum and instructional materials and the effects these materials have on students. Abstracts dealing with the topic of Assessment are about issues related to measuring what students learn from the curriculum and instructional materials.

Two topics in this cluster relate to teachers and staff: Teacher and Staff Characteristics, and Teacher-Student Relationships. Abstracts coded with the topic of Teacher and Staff Characteristics primarily examine the practices and characteristics of teachers and support staff such as school counselors, occupational therapists, and school psychologists. These issues include how teachers manage

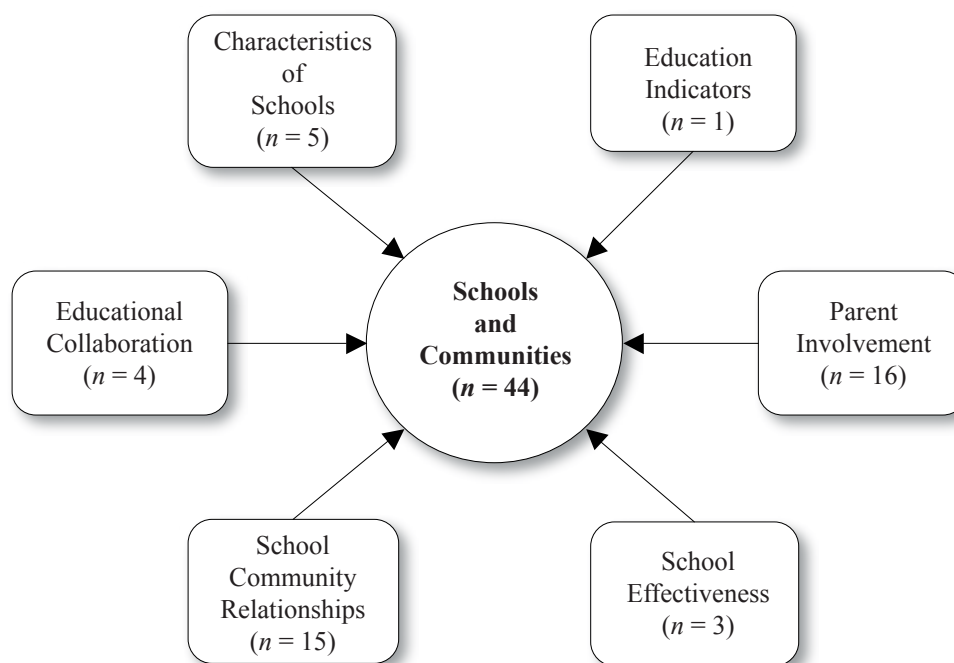


Figure 2. Schools and communities cluster

conflict, their teaching styles, and their personal traits. For example, one study compared the qualifications of rural and nonrural science teachers. Abstracts coded with the topic of Teacher-Student Relationships concern how teachers view and interact with students, and vice versa. Two studies in this topic examine the issue of gender equity for girls. Though not identified as a specific topic in this study, gender equity is an area in which there are specifically rural issues arising from traditional views of females held by some rural communities.

The two remaining topics in this cluster are Early Childhood Education and School Reform. The first topic speaks for itself. The second, School Reform, is about a wide range of issues including teachers' perceptions of school reform, characteristics of exemplary schools, and barriers to implementing school reform measures in schools.

Schools and communities. The Schools and Communities cluster (see Figure 2) is comprised of six topics encompassing 44 articles, making it the second largest cluster. The largest topic in the cluster is Parent Involvement ($n = 16$), which is often cited as an important component of school improvement. Among the issues examined are patterns of parent involvement in rural schools, effects of parent involvement on student achievement, parent attitudes toward public education, and teacher communication with parents. The relatively large number of articles ($n = 15$) grouped under the School-Community Relationship topic reflects

the close connection that exists between rural schools and their communities.

Characteristics of Schools, and Education Indicators are similar topics in that they both present information about rural schools. They differ in that the Education Indicators topic consists of a single study that presented data on rural schools in the context of each state's overall educational program. Articles in the Characteristics of Schools topic address the attributes of rural schools, but not in relationship to a specific state's education program.

Of the two remaining topics, Educational Collaboration involves the formal (e.g., intermediate school districts) and informal ways in which rural schools and districts work together. School Effectiveness is about the characteristics of effective rural schools and perceptions of effectiveness.

Education policy. The Education Policy cluster (see Figure 3) deals primarily with issues that are outside of the control of the school. Consolidation, the largest topic in the cluster, has long been a concern for rural educators. Indeed, we were surprised to find so few abstracts addressing this topic because of the considerable attention that rural educators and advocates have paid to avoiding school district reorganization.

