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Superintendent Perspectives of Financial Survival Strategies in Small School Districts

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The purpose of this qualitative, narrative study was to investigate the perceptions of successful small-school superintendents in regard to maintaining or improving district efficiency and financial status. Face-to-face interviews were conducted with seven purposefully selected small-school superintendents. Findings suggest that in their efforts to increase revenues, these superintendents are seeking to understand and to navigate the state’s funding system to its maximum potential and to the greatest benefit for their districts. They are looking outside their districts for expert advice in their efforts toward improved revenue projection. Additionally, they are accepting out-of-district transfer students to generate revenue. Other areas of improved efficiency include personnel considerations, reducing district expenditures through purchasing and energy use.

Keywords: Superintendency; small school districts; finances; rural schools.

Demands on school administrators have risen dramatically, partially as a result of increased public scrutiny due to escalating costs in education (Brown & Cornwell, 2000). Consequently, for superintendents, the district budget is a great source of anxiety (Hayes, 2001). Glass and Franceschini (2007) reported that since 1923, nearly all of the ten-year studies conducted by the American Association of School Administrators (AASA) have revealed that superintendents consider their role in school finance to be the source of their most serious challenges. School superintendents are in charge of large amounts of public funds and are responsible for budgeting, collecting taxes and other revenues, overseeing the district’s day-to-day fiscal operations, and reporting the financial status of the district in accordance with professional standards and state and federal statutes and regulations (Hartman & Stefkovich, 2005).

Dlott (2005) reported that many superintendents do not have a background in money management or budgeting. They are not competent in the art of saving money through cost containment, cutting back, or reallocating resources. In most instances, graduate schools do not teach school superintendents about creative resource management, budget cutting, and cost containment. At the same time, the future challenge for schools may be their need to facilitate higher student achievement in a time of flat or unstable resources (Kannapel & DeYoung, 1999; Odden & Picus, 2008). Thus, superintendents should take advantage of as many learning experiences as possible through reading and meaningful discussion with others who are knowledgeable about school finance (Dlott, 2005).

Rural communities comprise 97% of the United States’ land mass and contain 60 million individuals (The University of Montana Rural Institute, 2005). Schools are considered to be rural when they are located in areas of sparse population, enroll a small student population, contain less infrastructure, and are geographically isolated (National Center for Education Statistics [NCES], 2006). Rural educators are responsible for educating 8.8 million students and 80% of rural districts enroll fewer than 600 students (NCES, 2006). The costs and benefits of rural schools have been debated for over a century. While there has been support for the small-school movement (Hylden, 2005), small schools are still generally perceived to be inefficient due to inherent diseconomies of scale (Kannapel & DeYoung, 1999).

Statement of the Purpose and Research Questions

The purpose of this qualitative, narrative study was to identify effective financial management and fiscal efficiency practices used by superintendents within small school districts in Texas. The following questions guided the research for this qualitative study:
1. What is the district’s financial background?
2. What management strategies have superintendents used in maintaining district financial well-being?
3. How have superintendents involved stakeholders in these practices?
Background of the Texas Funding Status

On December 1, 2008, the National Bureau of Economic Research officially confirmed that the US was indeed in a recession that started in December 2007. While the federal government attempted to do what it could to bail out the financial industry and some sectors of the manufacturing industry, the recent economic downturn has threatened the progress and stability of our nation’s education system (Calvey, 2008). According to a survey released in November 2008 by The American Association of School Administrators (AASA), 67% of superintendents from 836 responding U.S. school districts said their school programs were inadequately funded. Nearly 74% of the superintendents who responded worked in schools that had already proposed implementing a reduction in staff. They suggested that personnel cuts might only get worse as many schools were already turning down thermostats, eliminating unnecessary travel, and deferring maintenance as part of cost reduction strategies. Many superintendents were contemplating freezing outside professional service contracts and eliminating staff development consultants (AASA, 2008).

The schools in Texas are no exception. Many Texas schools under financial stress find themselves facing even greater fiscal urgency as the predictions of state and national economists evolve (Bethel, 2011; Robinson, 2008). While the overall Texas economy has fared better than many other states, recent trends have indicated that the economic downturn may have finally caught up to the Lone Star State (O’Brien, 2008). The Texas economy is strong and diversified, but, as its economy is interlaced with the 49 other states, even it will not escape damage from a weak national condition (Robinson, 2008).

The funding crisis spans all Texas districts – rich or poor, large or small, urban, suburban, or rural. Martinez (2008) noted that many rural schools across Texas were facing a looming crisis since many of these districts adopted a deficit budget for the 2008 – 2009 year; resulting budget cuts could actually cause some to shut down. Thus, these districts may find themselves in a downward financial spiral that will be impossible to overcome without help from the legislature. Texasisd.com, a website focused on issues surrounding school systems in Texas, monitors over 150 newspapers and identifies articles that deal with education issues across Texas. During the month of November, 2008, Texasisd.com featured news stories on more than 40 Texas school districts that were having financial difficulty and were scrambling to find ways to cut costs and/or increase revenues in order to survive.

More recently, in January, 2011, the Texas Tribune (Texas House Budget Proposes Sweeping Budget Cuts) reported the Texas House proposed to cut state spending by 16.6%, an amount $31.1 billion less than the 2008 budgeted spending plan. The state’s current budget totals $187.5 billion. The proposed replacement budget prepared by the House by the Legislative Budget Board totals $156.4 billion. Public education spending is also targeted to be reduced. The budget proposal included a shortfall of $9.8 billion with respect to the funds required under current school finance formulas. Items excluded from the proposed budget include funding for increased numbers of students and for projected declines in property values and related local school tax revenues. This plan, if adopted, would drop a total of $7 billion from current education spending levels.

All Texas school superintendents understand that the state is facing billions of dollars in budget cuts; however, school administrators take issue with being singled out by some legislators as being part of the problem (Bethel, 2011). In fact, at a recent meeting of superintendents, one administrator noted that a Senate subcommittee on education in essence blamed the fact that schools may have to cut staff by saying, ”it’s the school administration’s fault” (Bethel, 2011, p.1). The Texas legislator who attended this meeting noted that it was especially helpful to hear the superintendents’ discussion because rural district needs for services were emphasized, and she now realized “in smaller districts, this was a truly important piece” (Bethel, 2011, p. 2).

Financial Competencies and Responsibilities of the Superintendent

Effective money management is vital to the success and survival of a school superintendent. This is evidenced in indicator number five of the American Association of School Administrators Professional Standards for the superintendency, which requires that a superintendent should “exhibit an understanding of school finance including data management, budget creation, budget management, legal aspects of managing resources, and problem solving” (Dlott, 2007, p.112). After decades of ten-year studies, the American Association of School Administrators reported historic levels of stress among its members, and noted that the levels of “very great stress” were highest among small-school superintendents (Glass & Franceschini, 2007). The superintendent is primarily responsible for all financial matters of the district, even although there are times when adverse financial situations are out of the superintendent’s control (Dlott, 2007). When superintendents make errors in district finances, the school board and community quickly lose faith in their
competency to effectively run the district (Dlott, 2007). Sharp and Walter (1997) argued that, ideally, a school district should employ a business manager in addition to a superintendent because, even in a very small school district, the role of superintendent is a full-time job. However, in many small school districts the superintendent also serves as the business manager, because the district cannot afford both. Regardless of the district size, the person who is responsible for the district’s business affairs has a tremendous responsibility.

Hill (2006) noted that since a major responsibility of a school superintendent is the management of the district’s finances, understanding both revenues and expenditures of this very complex equation is a necessity. It is the superintendent’s responsibility either to acquire this knowledge or to hire someone who is skilled in school finance. Yet, a superintendent may have little control over incoming revenue and must possess strategies to maximize the efficient use of funds the district obtains (Pekow, 2005). Superintendents cannot control factors such as inflation, the state of the national economy, its influence on the Texas economy, or what the Texas Legislature has done in the past and what it will do in the future in regard to Texas school funding. However, it is critical for a superintendent to understand the complexities of the state and federal funding formulas and to stay abreast of various available grants and their conditions.

A Challenging Financial Climate in Education

School leaders are being asked to stretch existing resources and to do even more with less, while at the same time resources are dwindling and expectations are often escalating (Guthrie, Springer, Rolle, & Houck, 2007; Ramsey, 2001). Adsit and Murdock (2005) suggested there has never before been a time in America’s history when public schools have experienced such a huge discrepancy between public expectations and the adequacy of school funding. The poor economy has effectively created a climate where schools are finding themselves looking for savings by increasing class sizes, eliminating positions, absorbing staff vacancies, charging new and higher fees, and reducing days from the academic calendar (Jazzar & Algozinne, 2006).

Efficiency in Relation to School Size

During the 1920s, business and university leaders began to push for consolidation of many of the small rural districts into larger districts, citing inferior and inefficient education as their rationale (Clegg, 1977). Thus, as enrollment falls, the cost curve in schools is assumed to fall toward inefficiency. Such a belief has lead to consolidation (King, Swanson, & Sweetland, 2003), since the policy-making community generally perceives that small school districts are inefficient and that they should consolidate into larger districts (Olden & Picus, 2008). Many districts and schools have consolidated during the past 50 years, leading to far fewer US school districts than once existed (Guthrie et al., 2007). Consolidation across Texas was accelerated by a 1936 study on the adequacy of public schools, which listed districts that should be considered for consolidation, and by 1950, the small one and two-teacher schools in Texas had almost ceased to exist (Clegg, 1977).

Although the research on school size through the 1960s favored larger schools, more recently researchers have concluded there was little supporting evidence for school consolidation (King, Swanson & Sweetland, 2003; Monk & Brent, 1997). Additionally, the expected cost savings from school consolidation have not materialized, and there is some suggestion that consolidation of small schools and districts may have significant negative effects on rural communities (Swanson & King, 1997). Larger schools with more pupils often benefit from scale economies (Guthrie et al., 2007), but according to King et al. (2003), more recent research has indicated that cost curves fall to a point, then rise. In fact, as researchers examined factors such as self-image and college completion (Swanson & King, 1997), and impact on children from poor families (Howley & Bickel, 2002), the advantages of small schools became more apparent. Ballou (1998) found evidence that a district’s effectiveness began to decline somewhere around the 5,000 student mark. When dropout rates are considered, students drop out of small schools at lower rates than they do from large schools and more students who graduate from small schools continue their education in colleges and universities than do their counterparts from larger schools (Lawrence, et al., 2002; Raywid, 1999; Stiefel, Berne, Iataola, & Frauchter, 2000). There is evidence that in small schools, student behavior is better; where students are well-known to their teachers, there is less vandalism, and less violence (Lawrence et al., 2002; Raywid, 1999). Wallach, Ramsey, Lowry, & Copland (2006) reported that personalization is more likely to occur in small schools. Additionally, King et al. (2003) observed that students of small schools have superior overall conduct.

Methodology

This study used a qualitative, narrative approach to a phenomenon which focused on describing the common experiences of seven small school superintendents regarding finances (Creswell, 2007). One-on-one in-depth interviews were conducted over a period of two months, with each interview lasting from two to three hours.
Participants

Texas Education Agency (TEA) performance data and Public Educational Information Management System (PEIMS) data were used in selecting a purposeful sample of seven superintendent participants. The criteria for selection included the following:

- Each participant had served in their current district for a minimum of two years.
- The district had a most current rating of Superior under the Financial Integrity Rating System of Texas (FIRST).
- The district had a most current academic rating of Exemplary under the Texas Assessment of Knowledge and Skills (TAKS).
- The district’s percentage of population of socio-economically disadvantaged students was within 25% of the state’s average.
- The district served students from the primary level up through twelfth grade.
- The district had fewer than 1500 students.

Eleven school districts in Texas met these criteria. Convenience was also a consideration in conducting this study and seven small, rural, public school district superintendents located in North and North East Texas regions were selected to participate. Of the participating superintendents, six were male and one was female. Names of the superintendents and their districts were masked to assure confidentiality.

Data Collection and Analysis

The principal researcher followed a six-step method for analysis and representation of data for a phenomenological study as suggested by Creswell (2007). In the first step, the researcher described his own personal experiences with the phenomenon in an attempt to set aside his biases as a small-school superintendent. From the interviews, the researcher pulled statements describing how individuals were experiencing the phenomena of serving as superintendent in a tough financial climate. Creswell noted these “significant statements” were used to form a list of “non-repetitive,” “non-overlapping” statements, with each statement treated as having equal worth (p. 170). Statements were then grouped into “meaning units” or themes. Next, the researcher wrote a textural description of what the participants experienced, including descriptive detail and concrete examples when possible.

The researcher completed a “structural description” (Creswell, 2007, p. 60) reflecting on the setting and context in which the phenomenon was experienced by the participants. The last of Creswell’s steps in phenomenological analysis involved a “composite” description of the phenomenon. This is actually a composite of the textural and structural descriptions and it served to reveal the “true essence” of the experience of being a small-school superintendent in a tough financial climate.

Findings

The seven superintendents who participated in this study revealed important strategies and practices for improved district efficiency. The findings are discussed by the research questions.

Research Question 1: District Financial Background

When the participants were asked about the unique financial backgrounds of their districts, two distinct themes emerged. One factor consistently pointed out was the absence of business or industry within their district. The second common perception among these participants was that the state’s funding system was not equitable.

No business or industry. All seven participants indicated they were operating within a bedroom community with little or no industry. For example, Clark said: “We are 91 out of 1026 schools, the bottom 10%, wealth-wise. We do not have any industry and we are property poor. We are a bedroom community, so most people around here drive out of district to work.”

Grubbs explained how he had become increasingly concerned with the financial future of his district noting that “a major problem is a declining fund balance with no hope of any new revenue.”

Welch shared how the lack of businesses in the area had resulted in a declining enrollment for several years. Boyd echoed the concern regarding lack of business and commented that many of their parents did not have jobs. In fact, the school was the largest employer in town.

Inequitable school funding. Six of the seven participants expressed the opinion that the system of funding schools in Texas is inadequate and inequitable among districts. Grubbs expressed his concern that “finance is the thing that will either make or break a small school district. School finance in the state of Texas is really messed up right now. Someone is going to have to step out and do something about it.” He also noted that many of the small school districts are Exemplary. He argued: “There are districts sitting on each side of me,
and finance is not at all a problem for either of them. Here in Newcastle, we are talking about the survival of our district.” Welch noted that his district lacked some of the special funding that many other districts received, such as adjustments being made for having a district with a sparse population that covers over 300 square miles. Boyd explained how he has experienced the inequities of the state’s funding system because he has worked in several districts.

Research Question 2: District Financial Management Strategies

When superintendents were asked what management strategies they have used in maintaining the district’s financial well-being, they highlighted the following practices: acceptance of out-of-district transfers, increased efficiency in personnel, command of the funding system, shrewd management of purchasing, and reduction of energy usage.

Acceptance of out-of-district transfers. All seven superintendents emphasized the importance of accepting transfer students in their districts as a way of building or maintaining enrollment. Gwaltney expressed: “We do accept transfers because this is another important way to generate money. When people ask us why we accept out-of-district transfers, we explain to them that we get between $6,000 and $7,000 for each new student.” Clark elaborated on his use of advertisement to promote a unique program that his district offered: “Our ad at the theatre really highlights Celeste Creative Choice. It is a slick ad that was professionally created for us.” Welch shared how the district put 29,000 inserts in the area newspapers, hoping to generate some interest in their schools from the surrounding districts. Grubbs said, “The year before last, I put my marketing experience to work and created a series of newspaper ads that caused our ADA [average daily attendance] of 143 to grow to 171.” In addition to advertising, Welch actually sends a bus out to the district line every morning and evening to facilitate the transportation of transfer students.

Each of the seven superintendents indicated that their district has a method, formal or informal, for screening, accepting, denying, and revoking transfer students. Gwaltney explained his approach by saying, “They must be able to maintain grades, good attendance, and good discipline. A committee looks over those three criteria as they try to transfer in.” Grubbs described how under his leadership he had changed the stance that his district has taken: He observed, “When I first got here, they [district schools] were accepting anybody who walked in the door and because of this they were barely able to maintain their Recognized status.” His goal was for the district to be Exemplary and to try to create an image that Newcastle was like a small private school with small classrooms that focus on academics.

Increased efficiency in personnel. All seven superintendents acknowledged the importance of staffing patterns and personnel management in relation to their district’s financial health. Each of the participants alluded to their efforts and strategies in cutting and combining staff positions, recruiting and retaining high quality employees, and utilizing contract labor and shared services arrangements.

Each of the seven participants elaborated on the issue of cutting or combining positions in the interest of increased efficiency within staffing. For example, Stinnett explained that his first thought after any resignation or retirement was whether or not to replace that person. He said, “We try to figure out a way to get those job descriptions covered so that we do not have to replace that person.”

At the same time, all seven participants spoke about their efforts to recruit and retain a quality staff. Boyd said, “We pay stipends for math, science, and Spanish.” Six of the seven participants specifically mentioned their use of either contracted labor or shared service arrangements in order to save money in personnel costs. Clark commented, “We have a Hunt County Co-op. We co-op certain people, like the school nurse.” Gwaltney emphasized the importance of shared services to his district when he explained, “Hill County Cooperative does our title applications. We have the shared services for special education.”

Command of the funding system. Each of the participants testified to the importance of having as much command of the funding system as possible. Clark noted that his district was property-poor and that he must do everything he could to leverage the state’s formulas and programs. He said, “We do everything we can to maximize the dollars coming from Austin.”

The seven participants deemed a superintendent’s ability to project revenue and expenditures as very important. Each of the seven alluded to their continuous...
use of Omar Garcia’s funding template in their efforts to stay as accurate as possible on their projections. Stinnett believed that the summary of finance was not as important as it used to be and they were using the template in place of it. May also discussed reliance on Garcia’s template by saying, “We live by Omar Garcia’s template. We do the updates as he sends them out and we check for the changes. It has served us well because we’ve been able to really target things.”

All seven of the superintendents elaborated on the importance of seeking outside expertise and advice on managing district finances. Each participant reported on the regular practice of calling in consultants, attending workshops, and networking with other superintendents. Boyd discussed how he kept “an ear” to Austin, Texasisd.com, and the template updates. He shared that they were members of the Equity Center.

Boyd also said that they are “on a couple of Joe Smith’s email lists and on list-serves with Texas Education Association (TEA) Finance. We pay close attention to it all and we read everything that we can.”

Shrewd management of purchasing. Without exception, these superintendents alluded to assistance and savings they have secured by making purchases through regional educational service centers and other purchasing cooperatives. May said, “We participate in several purchasing co-operatives [through our service center]. It’s just so much easier.”

Reduction of energy usage. Five of the seven superintendents discussed energy saving strategies within their districts to improve efficiency in heating and cooling, some in lighting, and some with both. In explaining how his district was working to save money through improved energy efficiency, Grubbs said, “We have a plan to change out all of our A/C units. We have been purchasing five new units per year, and we have done this for the past three years in a row.” Boyd emphasized, “We put lock boxes on our thermostats in some areas that were open before, and very few people have the keys.”

Research Question 3: Benefits of Stakeholder Involvement

Participants described their perceptions of the benefits of stakeholder involvement in matters that affect district finances and efficiency. All seven of these superintendents acknowledged the importance of involving school board members, administrators, teachers and staff members, parents, and community members in the management of district finances.

Involving school board members. All participants testified to the importance of involving school board members in financial decisions. For example, Stinnett said: “In regard to the board’s involvement in the budgeting process, they will tell me that it’s my job and that they simply want me to bring them the numbers. I will show them that we are spending this money for salaries, this much money for supplies, and this much money for contracted services. I show them how much revenue that we are expecting according to our templates.”

Involving administrators. The seven participants revealed that they believed involvement of campus level administrators was important in decision-making that affected the district’s finances. May shared her thoughts on working with her business manager. She explained, “When it comes to having confidence in the district’s financial situation, having a good business manager is key. I certainly do have a good one.” She also said, “The principals do know and have control over their supply budgets. They know they can come to us if they run short. If they need it, we dig deeper.”

Involving teachers, parents, and community. All seven of the participants touted the benefits of involving teachers, parents, and community members in district decision making. Grubbs explained that his district had an end-of-school music program for elementary kids. During that meeting they gave the parents a chance to share some input. Additionally, at the beginning of school, they scheduled two days for parent conferences where the teachers ask parents what they think can be done to improve the school for their child.

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1 Omar Garcia is employed by the Texas Education Service Center Region XIII as the Director of Statewide School Finance. His school finance template is used throughout Texas. This template is available online at www.tea.state.tx.us/school.finance - a login is required for access to the site.

2 The Equity Center is the largest research and advocacy organization of its kind in the nation and the only education association in Texas that exclusively represents the interests of children in chronically under-funded school districts. Available at http://equitycenter.org.
Persuading stakeholders to contribute to the cause. Through their comments on dealing with stakeholders, participants revealed how they simplify complex financial issues when explaining them to others. Participants also shared examples of leading by example. Six of the seven participants shared stories that illustrated their ability to make fiscal matters easier to understand. For example, Grubbs said, “When August comes, I’ve got a pretty good hold on the budget, and I give the board a simple, easy-to-understand form that spells everything out for them.” He explained how they decided to tell the community that they were going to have to raise the taxes to the maximum amount or start looking at what it takes to consolidate or close our school. He said, “I thought I was going to get shot for saying anything about closing or consolidating. They approved the $1.50.”

Clark gave an illustration of how he helped his administrators understand the importance of their decision-making when, since 80% of the budget was in salaries he sat down with his principals and talked about staffing. They discussed the fact that the district paid a 22-year teacher $49,000 and a starting teacher $32,000. He said, “That’s a difference of $17,000 and I have to remind them about that.”

Five of the seven participants alluded to instances where they lead by example. Clark explained that some of his people do not have the experience to negotiate pricing. He said, “They think that when they get that quote, that’s it.” Clark tells his employees that when they are buying multiples, they should be able to get a better price. Gwatney shared an example of how he models efficiencies: “As far as efficiency in staffing, we do have a lot of multi-tasking. An example of that is that I am the textbook coordinator.”

Implications for Practice

The findings from this study suggest that the participating superintendents are fully aware of the financial challenges associated with running a small school. All seven participants shared strategies and practices that they are utilizing to increase revenues and reduce or contain expenditures. Facilitating the duplication of these proven strategies in other school districts may include the following:

1. Networking with other superintendents.
2. Maintaining a close relationship with regional educational service centers.
3. Visiting similar districts that are having success and bringing various stakeholders along.
4. Bringing in outside consultants to address and educate various stakeholder groups.
5. Attending various trainings on school finance.
6. Inviting a mentor or mentors to review the proposed budget.
7. Creating and maintaining weekly, monthly, and yearly forums to facilitate the dissemination of district information and allow for stakeholder input.
8. Inviting outside consultants to evaluate various factors and operations such as food service, transportation, energy usage, personnel management, and purchasing.
9. Maintaining membership and involvement with various supporting organizations.
10. Developing a relationship and communication with legislative representatives.

Conclusions

Many small public school districts across the state of Texas are struggling financially. The adverse financial climate in which small Texas schools find themselves operating is the result of several factors. The primary driver of the state’s funding system is enrollment, which means that small schools often have to provide the same services that larger schools do, but with less revenue. In addition to the challenge of having less revenue than larger schools, small schools have a disadvantage on the expenditure side of the budget based on basic market economics. Larger schools often benefit from the effects of the economy of scale while small schools do not. The superintendents of these small districts are searching for ways to increase revenues and reduce expenditures because in many instances, these are the only ways that they will be able to avoid cutting programs, eliminating personnel, consolidating, or closing down.

In their efforts to increase revenues, these superintendents are seeking to understand and to navigate the state’s funding system to its maximum potential and to the greatest benefit for their districts. They are looking outside their districts for expert advice in their efforts toward improved revenue projection.

Another strategy that small school superintendents are using to increase district revenues is their acceptance of out-of-district transfer students. For all practical purposes, this is the only means through which superintendents can generate a significant increase in district revenues since legislators have compressed and re-capped local property tax rates.

These superintendents focus a great deal of attention on improved efficiency in personnel. This is because they know that this area of the budget harbors the biggest opportunity for superintendents to help a district by spending wisely and the biggest risk to superintendents in for harming their district by spending inefficiently. Two other areas that provide opportunities for significantly
reducing district expenditures are purchasing and energy use.

The superintendents who participated in this study realize and acknowledge their role as one person on a team of many stakeholders and that they must convince others to participate in measures designed to improve district efficiency. Each of these superintendents emphasized the importance of involving stakeholders in the process of operating the district. The stakeholders they specifically mentioned were board members, administrators, teachers, parents, and community members. In their efforts toward improved stakeholder cooperation in matters of efficiency, these superintendents have led by example. They have also been able to break down complex issues into simpler terms that are better understood and appreciated by others.

This study supports and contributes to the body of research indicating that the superintendent’s success in the role as financial manager is critical to the success of the district. All of the small school superintendents willingly shared their personal stories and they passionately revealed their intimate perceptions of what is required for financial survival in a small school. They take this role very seriously and are actively engaged in ongoing efforts to educate themselves and improve their knowledge base in the nuances of school finance. They are relentless in their pursuit of increased revenues and additional revenue sources and are dedicated to improving the efficiency of district operations, and they realize the importance of involving all stakeholders in these efforts and processes.