School Finance is a topic that is closely tied to Consolidation because it is generally financial considerations that lead to district mergers. Studies in this topic are about the relationship between school size and outcomes, and

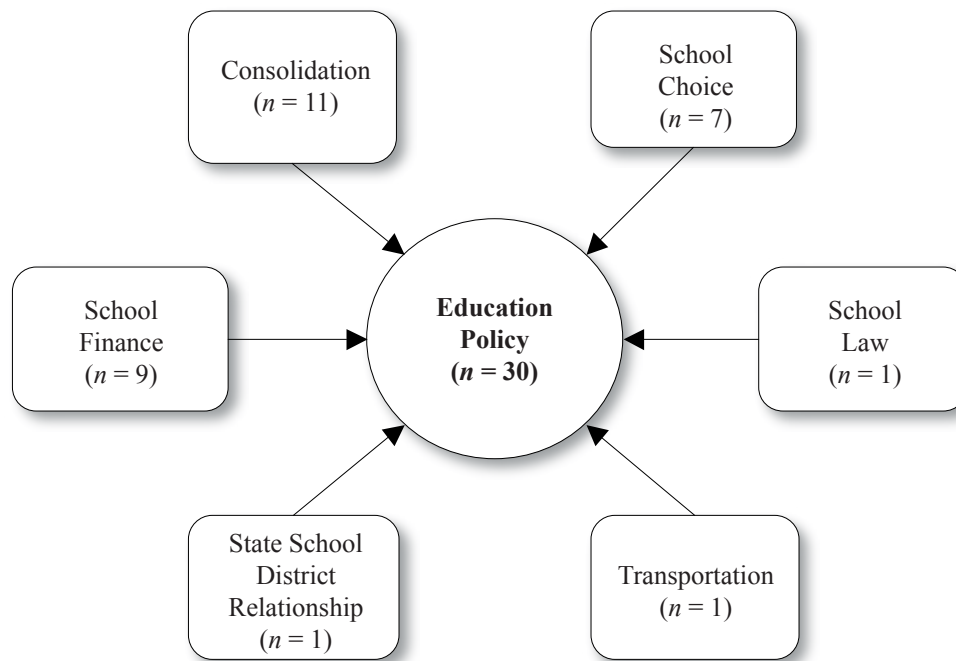


Figure 3. Education policy center

financial obstacles to maintaining small schools. There are also articles on issues related to passing tax increases to support rural schools.

Although school choice is generally not thought of as a rural issue, seven abstracts we reviewed explore the topic. Two abstracts each are about home schooling, and tuitioning students to other schools, that is, paying another district to provide services that a student's home district is unable to provide—a practice that was once common in rural areas. One study investigated the effects of rural charter schools on racial segregation in Arizona; this is noteworthy because it points to a potential issue for rural areas that are just now starting to experience influxes of minorities into their schools.

Student growth and development support. As shown in Figure 4, four topics are grouped around the Student Growth and Development Support cluster ($n = 27$). These topics are about nonacademic issues that influence the development of children and youths. School Counseling is a topic that relates closely to the other topics in this cluster in that counseling can be used in dropout prevention programs, in drug and alcohol prevention programs, and in the provision of school-based health services. Abstracts under the School Counseling topic include studies investigating what it is like to be a counselor in a rural school and the effectiveness of counseling programs. Abstracts in the Drug and Alcohol Use topic are predominately about the extent of drug and alcohol use among students, and about the effectiveness of drug and alcohol prevention programs. Abstracts in the Dropouts topic

are about factors that influence students' persistence and motivation to stay in school. Of the four abstracts related to School Health Services, two deal with health screening, one with mental health programs, and another focuses on school nurses' attitudes toward HIV and AIDS.

Organization of schooling. The Organization of Schooling cluster (see Figure 5) includes abstracts from studies that examine how students are grouped for learning and the administrative processes in the school. It is the smallest of the five clusters, with only 18 abstracts grouped into five topics.

Abstracts in the Grade Configuration and Multiage Grouping topics examine the effects of specific ways of grouping students on student achievement. The Scheduling topic includes two abstracts about attitudes and perceptions of block scheduling and one study evaluating a year-round school calendar.

The one abstract in the School Size topic examines the effect of the number of students in a school on the school's curriculum and social relations. Five other abstracts examine school size, but were grouped into other topics: two in Factors Influencing Academic Achievement, two in Consolidation, and one in School Finance.

The final topic in the Organization of Schooling cluster, Shared Decision Making, encompasses a different aspect of the cluster in that it deals with a process rather than structure. Abstracts coded with this topic examine issues related to teacher and parent involvement in the management of the school, including principals' perspectives on the practice.