There is a considerable body of research and knowledge which supports the notion that small schools can be beneficial for students (Raywid, 1999; Stiefel, Berne, Iataola, & Frauchter, 2000). Unfortunately, for the superintendents in this study and the districts they serve, their best efforts in cutting costs, increasing revenues, and improving efficiency may not be enough in the long run. Their efforts may be useless without help from the outside. This may be especially true for the two or three participants in these districts with the lowest and most rapidly declining enrollments. In spite of their “leaving no stone unturned,” approach to finding ways to improve their economic circumstances, their destinies may rest on the actions of the Texas Legislature.

A superintendent’s communication and negotiation with state legislators is very important (Adsit & Murdock, 2005). The superintendents who participated in this study and others who serve in districts with low or declining enrollments may be well-served by engaging in meaningful communication with their representatives, senators, and others who have influence in the formulation of school funding schemes. Additionally, they should consider involving themselves and facilitating involvement of their local stakeholders in the organizations that seek to improve funding and support for small and rural Texas schools.

The outcome of superintendent efforts is vitally important to the parents and citizens of small towns who do not want to see their school suffer or close. The citizens know that their local school is important for their children and they do not want their children to endure two or more hours of commuting each day. These residents also see the school as an important part of the infrastructure that helps to give their town an identity and a sense of community.

Fortunately, according to the major findings of this study, some small-school superintendents are finding ways to overcome these tough economic conditions. With help from stakeholders inside their districts and advice from experts outside their districts, these superintendents in Texas are finding ways to help their districts survive, and in some cases, even thrive.

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Teaching in Rural Saskatchewan:

First Year Teachers Identify Challenges and Make Recommendations

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Despite the existing research on rural education, rural teaching, and pre-service rural practicum placements, there is little research on the experiences of beginning teachers in rural schools. The purpose of this study was to explore the experiences of Saskatchewan beginning teachers who obtain employment in rural or northern schools. Eight beginning teachers voluntarily participated in a telephone interview during their first year in the teaching profession. Their interviews highlighted shared themes related to the challenges of working in rural and northern communities, including: acceptance; understanding the community; isolation; overlap between personal and professional lives; and impact of rural context on workload. In addition, participants made recommendations for teachers considering employment in these environments, including: preparing to obtain a rural teaching position; seeking out mentorship relationships; and making connections within and outside of the community. These shared themes are discussed within the context of existing literature, and recommendations are made relating to future directions for research in this area.

Key words: Rural beginning teachers; challenges; recommendations; experiences.

Although most new teachers feel prepared for their first year of teaching (McPherson, 2000), some beginning teachers report an inability to cope and describe feeling isolated and overwhelmed by the demands of the profession (Rogers & Babinski, 2002). Beginning teachers may experience difficulties adjusting to school culture, procedures, and expectations as well as in modifying their university education to fit their current school culture (Khamis, 2000). These difficulties may be amplified by the unique challenges of teaching in a rural community (Monk, 2007). Rural environments can be geographically, socially, culturally, personally, and professionally isolating (McCormack & Thomas, 2003). Prospective rural teachers are often unprepared for rural life and may have idealized preconceived ideas which lead to disappointment when proved incorrect (Sharplin, 2002) or deter them from accepting rural positions (Miles, Marshall, Rolfe, & Noonan, 2004). It can also be difficult to retain quality teachers in rural jobs (Schwartzbeck, Redfield, Morris, & Hammer, 2003), as many rural teachers do not renew their contracts upon their completion (Miller, Paterson, & Graham, 2005). Challenges to rural teaching include a lack of professional support (Ralph, 2002) and insufficient instructional materials, supplies, and equipment (McCoy, 2006). Multiple subject area responsibilities (Beesley, Atwill, Blair, & Barley, 2010) and the need to teach “multiple grades, sometimes in multi-grade, mixed–age classrooms” (Barley, 2009, p. 10) further complicate some rural teachers’ placements.

It is important to examine the realities of beginning rural teachers since their early experiences have long term implications for teacher effectiveness, job satisfaction, and career length (McCormack & Thomas, 2003). The purpose of this study was to examine the challenges and rewards experienced by eight beginning teachers in rural and/or northern schools in their first year of employment.

Context of Study

Saskatchewan is one of Canada’s three prairie provinces, located between Alberta to the west and Manitoba to the east. With an area of 251,366 square miles, its boundaries extend from the US border along the 49th parallel to the border with the Northwest Territories along the 60th parallel. Provincial population estimates (2010) were 1,041,729 inhabitants of which approximately 15% self identified as Aboriginal (Government of Saskatchewan, 2011).

Saskatchewan currently has approximately 160,000 students enrolled within the Kindergarten to Grade 12 school system (Saskatchewan Ministry of Education,
Participants

30 responses to the interview questions (Boyatzis, 1998, from the “raw information” contained in the transcribed interviews). The three authors reviewed the transcripts and made note of the themes arising in the data. From the participants’ interview transcripts and made note of the themes arising in the data. The authors endeavored to ensure the coding of the transcripts and the interpretations made from the codes were “data driven” and constructed from the “raw information” contained in the transcribed responses to the interview questions (Boyatzis, 1998, pp. 30-31).

Methods

All 2005-2006 education graduates employed as a teacher in some capacity (e., classroom teacher, substitute teacher etc.) in the province were contacted in 2007 and invited to participate in a study of the experiences of beginning teachers in Saskatchewan. From the pool of interested participants, maximum variation sampling was used to select 12 final participants stratified by pre-service teacher education program (secondary vs. elementary trained), gender, Aboriginal heritage, and current school location (rural, urban, or northern schools). This study reports on the first year experiences of eight beginning teachers who taught in a rural and/or northern Saskatchewan school.

Participants were interviewed near the end of their first year of teaching by one of three trained interviewers using a semi-structured interview format. Interview questions included items pertaining to the school context, teacher workload, supports and resources available for teachers, as well as challenges faced, and recommendations for other first year teachers. Interviews were conducted over the telephone with the use of an audio recording device and were approximately one hour in length.

Interviews were transcribed verbatim and participants were provided with the opportunity to alter their transcripts to ensure that they accurately reflected their experiences. In order to ensure anonymity, participants were provided with pseudonyms and identifying features such as geographic location names were fictionalized. Following the recommendations of Braun and Clarke (2006), thematic analysis was used to identify repeated patterns of meaning from the experiences of the eight beginning teachers while also speaking to the differences in the set of interviews. The three authors reviewed the participants’ interview transcripts and made note of the themes arising in the data. The authors endeavored to ensure the coding of the transcripts and the interpretations made from the codes were “data driven” and constructed from the “raw information” contained in the transcribed responses to the interview questions (Boyatzis, 1998, pp. 30-31).

Participants

Six of the eight participants in this study were female. Participants ranged in age from 22 to 34 years old. Two of the participants (Angela and Jake) were married. Although Lisa identified herself as being of Aboriginal descent, all other participants were Caucasian. Participants held a variety of teaching positions (e., full-time, replacement, or temporary teaching positions). Lisa and Mandy taught in a northern school division while all other participants taught in a rural school division. Lisa and Angela taught primarily elementary school (K-6), Jake and Chantelle taught primarily middle school (5-8), and Emily, Brayden, Samantha, and Mandy taught either Junior or Senior High school (7-12). Half of the teachers were responsible for teaching only one grade and/or one major subject area. However, Chantelle and Angela taught multiple grades, Jake taught split classes, and Samantha taught in a multi-grade, mixed–age classroom. Jake and Angela each taught in two separate schools.

Teachers taught in a variety of communities. Communities varied in size of population (i.e., villages vs. towns), first language of the majority of students (i.e., Cree, French, English), religious beliefs (e.g., Mennonite communities), ethnicity (i.e., Aboriginal, Caucasian), and primary economic industries (i.e., agricultural vs. logging) Schools ranged in size from 50 students in Kindergarten to Grade 12 in one school to midsize schools with approximately 500 students. The diverse communities in which the participants were living provide a representative snapshot of the variety of rural and northern environments beginning teachers encounter in the province of Saskatchewan.

Findings

Analysis of the beginning teachers’ interviews highlighted shared themes relating to the perceived challenges of working in rural or northern communities and provided recommendations for beginning teachers considering employment in these environments and for teacher education programs (Table 1).

Challenges

In the interviews, beginning teachers shared the challenges they faced when working in a rural and northern community. These challenges included: acceptance, understanding the community, isolation, overlap between personal life and professional teaching life, and the impact of the rural/northern context on the work.
Table 1
Themes Arising for Challenges and Recommendations

<table>
<thead>
<tr>
<th>Challenges</th>
<th>Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acceptance</td>
<td>Preparing to obtain a rural teaching position (e.g., coursework, rural internship, personal connections)</td>
</tr>
<tr>
<td>Understanding the community</td>
<td>Utilizing mentors to help reduce professional isolation</td>
</tr>
<tr>
<td>Isolation</td>
<td>Becoming involved in the community</td>
</tr>
<tr>
<td>Overlap between personal and professional lives</td>
<td>Building a professional network</td>
</tr>
<tr>
<td>Lack of resources</td>
<td>Making and maintaining personal connections outside the community</td>
</tr>
<tr>
<td>More work because of rural/northern context</td>
<td>Set aside personal time</td>
</tr>
<tr>
<td></td>
<td>Preparation programs need to provide specialized training for teachers who will serve in these settings</td>
</tr>
<tr>
<td></td>
<td>More generalist options in teacher education programs</td>
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</tbody>
</table>

**Acceptance.** None of the beginning teachers in our study found employment in their home towns. According to Emily, the lack of previous contextual knowledge might be an advantage.

I think if I had been in the community before, it would probably be a situation where I went to school with your younger brother or sister or I used to babysit you or I know your parents. So then you kind of have these preconceived notions that I think can really change how you work with students.

Beginning teachers are balancing a new career and often the relocation to a new town. For participants in our study, all but two of the beginning teachers were required to relocate for their employment. Acceptance of the new teacher into the rural or northern community did not appear to be an issue for beginning teachers such as Angela or Jake who already had ties to the community. As Angela stated, “I’ve been in this community for just about five years…. It’s my husband’s community and they’ve welcomed me with open arms right from the beginning.” Jake felt that his existing connections to the area helped him be accepted by the communities in which he taught.

My wife is a teacher as well. She ended up teaching here. So we moved up here and yeah, kind of really liked the area and didn’t want to go anywhere, so I applied…. I had also interned at the one school.

Other newcomers to rural and/or northern communities also spoke of the welcoming atmosphere of their new communities. Mandy noted.

Even when I came up here for the interview back in June, everybody was so friendly. They wave to you on the street. I went into a café for lunch and people asked, “Hi. How are you? Are you the new teacher? …When I moved up here, people immediately came out and helped me move in. So I felt very welcome.

Despite a welcoming atmosphere, the relocation experience was challenging for Mandy, Samantha, and Lisa. For example, Mandy said, “Coming into a community that I didn’t know has made it a little more tough [sic].” Samantha shared, “It’s intimidating. It’s extremely uncomfortable being somewhere where you don’t know anybody.” Even having previous experience growing up in or living in a rural or northern community did not always prepare participants for the relocation. Lisa, who grew up in and completed her education degree in a northern community, experienced unexpected challenges moving into her new community. When asked, “Do you think you were scrutinized by not having grown up in the community?” she replied, “Yes… and being a full treaty Aboriginal woman [did not help]… There really aren’t that many [female full treaty aboriginal teachers]… so I think that worked against me [being accepted].”

However, being accepted by the community is not the only challenge when working in a rural environment. Beginning teachers also have to learn about the community they are living in.

**Understanding the community.** Beginning teachers reported challenges in attempting to understand their community, the community-school and community-teacher relationships, and the expectations of their community. The participants spoke of a diverse set of community experiences. Some experiences were very positive. For example, Mandy stated, “There is a lot of respect for teachers in this community.” Lisa also described the positive relationship between her school and her community: “I just think of teamwork when I think of our school because everyone works together and its very community oriented.” Mandy expanded on her positive experiences:

If we want to talk about how the community perceives the school and the teachers…. They [parents] know that education is so important for their kids and they
trust the teachers. That’s a great feeling to know that they trust my decisions.

However, despite her positive experiences, Mandy’s ability to teach was impacted by some significant issues in her northern rural community: “There’s a lot of fetal alcohol; there’s a lot of substance abuse problems and it carries into the school.”

Samantha and Mandy reported having difficulty deciphering and meeting community expectations. For Samantha, her frustrations involved the level of teacher involvement in student extracurricular activities dictated by the community. “Like curling, outside sports is especially huge. They [the community] just think that teachers should be doing this . . . the expectation that I see is coming from the community.”

For Mandy, the expectations evolved from the problems inherent in the community.

The community views the school as a crutch. We’re supposed to do everything, to fix everything—fix all the problems in the community.... There are some big expectations on the school...but it’s just not realistic. Beginning teachers are left to figure out the expectations of the community relating to being a teacher, and the relationship between the community and the school. If teachers do not have assistance or guidance from other teachers or community members, then they may feel alone or isolated.

Isolation. Feelings of isolation, especially social isolation, geographical isolation, and professional isolation were identified in detail by Samantha, Brayden, and Chantelle. For example, Samantha stated, “My grandma would come visit me, they’d leave, and I’d start crying. They wouldn’t even be in their vehicle and I was crying.” Social isolation was often accentuated by the geographical location of the rural or northern community. In response to a question about how far the community in which this teacher was working was from a major urban center the same teacher, Samantha, replied “it’s a very good trip 2.5 hours...3.5 hours from [a major urban center].” Other comments included feelings of isolation despite being in close proximity to individuals within the community and school itself. The social isolation seems to come from not knowing anyone or lacking peer interactions. Chantelle stated, “Everybody else is from here, and they kind of either grew up here and stayed here or else it’s been so long that they’re pretty well established... I’m the only girl in this entire village that’s my age.” The lack of facilities and opportunities for socialization seem to make feelings of isolation worse. Chantelle elaborated, “Yeah. I’m just so social. [It] was like hitting a brick wall. No gym, no running room.” In response to a question about being new to the community, Brayden replied, “I felt a little isolated, just being new and also, just having so much work to do I can’t really get out and socialize much.” Chantelle and Brayden also spoke about professional isolation. Brayden said, “This being such a small school, no one else teaches the subjects that I teach.” Chantelle concurred: “I am the only teacher that teaches English. I am the only teacher that teaches art.... You can’t really go see anyone else unless they’ve taught those languages or they’ve taught art and none of them has.”

Due to the isolation of the rural and northern teaching positions, some beginning teachers did not plan to remain in their current positions. Chantelle had requested a transfer and commented that she was surprised by her original posting. She commented, “I specifically told them [school division]... I don’t want to be sent somewhere where there’s going to be so much culture shock....and then they pitch me up north...but I thought I’ll tough it out for a year and then you can ask for a transfer.

Beginning teachers not only experienced personal and professional isolation, they often felt that their personal and professional lives could not be kept separate in a rural or northern community.

Overlap between personal and professional lives. The beginning teachers in this study appeared to struggle with finding a balance between professional and personal lives. As Lisa said, “At the beginning I was going in [to school] a lot in the evenings.” With more experience came new coping methods and a better balance. “I learned to manage my time better, so I go in now at eight and leave at five every night. And then I go in on Sunday evening.” Mandy also created her own coping method: “I try and do my work at school and avoid bringing it home with me. Because I know that’s what I’ll spend all my free time doing instead of relaxing and finding time for myself.”

The rural and/or northern context also appeared to impact the amount of overlap between teachers’ personal and professional lives over and above what might be expected for all beginning teachers. On the one hand, a welcoming community fosters acceptance. As Angela stated, “The difference when you can go to the grocery store and ten people ask you how you’re doing and they actually care. They want to know more about you. They want you to be a part of their lives. It has really, really helped a lot just making me feel comfortable and confident in what I’m doing.

However, the negative side of the welcoming small town atmosphere is a lack of privacy. Angela also noted.
You can’t do absolutely anything without them noticing. If you’re sitting on your patio step and you’re having a beer with your friends, somebody’s going to walk by and they’re going to notice and they’ll tell somebody else. So you have to be really confident in knowing who you are and what you believe in.

Chantelle spoke at length regarding the lack of activities and isolation coupled with the overlap between personal and professional time. One solution to boredom was going to the local hangout “but then you go to the bar and there are the parents [of my students] and that’s not good.” Samantha expanded on this negative: “You have all eyes upon you. The way that you act in public definitely reflects on who’s there... you don’t want to do social drinking and [sic] anything else that would be deemed inappropriate.

Emily also described not being able to get away from the students they taught and their families. “Most of my students are working at some of the places that I go to. So if I go out for supper, I usually run into one of the students.” Samantha also noted that “Your Sunday afternoons aren’t your time...I’ve gotten phone calls from parents...it’s invading your space and your time and it’s not on school time.” Samantha summed up the situation by stating, “You’re a teacher twenty-four/seven regardless of what you’re doing or where you are.” It is not only a challenge for beginning teachers to balance their personal and professional lives, it is also a challenge in rural/northern areas to balance workload and contextual issues and demands. Although all beginning teachers in this study reported their first year of teaching was tough, most beginning teachers also spoke about the unique aspects of teaching in a rural or northern school that added to their workload. Access to resources is one such issue.

Resources. When teachers are employed in a rural or northern environment, they may not have easy access to resources in the community to support the development of curriculum (e.g., local library, or stores carrying classroom specific supplies). They often have to rely on materials that are available in the school environment. Mandy was challenged by a lack of resources brought about by school policy, community interaction with the school, and a previous teacher.

The community has taken all my equipment out of my storage room. I have nothing left to teach with.... We’re only allowed a box of paper per year and our school is out of paper now so we can’t photocopy assignments. The teacher before me didn’t leave any of the resources in the classroom,... That’s been the frustrating thing and I think that’s what has been consuming a lot of my time as well, because I have to sit down and think of resources.

The lack of resources seemed to add to an already heavy beginning teacher workload.

Workload. Sometimes, the nature of the teaching contract impacts the workload. Angela and Jake both accepted employment positions that were split part-time between two schools. Angela found a resource difference in terms of preparation time between her two schools. “In my half-time position I get absolutely no prep time at all. In my other position I get some and it helps, it really does... you can just sit and plan.” Jake found that being one of three part-time teachers in a very small school substantially impacted his extra-curricular workload. “It’s a real hard thing to properly give them [students] things like, you know, extra-curricular time and things like that.” Chantelle made a similar statement with respect to the impact of the rural and/or northern context on her extra-curricular workload: “I’m the only female teacher on the high school level, [in] pretty much all the sports, I’m implicated.”

In smaller schools a single classroom may house multiple grades if enrolment is low. This may increase class size as well as increase the planning time and work load for rural and northern teachers. Chantelle and Angela both experienced teaching multiple grades, while Samantha and Jake experienced teaching split-grade classrooms. Angela stated, “There are lots of multi-grade classrooms, and because we’re a rural school, everybody’s becoming more and more taxed with their job loads” In response to a question about his preparation for teaching split classes, Jake responded, “The only thing is the class, like that class [split class] of 33 is a bit of a monster at times... It’s a hard thing sometimes to kind of control the circus that can go on.”

Chantelle, a rural teacher of multiple grades, also spoke to the impact of diversity on multi-grade, multi-level classrooms.

A large percentage of them [students] have predominant learning issues. ... I wouldn’t mind if you had one class. Like if I had a class of Grade 6 and 7′s in a year, that’s not that bad. But when you have so many levels and so many subjects to teach, whether you like it or not, it’s overwhelming.

Mandy, teaching in a northern community challenged by social issues, also experienced the demands of students with a variety of learning levels. “If we’re comparing these kids to kids down south, my average kids who are getting 70-80 percent here would be below average down south. It’s very high needs.” Brayden found that the geographic diversity of his students added to his workload, especially with respect to providing additional help. “Some of them it’s easier to help in-class, others want the help out of class, others can’t get the help out of class because they’re bussed in.” In contrast, Jake admitted that the rural and/or northern context may result
in less outside of school commitment: “It’s nice in a rural school because the kids have to be on the bus at 3:15 PM, so there’s no after school. I mean there’s one night a week where I have to coach a game.” In addition to these identified challenges, participants also commented on issues they felt future beginning teachers in a rural or northern school should consider.

**Beginning Rural Teachers’ Recommendations**

Beginning teachers also highlighted recommendations for peers considering employment in rural and northern educational environments, including: preparing to obtain a rural teaching position, utilizing mentors to help reduce professional isolation, and developing connections inside the community and connections outside the community.

**Preparing to Obtain a Rural Teaching Position**

Sometimes, a rural and/or northern teaching position is found simply by being open to the idea of such a position. As Mandy advised:

*People coming out of school and applying for teaching jobs are really selling themselves short by thinking “I’m just going to apply to the city.” They just don’t understand what positive things can happen if they go to a new community.*

Emily was open to a position in a rural and/or northern community and obtained her position in rural community through a traditional route. “When the school had been at our career fair, they had mentioned to me that this position would be coming available, so I just kept my eyes posted and then I just applied for it.” However, rural and/or northern teaching jobs are not always easy to find. Lisa found herself interning in the north and followed that experience with a year working in a non-teaching position within the school prior to being hired at her current location. “It’s hard to get a job. Usually you have to work term positions before you end up getting a full-time position because there’s just so much competition there.”

Being open to the idea of a teaching position in rural and/or northern Saskatchewan may come naturally to teachers who grew up in such communities. Personal experience in rural and/or northern communities may be advantageous. As Angela stated, “I knew that, especially because I grew up in a small town, I knew kind of how a smaller school worked where the kids kind of worked together and you knew everyone and everyone knew you.”

Other beginning teachers in this study recommended that teachers interested in working in a rural or northern environment should prepare specifically for obtaining a rural teaching position by planning undergraduate course work and practical experiences to cover general teaching areas. Mandy shared, “I made sure that I taught out of my subject area so that I did have that experience.” According to Mandy, having training across grade levels and academic subjects, prepares teachers for working in a variety of environments. “I really wish that it [pre-service training] could have been more generalist- so that we would know the curriculum from K to 12 and have been trained in [it].”

Another means of preparing for a rural or northern teaching position was to specifically request an internship experience in a rural and/or northern school. Teachers in our study (Lisa and Jake) who had experienced such an internship believed that their internship experiences helped prepare them for employment in rural and/or northern communities as well as ensured they were recognized within the school district or community. For example, Jake said, “I mean, because I interned at that K-8 school, I mean I knew what I was getting into and I didn’t have any doubts about it.” Lisa had a similar story. “I interned there and then I worked for a year at the preschool - it helped that they got to see me. They got to see me teach before and they knew who I was.” Lisa also felt that taking her education program in the north helped to prepare her specifically for employment in the north. “I took my university in Lac du Bleu, they taught me things that were in the school already... I think it helps going to school in the north like the northern perspective and the cultural part of it and everything.”

Common perhaps to finding employment anywhere, teachers in our study suggested that prospective teachers utilize any of their existing rural and/or northern personal connections to help obtain employment in rural communities. Previous connections to the community can assist a teacher in obtaining a job. As Lisa stated, “with the smaller communities, it’s not how good you are, it is who you know, too when you get a job.” Similarly, Jake used his spouse’s connections to the community to obtain a teaching job, “it kind of helps to have some kind of backdoor channels and people knew about me.” Utilizing existing connections, preparing specifically for employment in a rural or northern school, and forging professional relationships with experienced teachers can help beginning teachers find employment.

**Utilizing Mentors to Help Reduce Professional Isolation**

Some beginning teachers in this study found themselves feeling professionally isolated teaching in a rural and/or northern community. As Mandy said, “At first I was feeling very overwhelmed. I didn’t feel that I had a lot of support from my administration.... They
don’t really have a mentorship program here.” In a similar situation, Angela compensated for the lack of an official mentorship program by finding her own personal mentor. “It wasn’t anything that was set up through the school or the division or anything like that. I guess I had a personal mentor…. Just another teacher in the school that I could visit with after school.” Mandy also found a mentor on her own.

I just went out and naturally found it [a mentor] on my own. I’m not sure that I specifically needed someone to say this is going to be your mentor for the year, but it would have been a little bit nicer.

Brayden also stated that a formal mentorship program would have helped his initiation into the teaching profession.

Maybe having an official mentorship program in effect could have been more helpful off the beginning…. If we had a cross division program where I could talk to another senior math teacher about “how would you teach this?” that might help.

In contrast to Brayden, Emily was formally assigned a mentor in her subject area. “Every first year teacher has a mentor within the school. They try to match it up as close as you can, so my mentor is also a senior science teacher.” As Brayden predicted, Emily’s mentor was able to provide subject specific teaching advice. “So my mentor, which is something that this school also offers, has been really great in giving me advice and just being someone to kind of bounce ideas off for that.” Like Emily, Samantha was assigned an official mentor but did not find the relationship helpful. Instead, Samantha sought her own mentor who was better able to help her work through her questions and concerns.

My [assigned] mentor … has about 5 years of experience teaching but I feel like he doesn’t have the emotional maturity or experience that I need as a first year teacher. I need somebody that has a lot more experience to be able to give me ideas of how to handle situations or what to do…. I currently confide in and talk to a teacher who has almost forty years experience…. I prefer him because even though he doesn’t teach in my area he has that much experience.

The practical restrictions of small schools such as those in rural and/or northern communities may limit the effectiveness of programs, such as professional mentorship, regularly used in more urban or populated areas. This leaves the beginning teacher to seek support outside of the school environment.

Making Connections within the Community

Despite the lack of time most beginning teachers in this study spoke of, most teachers also recommended making connections within the community. For example, Lisa suggested getting “more involved with their community.” Brayden stated, “I’ve tried to get to really know the kids really well. At parent teacher interviews I actually try to get to know the parents…. I’ve tried to make the connections.” Samantha also recommended showing an “interest in the community and the students, inside the school but outside as well.” She also shared that the first thing she did upon moving to her new location was “find a place to live in the community and then, trying to get connected to the community. I did a lot before school [started], like, I attended community things.” In contrast, Emily spoke of her lack of community involvement and how that lack may have been counterproductive. “I’m not pressured into being involved in the community but I’m also not coming in with some ideas about who my students are because I haven’t been in the community.” However, what does involved in the community mean? Samantha elaborated.

Make it a goal and priority to get out in the community; to show support for the students outside of school. Attend volleyball tournaments, attend hockey games, it shows that you are interested in them…. You have to sometimes mix with the community even if you feel like you are not a part of it.

Brayden also spoke of the importance of making connections to the community. Brayden was fortunate to attend a welcoming assembly at the beginning of his year with “community members and school students and all staff.” In retrospect, he found that activity to be significant. “It got my face out there so people actually know who I am when I go into the grocery store or go to buy gas.”

Emily spoke of connections she had made with other teachers in her town. “I am really grateful that there are other first year teachers who are there with me because then… [if] I had a really bad day and then somebody can kind of relate to you.” Mandy also spoke of the importance of connecting with other professionals in the community. “To be accepted as a newcomer into the community is huge. To know that somebody is there to support me, to have coffee with someone instead of being locked up in my house, that makes or breaks a person.” Samantha recommended that by getting involved, new teachers may become accepted by the community and feel less isolated. She advocated.

Take time to find those people that you can approach professionally, personally, socially and in your life, so that you have somebody to go to if you need to get out of the house or if you are isolated in a small community with their cliques and you don’t feel like [you can] go out.

Beginning teachers felt it was important to find connections within the community to support their
teaching efforts and to forge connections outside of the community in which they live and work.

Making Connections outside of the Community.

Although making connections within the community, becoming involved in the community, and utilizing mentors within the community were seen as important, in order to repel feelings of professional and social isolation beginning teachers in our study also recommended making and maintaining connections outside of the community.

Chantelle spoke of meeting her boyfriend and the importance of spending time with him outside of the community where her school is located. “We’re [Chantelle and her boyfriend] struggling with the long distance...living up here, if I didn’t have a weekend occupation [visiting her boyfriend], I would go crazy. It’s really isolated.” Lisa spoke of taking advantage of a professional development opportunity to leave her community to network. “And I am going to [urban center] on Thursday to do some networking. Just to get some different ideas and see how teachers... just to get more ideas.” Samantha spoke of the importance of finding interests outside of the community in which she was currently teaching; “Find other avenues which you might want to get involved in... I’m becoming a newsletter editor. Make sure that you are connected to other educators in the field as well as a small town person.”

Beginning teachers in this study highlighted the challenges they have experienced, and made recommendations for other beginning teachers who might be considering employment in rural or northern environments. It is important to now consider how these findings relate to existing literature.

Discussion

Similar to previous research (e.g., Barley, 2009), the rural communities in which the beginning teachers in this study taught were diverse. Despite the differences among the communities, beginning teachers in this study identified common challenges and provided recommendations for teaching in a rural or northern school. Each of the challenges and recommendations identified by beginning teachers in this study are supported in the literature.

In order to obtain a rural teaching position, beginning teachers in this study recommended being open to and obtaining teaching experience in rural communities. Hudson and Hudson (2008) stated that, “Instilling confidence and empowering preservice teachers to teach and live in rural areas require[s] first-hand experiences” (p. 74). Previous research with beginning teachers suggested employment with rural districts evolves from prior work experience, preparation (academic and professional), contract provisions, reputation, and initiative, such as using personal connections to gain employment (Storey, 2000). New teachers in rural schools need to be prepared for the “conditions of rural teaching” including appropriate credentials and a knowledge of the “nature of small schools in small communities” (Barley, 2009, p. 10). More specifically, Sharplin (2010) recommended pre-service teachers obtain practice teaching outside their proposed teaching area(s) and preferred grade(s). Sharplin (2002) and Lock (2008) urged education programs to consider including more pre-service rural and remote experiences. A pre-service internship and/or practicum experiences allow teachers to “overcome their anxieties and develop confidence in their skills and abilities as rural teachers” (Sharplin, 2010, p. 25). A rural or northern community internship or practicum placement also provides schools with the opportunity to try-out a potential teacher for a rural or northern teaching position (Munsch & Boylan, 2008).

Beginning teachers in this study found being accepted by their rural or northern community challenging. Pre-service teachers have also identified acceptance by the community as a perceived challenge of working in isolated communities (Munsch & Boylan, 2008; Sharplin, 2002). In order to obtain community acceptance, beginning teachers need to become involved in the community and make community connections. Community connections help reduce the potential for social, personal, and professional isolation. However, beginning teachers in this study found it challenging to meet the demands of their communities. A study of rural pre-service teachers identified this same challenge, “Compared to the city, where you can become lost at four o’clock... here, you are expected to teach, to coach, to go to curling, and to squeeze in attending your students’ hockey game” (Ralph, 2003, p. 29). The time and energy required to become an accepted community member is yet another requirement for beginning teachers who are new to their rural communities.

Research suggests that the onus to get involved in the community should not only be directed to the beginning teacher. In order to foster positive attitudes and feelings of belonging, school divisions and communities should make an effort to connect beginning teachers to staff and community members (Lowe, 2006; Ralph, 2003). The development of a peer support system for education graduates and beginning teachers who choose to teach in rural areas could be initiated by the teacher education institutions (Lock, 2008). Rural schools should have an
induction or assistance program in place for teachers who will be new to the school community (Lowe, 2006; Sharplin, 2002). Beginning teachers may be more willing to take positions and remain in rural and northern communities if they are supported and valued within the school environment and the community.

Similar to previous research examining teacher relationships in small communities (Huysman, 2008), beginning teachers in this study found it difficult to navigate the overlap between professional and personal lives. For teachers in rural and/or northern schools, “disappearing into the community or fading into the background is not an option” (Miller, Paterson, & Graham, 2005, p. 12). Beginning teachers also reported the limited availability of personal leisure-time activities. Even when activities were available, they were not always accessible to the teachers due to the need to act professional at all times. “Educators in rural schools experience a more intensively scrutinized professional life than their urban counterparts” (Goddard & Havermann, 2001, p. 92). Munsch and Boylan (2008) reported similar findings, with their participants stating “everyone is in each other’s business” (p. 19).

There appears to be a fine line between feelings of isolation and overexposure in rural and northern communities. If beginning teachers do not make an effort to connect to the community, their feelings of isolation may grow, causing them to leave their teaching position. However, since lack of privacy is a major challenge for beginning teachers in remote communities, new teachers could be encouraged to make and sustain personal and professional connections outside of the community. Beginning teachers need to find a balance between developing social relationships and guarding their personal space and time from being inappropriately invaded (e.g., weekend phone calls from parents). Discussing these concerns and brainstorming possible solutions could be part of pre-service training or orientation to a rural teaching position.

Experiencing increased work demands because of teaching in a rural/northern context were additional challenges reported by beginning teachers. The context of rural schools affected several of the teachers in this study in that they were required to teach split grade classes or multiple-age, mixed classes. When working in a multi-age classroom, beginning teachers are often required to spend extra planning time preparing to teach diverse skill levels (Barley, 2009). Previous research has also identified the lack of supplies and resources as a challenge associated with teaching in a rural community (Munsch & Boylan, 2008). Being creative, using existing materials, and sharing resources with other teachers in the school may help address the challenge. Discussing these rural context-related issues and considering effective time management strategies (e.g., coordinating lessons across curricular content) could be part of pre-service training.

**Conclusion**

Although few studies have examined the experiences of beginning teachers in rural communities, and even fewer have examined Canadian beginning teachers’ experiences, this study is limited to the experiences of eight Saskatchewan beginning teachers. Despite the focus on Saskatchewan, the thematic findings demonstrate that the challenges faced by Saskatchewan rural teachers are similar to the challenges faced by rural teachers around the globe. Furthermore, many of the suggested recommendations of the Saskatchewan teachers were echoed in suggestions made by others. Pre-service teachers intending on finding employment in rural and/or northern locations should obtain first-hand teaching experience with these communities. Beginning teachers in rural communities need to balance their involvement in their communities with personal and professional networks outside the community. Teacher education institutions and rural school boards should consider mentorship and peer support programs to help beginning teachers transition into their positions.

Further studies need to be conducted to build on these initial findings and help both academic institutions training pre-service teachers, and school administrators hiring for these rural and northern teaching positions, understand the feelings and experiences of beginning teachers. The realities of teaching in rural communities should be discussed and become an integral part of pre-service teacher education so that beginning teachers can be better prepared for dealing with the day to day demands of working in a rural or northern environment.

**References**


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The Power of the Symposium: Impacts from Students' Perspectives

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Knuth Research Inc.

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The Air Toxics under the Big Sky program developed at the University of Montana is a regional outreach and education initiative that offers a yearlong exploration of air quality and its relation to respiratory health. The program was designed to connect university staff and resources with rural schools enabling students to learn and apply science process skills through self-designed research projects conducted within their communities. As part of the program, students develop and conduct independent projects, then share their findings at the conclusion of the school year in some type of interactive capstone experience, the most prominent being a high school symposium held at The University of Montana campus. Student feedback collected through a carefully controlled evaluation program suggest that the annual symposium as the culminating event is a critical component of the Air Toxics Under the Big Sky program, and a valuable learning experience as many of the students go on to post-secondary education.

Key words: PM$_{2.5}$; Inquiry-based / discovery learning; symposium; environmental chemistry.

The Air Toxics Under the Big Sky program was designed to bring student-based scientific inquiry into the classroom, give students real-world experience on problems relevant to their communities, and encourage young people to seek further education and careers in environmental and biomedical sciences (Jones et al., 2007; Adams et al., 2008). The program began in 2003 when one student expressed an interest to his high school chemistry teacher in studying air pollution. With support from researchers from the University of Montana (UM), a year-long science project was implemented to study indoor air quality in the homes of 16 junior/senior level classmates. Since then, the program has greatly expanded throughout Montana, Idaho, and Alaska. As of the 2010 school year, this student-led research program has involved over 1200 students from 18 schools (including high school and junior high grade levels and an undergraduate liberal arts chemistry class at UM). Apart from schools in Missoula and Butte, Montana, the majority of schools represented are located in rural and remote areas, and include two Native tribal colleges. Table 1 presents the participating schools from the 2010/2011 school year.

The main components of the Air Toxics Under the Big Sky Program have been presented and discussed in previous publications (Adams et al., 2009; Ward et al., 2008). Briefly, prior to the start of the school year, a workshop is held at UM where new incoming teachers are introduced to the program. Teachers are then provided with a binder containing multiple environmental health lesson plans to support an inquiry-based teaching approach (NSF, 2000) as a part of their chemistry, biology, or research problems classes. A UM researcher then visits classrooms early in the school year to provide an overview of air pollution issues in the western US, and how they link with rates of asthma and other chronic diseases.

Following the in-class presentations, the classroom is provided with an air sampler, along with comprehensive training on how to use the instrument. The students then use the air sampler to collect data in support of their hypothesis-driven research projects focused on a real-world air pollution issue of concern within their homes and communities. Specifically, students measure PM$_{2.5}$ (microscopic airborne particles), a type of air pollution that has been shown to result in adverse health effects upon prolonged exposure (Krewski et al., 2009; Samet, Dominicic, Curriero, Coursac, & Zeger, 2000). PM$_{2.5}$ is also the major air pollutant in many areas of Montana, Idaho, and Alaska (Ward & Lange, 2010).
Table 1
Schools Participating in the Air Toxics Under the Big Sky Program during the 2010/2011 School Year

<table>
<thead>
<tr>
<th>School</th>
<th>Grade Levels</th>
<th>Community Population</th>
<th>School Enrollment</th>
<th>Number of Students in Participating Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>Big Sky High School, Missoula, MT</td>
<td>9-12</td>
<td>64,081</td>
<td>1,349</td>
<td>45</td>
</tr>
<tr>
<td>Hellgate High School, Missoula, MT</td>
<td>9-12</td>
<td>64,081</td>
<td>1,272</td>
<td>35</td>
</tr>
<tr>
<td>Sentinel High School, Missoula, MT</td>
<td>9-12</td>
<td>491</td>
<td>475</td>
<td>65</td>
</tr>
<tr>
<td>Corvallis High School, Corvallis, MT</td>
<td>9-12</td>
<td>2,880</td>
<td>532</td>
<td>15</td>
</tr>
<tr>
<td>Libby High School, Libby, MT</td>
<td>9-12</td>
<td>5,873</td>
<td>725</td>
<td>45</td>
</tr>
<tr>
<td>Butte Central High School Butte, MT</td>
<td>9-12</td>
<td>32,268</td>
<td>150</td>
<td>15</td>
</tr>
<tr>
<td>Kamiah High School ID Nez Perce Reservation</td>
<td>9-12</td>
<td>1,130</td>
<td>171</td>
<td>13</td>
</tr>
<tr>
<td>Lapwai High School, ID Nez Perce Reservation</td>
<td>9-12</td>
<td>1,129</td>
<td>146</td>
<td>42</td>
</tr>
<tr>
<td>Hoonah Jr/Sr High School, AK</td>
<td>7-12</td>
<td>764</td>
<td>92</td>
<td>9</td>
</tr>
<tr>
<td>Palmer High School Palmer, AK</td>
<td>9-12</td>
<td>5,532</td>
<td>917</td>
<td>25</td>
</tr>
<tr>
<td>Glennallen Jr/Sr High School, AK</td>
<td>7-12</td>
<td>473</td>
<td>183</td>
<td>24</td>
</tr>
<tr>
<td>Kenny Lake School,AK</td>
<td>K-12</td>
<td>412</td>
<td>122</td>
<td>8</td>
</tr>
<tr>
<td>Paul T. Albert Memorial School, Tununak, AK</td>
<td>K-12</td>
<td>330</td>
<td>109</td>
<td>21</td>
</tr>
<tr>
<td>Kuirnerrarmiut Elitnaurviat School, Quinhagak, AK</td>
<td>K-12</td>
<td>680</td>
<td>156</td>
<td>18</td>
</tr>
<tr>
<td>Z. John Williams Memorial School, Napaskiak, AK</td>
<td>K-12</td>
<td>428</td>
<td>125</td>
<td>16</td>
</tr>
<tr>
<td>Kobuk School, AK</td>
<td>K-8</td>
<td>122</td>
<td>42</td>
<td>5</td>
</tr>
<tr>
<td>Nuiqsut Trapper School, AK</td>
<td>K-12</td>
<td>424</td>
<td>143</td>
<td>12</td>
</tr>
</tbody>
</table>

Finally, students devise ways to share their findings with others via posters, community reports, or participation in the annual Air Toxics Under the Big Sky Symposium on the UM campus held at the conclusion of the school year. Throughout the program, students are encouraged to conduct their experiments and present the findings of their student-led, collaborative research projects in a manner consistent with the conventions of scientific communication (Marcum-Dietrich, 2010; Romanello, 2005). The program also reinforces the importance of developing science process skills such as careful experimental design, data synthesis and interpretation, and drawing accurate conclusions about the results of experiments – all important skills required for students to succeed in science at the college level (ACT, 2009).

The effectiveness of the Air Toxics Under the Big Sky program has been confirmed through rigorous assessment by an external (independent) evaluator. Through these evaluations, it has become clear that one of the most important components of the Air Toxics Under the Big Sky program is the symposium held at the conclusion of each school year. In this manuscript, we present the findings of independent evaluations carried out over a three-year period that demonstrate the importance of the culminating event in enhancing learning outcomes and community engagement. We also describe how the current symposium has evolved through the years in an effort to accommodate the increased numbers of participating schools in widely dispersed rural communities.

As part of the Air Toxics Under the Big Sky program, we encourage students to disseminate their research results. In the past, this has been done through a variety of ways, including: science fair participation, newspaper article submissions, production of informational brochures, sponsorship of open house nights at participating schools, environmental health fair involvement, and participation in the annual symposium held on the UM campus. Many successes (for example, medals, ribbons, publications, media recognition, placement at regional and national events) have been realized for our students since the program began in 2003.

The Air Toxics Under the Big Sky Symposium

The majority of the schools participating in the program each year (in Montana and Idaho) opt to bring their classes to the annual UM symposium held in May of each year. The first symposium (2004) welcomed 86 students, while the latest one (2010) involved more than 200 students from multiple regional high schools. In
addition to students, this event brings together teachers, community members, public officials, UM faculty, and researchers in one of the largest lecture halls on the UM campus.

At the annual symposium, presenters have two options for sharing their research findings: via oral presentations using PowerPoint, or via posters. Both the oral presentations and poster sessions have separate judging panels that determine awards for best oral and poster presentations, respectively. The five-member judging panel for the presentations is composed of local celebrities, including regional television personalities, UM coaches, and others. The poster session judging panel is composed of three to five volunteers from UM.

The symposium typically lasts from 9:00 AM to 2:00 PM; therefore, it is difficult to accommodate presentations from each group from every participating school. As there is a limited number of slots, the teachers are informed prior to the event how many presentations they are allotted for their respective schools. Leading up to the event, teachers choose those projects that will be presented by the teams and those that will be disseminated through posters. It is the desired goal that all students have the opportunity to present their findings through one of these mechanisms. Our most recent symposium (May 2010) included 22 group presentations, and 25 poster posters.

Depending on class size and teacher preference, students are typically organized in teams ranging in size from two to five members (for both presentations and posters). The teams choosing the oral presentation route are afforded five minutes to present their findings, followed by one minute of question and answer time. In the interest of saving time and avoiding redundancy, it is recommended that students minimize details on background materials and instead concentrate on presenting the experimental design, results, and conclusions of their research. Student groups choosing the poster option have their work displayed for public viewing during the designated poster session. These students are encouraged to present background materials in addition to the experimental design, results, and conclusions of their research. At the conclusion of the symposium, the winners (1st, 2nd, and 3rd place for the presentations and poster sessions, respectively) are announced, and the teams are acknowledged in front of their peers.

Evaluation Process

As part of our National Institutes of Health Science Education Partnership Award funding, an independent evaluation was conducted on the Air Toxics Under the Big Sky program. One of the evaluation goals was to gather student perceptions about the annual symposium. Data were collected through an end-of-symposium survey (paper) that took approximately 15 minutes to complete, and included six questions about the symposium experience. Over the 2006-07, 2007-08, and 2008-09 school years, a total of 448 student surveys from nine schools were collected. Most of the participating students were 17 years of age (51%) and in the 11th grade (56%) at the time of their symposium presentations. Tenth and 12th-graders also participated, ages ranging from 15 to 19 years old. Overall, more females than males that submitted surveys (56% and 44%, respectively).

Results

The first survey question asked students to rate how well they thought their presentations went on a scale of 'really bad,' 'not so good,' 'about average,' 'good,' or 'excellent.' Nearly three-fourths indicated that their presentation went either good (53%) or excellent (19%). About 22% felt it was 'about average,' only 4% reported that it was 'not so good' and less than 2% circled 'really bad.' This trend was consistent for each of the three symposia.

An important purpose of making a presentation to a scientific community is to share findings and insights that result from inquiry. Therefore, students were asked to list the most important things that they hoped their audience would learn from their presentations. Nine categories emerged through a card sort procedure in which responses were grouped into piles containing similar concepts. After the procedure was completed, about a third of the responses fell into a category that was labeled "the causes of poor air quality." Another third of the responses dealt with two concepts: "the importance of having good quality air and how to improve it" and "specific information about air pollution and other dangerous chemicals." One out of ten students wanted the audience to learn about "the effects of poor air quality on health", while another 10% indicated that the objective was for the audience to learn about "general air quality issues, especially PM_{2.5}.

Students were then asked to describe the most important things that they had learned as a result of working on their project and giving their symposium presentations. A card sort procedure was again used which generated nine response categories. The most frequently given response (nearly 30%) dealt with students' increased "general awareness of air quality and particulate matter." About a fifth listed knowledge related to "conducting scientific research and participating in the research process." Less than one percent of respondents
reported that they "learned nothing" from the project. Some students reported that they learned about "the effects of poor air quality on health and the environment" (12%) or "the need to improve air quality and ways to do it" (12%). Others gained knowledge or skills related to "planning and working on a project or presentation" (7%), "improving presentation and public speaking skills" (4%) or "working as a team" (3%).

Presenting to a large audience of one’s peers can be a daunting experience. After having participated an event of this magnitude for the first time it becomes clear to students what they could do in the future to improve their performance. On the survey we asked students a related question: "If you were to give your presentation again in the future, how would you make it better?" The category with the most responses (almost a third) focused on strengthening their research during the school year. In students’ responses to questions from the judges it was common to hear them describe their desires to control for more variables or collect more data points. The second highest ranked item (14% of responses) focused on including more information in their future presentations. That is, students reported that they would like their presentations to be more comprehensive. About 14% of students felt that practicing their presentation beforehand would have improved their presentations, while about 13% thought they could have done a better job of explaining and answering questions during their presentations. Almost 10% of students stated they would spend more time putting together their PowerPoint presentation.

A long-term goal of the Air Toxics Under the Big Sky program is to build the pipeline of students entering scientific careers. Thus, the survey asked students to describe what impact their experiences at the UM symposium would have on their lives. A primary impact listed by nearly a quarter of all students was that clean air is important, and that they now know about ways to improve it. In ranks two, three, and five, respectively, (38% of all responses) the impacts listed dealt with increased knowledge about air pollution, improved public presentation skills, and an increased ability to conduct scientific research.

In addition to giving their own presentations, students also had the opportunity to observe presentations from other students and listen to and interact with UM staff and researchers. To get a sense of their perceived value of the day, students were asked to rate their overall experience at the symposium. An overwhelming percentage of students (85%) rated their experience at the University of Montana symposium as either ‘good’ (59%) or ‘excellent’ (26%). More females gave a ‘good’ rating than did males (61% versus 55%, respectively), while the same proportion of males and females rated it as ‘excellent’ (26%). Overall, only 13% of students indicated that their day was about average and only about 2% said that it was either ‘not so good’ or ‘really bad.’ These ratings were fairly consistent for each of the symposia for which data were available.

The survey also contained questions about the Air Toxics Under the Big Sky program in general. Responses to two of those questions are particularly important. Students were asked whether the program changed their interest in (1) science and (2) in pursuing a science career. Thirty-six percent of students, after having just given their presentations, reported that they were more interested in science as a content area, and 24% reported an increased interest in a science career. This is a notable, since a large number of these students were in elective science classes in which students may be expected to have high levels of science and science career interest. Any reported career interest increases by these students suggest that the Air Toxics Under the Big Sky program, with its culminating symposium, is a powerful way to have an impact on those who already have a high level of science interest.

**Discussion**

Instituting a capstone experience (such as a Symposium) as an integral part of student research projects provides a strong incentive for young researchers to hone their research methods as well as their communication skills. This culminating experience has been used successfully in other studies as well. For example, an inquiry project focusing on water quality involving high school teachers and students in Missouri had an annual science symposium, providing a forum for students to present and discuss their scientific results in front of peers, scientists and school administrators (Sarkar & Frazier, 2008). At the conclusion of the projects, teachers noted improvements in students’ performance in content and skills areas, as well as their overall attitude and enthusiasm. Two more inquiry projects involving K-12 students which focused on local environmental issues (Sedlacek, Young, Acharya, Botta, & Burbacher, 2005) and indoor air quality (Hanes & Sadler, 2005) also had students prepare posters and oral presentations for local community and school boards, as well as their peers. While there was a lack of formal assessment in these projects, both studies reported that the sharing of scientific results to others gave students experience in communicating their results in a concise and balanced way, and allowed students to make a connection to their communities through their research.

Survey data collected from student participants as part of this study are encouraging, and suggest that the
symposium component of the Air Toxics Under the Big Sky program is a valuable student experience. The majority of students reported that their presentations went well and that they had a positive experience. They were able to articulate what they wanted their audience to learn: findings directly related to their research projects. And students were mindful about what they had learned as a result of giving their presentations: knowledge related to air pollution, scientific procedures, working on team projects, and giving public presentations. They were also very aware of what they needed to do to improve: conduct better research, be more comprehensive in their information, practice, and spend more time developing their presentations. Specifically students knew they would need to have more data, control for more variables, and spend more time and care in the data collection process.

Alternative Culminating Events

As the program has expanded, strategies for enhancing the culminating events have been developed based on the needs of individual teachers. Since many of the participating schools are located in rural areas dispersed throughout three states (Montana, Idaho, and Alaska), the program has devised a variety of alternative culminating events or capstone experiences from which to choose: science fairs, school assemblies, open houses, traveling poster shows, and virtual symposia using distance learning capabilities.

The virtual symposium option was piloted in May 2009 by using a videoconferencing technology interface to connect UM researchers with students from high schools in Hoonah and Wasilla, Alaska. This undertaking forged an additional connection within their respective communities. As the schools didn’t have teleconferencing capabilities themselves, Wasilla students accessed a teleconferencing facility by traveling to the main Matanuska-Susitna Borough School District offices in nearby Palmer. In a cooperative arrangement with the US Department of Agriculture, Hoonah students were able to use technology housed in the nearby United States Forest Service building. These alternatives alleviated travel, budget and scheduling issues, which can be problematic for rural schools, particularly at the end of the academic year.

As the Air Toxics Under the Big Sky program expands into rural areas outside Montana, the challenge is to maintain the campus-community connection by leveraging interactive teleconferencing tools, community events, and media involvement so that students communicate their research projects and data to the widest possible audience. Traveling poster exhibits also have potential to extend the curriculum into communities served by the student investigations on local air quality issues.

Conclusion

In follow up meetings, teachers in the Air Toxics Under the Big Sky program have pointed out that the annual symposium is an important event for the students for several reasons: 1) It is the culmination after a year of activities (including student project design and hypothesis, data collection, analysis, and finally organization of an oral or poster presentation), 2) The process of going through the collection and analysis of experimental data and organizing the material in either an oral presentation or in a poster format to an audience of researchers, judges, and their own peers ‘raises the bar’ for student performance and expectations, and 3) Students from different high schools working on indoor air quality projects have a chance to share their results and problems encountered in the process of their research, as well as observations about their overall experiences from the year’s work.

The symposium, whether conducted as a virtual competition through distance delivery methods or as an in-person live event on the UM campus, offers a valuable educational experience for rural science students. The focus on indoor air quality experiments conveys the relevance of air pollution in the context of everyday life. The findings from the students’ projects are being used to educate others (parents, fellow students, teachers, and community members) on the importance of good air quality, and the steps they themselves can take to improve air quality within their homes, schools, and communities. A culminating event such as the UM Air Toxics Under the Big Sky symposium also provides many of the students with an invaluable learning experience of presenting their research findings to their peers – a skill they will need as they pursue their college educations.

References


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Toward a Transdisciplinary Rural Education Research Agenda

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This paper examines the representation of rural education research orientations—defined in terms of methodological approach, academic focus and place-consciousness—within the literature and across academic disciplines. A content analysis of 155 abstracts from articles published in the *Journal of Research in Rural Education* and *Rural Sociology* between 1997 and 2008 reveals that most rural education research is not quantitative, not academically-oriented and not place-conscious. Furthermore, the abstracts show that Rural Educators are underrepresented in academically-oriented research while Rural Social Scientists are overrepresented in that dimension. The implications of these findings for collaboration are discussed and a policy-relevant, innovative, transdisciplinary research agenda is outlined.

**Key words**: Rural sociology; education research; research methods; transdisciplinary; content analysis.

The rural school has served as a laboratory for scholars across academic disciplines for over a century (DeYoung, 1987; Theobald, 1991). The inaugural issue of the oldest American education journal, *Journal of Education*, examined formal agriculture education practices (Farmer, 1838), and the first issue of the Rural Sociological Society’s flagship journal, *Rural Sociology*, included studies of the health of school children and the attitudes of high school seniors toward farming (Holt, 1936). More recently, several orientations toward rural education research, differentiated in terms of methodological approach, attentiveness to academic outcomes and degree of place-consciousness, have emerged. The purpose of this study is to determine the extent to which these research orientations are represented within the literature and across disciplines, and to offer strategies for developing stronger transdisciplinary rural education research collaborations that we argue are necessary in the contemporary education policy climate.

Those who conduct rural education research can be placed in at least two disciplinary categories. The first category, *Rural Educators*, is comprised of individuals with appointments in colleges of education, while the second category, *Rural Social Scientists*, includes scholars from outside colleges of education. The latter category is largely made up of individuals from colleges of agriculture and liberal arts. Additionally, a significant number of Rural Social Scientists work for regional education laboratories, government agencies and non-profit institutions. Of course, the labels we assign to these organizational and departmental categories should not suggest that the work of these two groups is mutually exclusive; certainly many Rural Educators conduct social science research and many Rural Social Scientists engage with teaching, learning and educational outcomes.

While the histories of the Rural Education and Rural Social Science communities are robust, at present the two groups potentially maintain distinct research orientations. We posit that disciplinary expectations, institutional contexts and public policy landscapes encourage researchers from a given disciplinary affiliation to conduct research of a specific orientation. More precisely, we hypothesize that Rural Educators are compelled to engage in spatially decontextualized studies of academic outcomes of students who only happen to be situated within rural places. On the other hand, we expect that Rural Social Scientists are encouraged to study the social and spatial contexts of rural schooling and thus conduct research that is particularly sensitive to place.

In the following pages we first outline the disciplinary contexts of the Rural Education and Rural Social Science research communities. Second, we highlight previous reviews of rural education scholarship and place our study among a literature calling for transdisciplinary rural and education research. Third, we describe the data and analytical approach used in our content analysis of 155 rural education journal article abstracts published between 1997 and 2008. We conclude by discussing strategies that Rural Educators and Rural Social Scientists might pursue in order to engage in more efficacious transdisciplinary research.

**Context**

**Disciplinary Influences**
The work of Rural Educators and Rural Social Scientists is informed by markedly different institutional contexts and by contemporary public policies. Standards-based federal, state and local policies, and the funding attached to them, place a high value on research that measures and helps improve upon academic outcomes of individual students. Federal law mandates that education policies be grounded in “scientifically based research,” preferably derived from national datasets (United States Department of Education [USDOE], 2001). The largest and most recent federal education funding package, Race to the Top, requires states to adopt (quantitative) data systems tied to student performance (USDOE, 2009). Arguably, then, education scholars must engage in highly empirical, outcomes-oriented research in order to remain policy-relevant.

Perhaps the corollary disciplinary, professional and institutional incentives for Rural Educators to engage in experimental analyses of academic interventions – rather than in interpretive studies of social and spatial contexts of schooling – explain the observation that many rural education manuscripts fail to describe “the rural context of research” (Coladarci, 2007, p. 2). Indeed a problem persists “that rural education researchers, in their reports and publications, typically fail to describe the context of their research in sufficient detail” (Coladarci, 2007, p. 2). Furthermore, contemporary education policies endorse centralized, bureaucratic accountability measures that largely ignore the structural peculiarities of rural schools and communities. The decontextualization of policy formation and implementation results in a decontextualization of (rural) education research. Hence much of the rural education research fails to make a rural case because first, “far too often, it remains unclear whether the researcher has discovered a rural phenomenon or, instead, a phenomenon that is observed incidentally in a rural setting” (Coladarci, 2007, p. 3), and second, claims of inherently rural best practices fail to be rigorously scrutinized.

A different set of influences is derived from the disciplinary, professional and institutional positions of Rural Social Scientists. Historically, Rural Social Science research in the United States – in particular, sociological research – has been situated in land-grant colleges and universities (Beaulieu, 2005). The mission of these institutions was, and still is in part, to disseminate academic knowledge to practitioners and laypeople throughout a state; successful completion of this task requires sensitivity to local practices. As such, one expects place-consciousness to be a hallmark of Rural Social Science.

Significant funding from the United States Department of Agriculture (USDA) administered by state-based agricultural experiment stations (Kranich, 2008) has supported this work over time. Given the de facto (albeit arguably insignificant at present) fiscal relationship between land-grant institutions and the USDA, “reliance on such funding has constrained the focus and scope of much rural sociological research to topics that fit within whatever may be included in the then-current USDA agenda of priorities and to issues and locations deemed relevant by Experiment Station administrators whose interests most often are centered within their own state” (Kranich, 2008, p. 6). Admittedly, a majority of these localized topics are agriculture-, food- and natural resources-related. However funding is available for integrated Rural Social Science research from the USDA Agriculture and Food Research Initiative (AFRI) for projects incorporating a place-based outreach or educational component (USDA, 2009).

A Call for Collaboration

Rural Educators and Rural Social Scientists who conduct education research undoubtedly share a common commitment to local schools and rural communities. For example, “one portion of the literature on rural education explicitly or implicitly espouses the view that a strong connection to the community and sense of place are values to be preserved in rural areas. It suggests that what is at risk is not the individual students, but rather, the community as a whole. Thus, a large part of the literature on rural education is based upon the belief that rural areas should be preserved, and that keeping rural communities intact must be a goal of education” (Khatti, Riley & Kane, 1997, p. 81).

A tension exists, though, between Rural Educators and Rural Social Scientists who wish to simultaneously inform policy, remain sensitive to the complexities of rural communities and adhere to institutional and disciplinary expectations; encouragingly, a shared desire to work collaboratively exists as well. Prominent voices in the Rural Education and Rural Social Science research communities have advocated for greater transdisciplinary collaboration. The need for collaboration among those who study rural education is particularly acute given that there exists “relatively little networking in the professional and research communities around rural education research” (Sherwood, 2000, p. 160).

In his departing editorial in the Journal of Research in Rural Education (JRRE), Coladarci (2007) observed “rural education research often is conceived rather narrowly, not taking advantage of disciplines outside mainstream education. By drawing deeply from such disciplines as sociology (e.g., see Beaulieu, 2005), history, anthropology, and psychology for framing their questions and conducting their investigations, rural education researchers collectively will make greater gains
in understanding and improving education in rural communities” (p. 6). He urged rural education scholars to incorporate the rural context more thoroughly into their work and stressed that “rural education research would be better off if investigators looked more broadly and drew more deeply with respect to other disciplines that can inform their work” (p. 6). The community of Rural Sociologists, and Rural Social Scientists more broadly, may be particularly well-placed as partners in this rural education research endeavor. For example, rural Social Scientists have recently made calls for transdisciplinary collaboration, the most urgent of them voiced by rural sociologists. The vitality of rural sociology as an academic discipline has dropped precipitously in recent years as evidenced by decreases in the number of rural sociology faculty, graduate students and Rural Sociological Society (RSS) members, and by the virtual disappearance of stand-alone departments of rural sociology (Beaulieu, 2005; Krannich, 2008). In response to this decline, many rural sociologists have yielded to institutional pressures to work across disciplines, hence the emergence of journals of rural and community studies and hybrid social science departments in land-grant colleges of agriculture. Former RSS president Bo Beaulieu (2005) challenged members of the society to move “beyond discipline-based research” (p. 8) and build partnerships with colleagues within the discipline, outside of the discipline and with those in policy and practitioner roles as a strategy for sustaining the organization. In doing so, he invoked the historical commitment of rural sociologists to the public (e.g. Sanders, 1958) and the recent call for a “public sociology” that has emerged from the American Sociological Society (e.g. Burawoy, 2004).

With these disciplinary contexts in mind it seems that Rural Educators and Rural Social Scientists (or at least a subgroup of rural sociologists) face a timely and well-suited opportunity for collaboration as each has much to offer the other. For example, the socio-spatial theoretical orientation of Rural Social Scientists has the potential to contextualize the empirical work of Rural Educators studying rural communities. Likewise, the methodological and policy expertise of Rural Educators may guide Rural Social Scientists to questions relevant to local classrooms, schools and districts. The potential in transdisciplinary collaboration is enormous given the shared belief that as a group, we are committed to social change that will promote the well-being of rural people and communities. That commitment is reflected in a strong focus on addressing real-world problems through original research, information dissemination, policy assessment, and action. We are highly inclusive and value the ways in which a variety of disciplinary perspectives, theoretical orientation, and methodological approaches can illuminate the conditions and changes confronting rural societies around the globe. (Krannich, 2008, p. 14)

Yet the entropy that stands in the way of collaborative discourse is oftentimes of even greater magnitude. Rural sociology, for example, “appears to have made only limited progress in adapting to changing circumstances that affect both the institutional contexts in which most of us are employed and the rural people, communities, and societies that are the focal points of our work” (Krannich, 2008, p. 2).

Relevant Literature

Published reviews, critiques and content analyses of rural education scholarship are not uncommon, but no one has specifically investigated disciplinary variations in research orientation. In an early review, DeYoung (1987) acknowledged – but failed to account for – disciplinary variation in rural education scholarship. He claimed that “research on the particular problems and issues in rural education is relatively obscure, lacking in focus, and comparatively unsophisticated” (p. 136), that “much of the scholarship on rural education in this country is relatively unsophisticated compared with most research found in mainstream educational research journals” (p. 141) and that historically “the best scholarship in this area was carried out by anthropologists and historians rather than by educational researchers more indebted to psychological or sociological foundation” (p. 141). The rural education research priorities at the time included the utilization of large-scale datasets, the creation of an unambiguous definition of rurality and a strengthening of relationships between schools and communities (DeYoung, 1987).

In a subsequent review, Kannapel and DeYoung (1999) summarized seminal works in rural education from decades (1980s and 1990s) when “education reform” was on the national agenda. They found very little in the way of rural school reforms that focused specifically on the local: “the rural school problem today is that generic, standardized modes of reform continue to predominate in education policymaking” (p. 72). They argued that policies privileging centralized schooling over place-based models of control had given rise to detrimental rural education practices that neglected community in the name of efficiency. In advocating for reforms that “build on rural schools’ existing strengths, particularly their strong ties to local communities” (p. 76) Kannapel and De’Young advanced an approach that privileges the social context of a particular place rather than its position relative to other locales.

In an evaluation of rural education research quality, Arnold, Newman, Gaddy and Dean (2005) found that
studies “employing a ‘comparative’ (broadly defined) research design to investigate a rural education problem” (p. 1) were grossly underrepresented in the literature. In addition to identifying the most popular rural education topics between 1991 and 2003, the research team evaluated the (scientific) quality of journal articles and found that none met the No Child Left Behind Act, (NCLB, 2001) gold standard of an experimental, randomized design. Fewer than half the studies were comparative and only 10% were quasi-experimental and therefore able to draw causal inferences. Their findings suggested that rural education research is weakly positioned to evaluate “the causes of different student outcomes and the efficacy of interventions” (Arnold et al., 2005, p. 9) since most rural education journal articles fall short of the NCLB scientifically based research requirement.

Other rural education researchers took issue with the methodological scope of Arnold et al. (2005), most notably Howley, Theobald, and Howley (2005) who replied that “consideration of rural meaningfulness is essential to rural education research” (p. 2). They argued that place-conscious research attentive to the everyday lifeworlds of rural people can be conducted via “historical, ethnographic, and other forms of research that rely more on analysis of language” (p. 1) in addition to the more empirical methods privileged by Arnold and colleagues. Such methods, though, inevitably draw on sociology, and as a result, they are at the moment out of favor with a regime that believes that intellectual accomplishment is represented in test scores, finds that teaching is an educational intervention, and generally takes context as an impediment to learning rather than as a motive for learning and source of meaning. (Howley et al., p. 4)

Arnold (2005) responded to these criticisms by labeling Howley et al. (2005) as Rural Conservatives (Rural-Cons) who engage in “advocacy research”, in contrast to place-conscious Progressive Ruralists (Pro-Ruralists), like himself, who remain neutral in light of contradictory evidence. Arnold’s colleagues, Cicchinelli and Dean (2005), responded it is no longer adequate, in this day and age of research sophistication, to argue the value and success of rural education based solely on belief in and passion for rural communities. Nor is it adequate to argue that rural education is too unique to be the subject of rigorous research, or that scientific inquiry and sound decision-making are not relevant to rural education and communities. (p. 2)

Most recently, Coladarci (2007) expressed concern that the absence of a current and comprehensive synthesis of research in rural education is an impediment to researchers (particularly newcomers to rural education research), and it also hinders the work of practitioners, policymakers, and others who wish to use the findings of research to inform their craft. (p. 6) and called for “a sequel” to DeYoung's (1987) review of the literature. This project represents an initial step toward completing that task. It seems critical, though, to first query the degree of divergence (or convergence) between Rural Educators and Rural Social Scientists given the collaborative potential found in their shared commitment to rural schools and communities alongside the confusion and discord described above. With Coladarci’s call in mind we aimed to answer the following questions:

1. To what extent are the research orientations employed by rural education scholars – defined in terms of method, academic focus and place-consciousness – represented within the literature?
2. To what extent do the research orientations vary with respect to the disciplinary affiliations of researchers?

Method

Data

The data for our project were abstracts of rural education journal articles published in the Journal of Research in Rural Education (JRRE) and Rural Sociology (RS) between 1997 (the year of the most recent source reviewed by Kannapel and DeYoung) and 2008. JRRE was identified as a primary peer-reviewed publication for Rural Educators; RS was included because of its impact relative to other peer-reviewed Rural Social Science journals. Abstracts were used as proxies for full manuscripts in order to isolate the primary themes in the literature. Thirty-two book reviews, commentaries, editorials, correspondences and articles without abstracts were excluded from analysis. All remaining article abstracts from JRRE were included; remaining abstracts from RS were restricted to those from articles generated from a database search on the following terms: EDUCAT* OR SCHOOL* OR STUDENT* OR ACADEMIC* OR TEACH* OR LEARN* OR INSTRUCT*. In total we analyzed 155 abstracts: 137 from articles published in Journal of Research in Rural Education and 18 from Rural Sociology.

Variables. We conceptualized research orientation along three dimensions that emerged from Coladarci (2007) and the dialogue between Arnold and Howley and their colleagues: methodological approach, academic focus and place-consciousness. Next, we operationalized each dimension as a categorical variable. The 155
abstracts were read, analyzed and coded such that every article was scored with respect to all three variables. The first variable was a *quantitative* measure that indicated whether or not the primary analytical technique of an article was quantitative. Articles relying primarily on a quantitative technique – whether descriptive, predictive or causal – were coded *yes* while all others – whether qualitative, theoretical or policy analytical – were coded *no*. The second variable was an *academic outcome* measure that indicated whether or not an article defined an academic outcome – such as standardized test score, grade point average or educational attainment – as the primary dependent variable. The third dimension was a *place-conscious* variable that indicated whether or not an article accounted for the influence of place upon the primary unit of analysis. Every article was coded either *yes* or *no* on the academic outcome and place-conscious variables. When these variables were indiscernible from the abstract and in cases where we disagreed on coding we referred the body of the manuscript for confirmation.

**Findings**

**Research Orientations**

Our first task was to determine the representation of research orientations within the literature. Of the 155 articles, 59 (38.1%) relied *primarily* on quantitative analytical techniques, 25 (16.1%) defined an academic measure as the *primary* dependent variable and 48 (31.0%) accounted for the influence of place upon the *primary* unit of analysis.

Table 1 is a 2x2x2 matrix representing the eight possible intersectional research orientations. The plurality (35.5%) of articles was neither quantitative, academically-focused nor place-conscious. About one quarter (25.5%) of the publications comprised non-quantitative accounts of the influences of place on non-academic outcomes. Slightly fewer articles (21.3%) were quantitative analyses that did not incorporate academic outcomes or account for influences of place. Perhaps the most striking finding reflected in this initial display is what research orientations are *not* employed. Just 7 (11.9%) of the 59 quantitative papers adequately accounted for spatial influences on the unit of analysis and only 2 (2.1%) of the 96 non-quantitative papers investigated academic outcomes. It appears that research orientations of rural education researchers are segregated along methodological lines: quantitative researchers privileged questions irrespective of place while those producing qualitative/theoretical scholarship tended not to focus on academic outcomes.

**Table 1**

*Frequencies of Research Orientations*

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<th>Quantitative: Yes</th>
<th>Quantitative: No</th>
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<td>Academic Outcome</td>
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<td>Place-conscious</td>
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<td>No</td>
<td>33 (21.6%)</td>
<td>18 (11.8%)</td>
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<td>55 (35.9%)</td>
<td>0 (0.0%)</td>
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<td></td>
<td>39 (25.5%)</td>
<td>2 (1.3%)</td>
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**Disciplinary Affiliation**

Our second question asked whether these research orientations varied with respect to discipline. The disciplinary affiliation of the first author was indicated on 120 articles. Authors with appointments in colleges of education were coded as Rural Educators, authors with academic appointments outside of a college of education were labeled Rural Social Scientists and authors with non-academic affiliations were coded as Independent Scholars. Articles for which the discipline of the first author could not be determined were excluded from this portion of the analysis. Of the 120 authors, 70 (45.8%) were Rural Educators, 34 (28.3%) were Rural Social Scientists and 16 (13.3%) were independent scholars.

Figure 1 shows the percentage of articles within a given dimension written by authors from each discipline. Rural Educators were underrepresented in the academic outcome dimension and overrepresented in the place-consciousness dimension; while Rural Educators wrote 45.8% of all articles they accounted for 34.8% of the articles examining academic outcomes and 59.0% of articles accounting for spatial context. Rural Social Scientists, comprising more than one quarter (28.3%) of all authors, produced 44.0% of all quantitative publications and 43.5% of all papers with an academic focus. Authoring just 13.3% of all articles, Independent Scholars were overrepresented in the academic outcome (21.7%) and place-conscious (17.9%) dimensions. In
general, it appears that most of the place-conscious research in rural education was informed by scholars situated within colleges of education. Furthermore, a significant proportion of the scholarship addressing academic outcomes was informed by scholars with appointments outside of colleges of education. Figure 2 displays the degree to which a discipline collectively incorporates a given research orientation in its work. Of all the articles written by rural educators, approximately one-third (32.9%) were quantitative, one-tenth (11.4%) focused on an academic outcome, and one-third (32.9%) were place-conscious. Most (64.7%) of the articles written by Rural Social Scientists were quantitative, 29.4% examined an academic outcome and 26.5% considered influences of place. Quantitative methods were employed in 31.3% of the articles written by Independent Scholars, while 31.3% of publications by independent scholars were academically-oriented and 43.8% were place-conscious.

Figure 1. Disciplinary representation among research orientations.
Articles written by Rural Social Scientists were far more likely to use a quantitative technique than articles written by individuals in other disciplines. Rural Educators were far less likely than their colleagues to identify an academic outcome as their primary dependent variable. Independent scholars were more likely to publish place-conscious research than both Rural Educators and Rural Social Scientists. In sum, these data suggest that most of the Rural Social Scientists who conduct education research do so using quantitative techniques and that most education scholars who conduct rural research choose to investigate non-academic outcomes.

**Limitations**

Of course, these analyses were limited by a non-random sample of rural education research and a subjective coding scheme. Rural education manuscripts may find their way to *JRRE* and *RS* because the research orientations employed in them mirror those of earlier *JRRE* and *RS* articles; manuscripts employing other orientations may be submitted elsewhere. Rural Educators overwhelmingly authored our census of JRRE articles, potentially biasing our disciplinary comparisons. Publications like *The Rural Educator*, *Journal of Rural Studies* and “mainstream” education and social science journals may attract rural education manuscripts that take a markedly different form. Rural education research from public health, economics, family and consumer sciences, agriculture education and related perspectives was virtually absent from our analyses, but may be present in other publications. A more comprehensive sample of the whole of rural education research must be scrutinized in order for these findings to be generalized beyond the boundaries of *JRRE* and *RS*.

Additionally, our imperfect and subjective measures were also a limitation. For the sake of simplicity, we did not distinguish between mixed-methods studies, ethnographies, content analyses, literature reviews and other non-quantitative articles. Likewise, we relied on arbitrary, undifferentiated constructions of variables and disciplines in our analyses. Our use of abstracts as the unit of analyses posed (infrequent) challenges to identifying academic outcome variables and degrees of place-consciousness.

**Discussion**

Our findings suggest that there are methodological and disciplinary cleavages in the rural education research literature, although the discrepancies ran counter to our initial expectations. While we hypothesized that institutional contexts and education policies would encourage Rural Educators to concentrate on academic outcomes, this was not the case. Rural Educators rarely took up questions of academic performance and appeared to have relatively little influence over this aspect of the rural education literature. We expected that Rural Social
Scientists would be most likely to contextualize their work, but again our hypothesis proved false as they were underrepresented among place-conscious articles and accounted for spatial context in only one-quarter (26.5%) of their publications.

Collectively, these findings imply that while Rural Educators routinely take up place-conscious research that reflects the nuances associated with the administration of centralized policies in rural communities, they do so using methodological tools that likely have the least potential for informing policy. Conversely, the outcomes-oriented research of Rural Social Scientists may display the sort of “rigor” demanded by state departments of education and federal Race to the Top reviewers, but likely fall short of addressing the unique place-based challenges arising when high-stakes, standards-based reforms are implemented in small, rural schools.

The frustrations expressed by rural education advocates (Strange, 2009) about the Obama administration’s data-driven expectations for rural schools might be a symptom of a larger problem that very little rural research is both place conscious and outcomes-oriented. Our analyses show that rural scholars most adept at meeting data-driven policy requirements do so largely irrespective of rurality while the most place-conscious scholars use research methods with little currency in the current political climate. One must speculate that without engaging in transdisciplinary collaboration neither of these constituencies will prove effective at leveraging state and federal resources, funds or attention. Our recommendations for achieving effective transdisciplinary scholarship are outlined below.

Implications

We have illustrated the shared commitment to transdisciplinary collaboration on the part of Rural Educators and Rural Social Scientists who study rural education. We have also discussed the necessity of such a project for informing place-conscious policies. Our findings suggest that while both communities are committed to sustaining rural schools and communities, they approach the task using very different tools in terms of methodology, measurement of academic outcomes and attention to place. Despite the challenges inherent in their divergence, we believe their complementary strengths encourage a transdisciplinary research strategy. In light of these revelations we endorse the following strategies for moving toward a sustainable transdisciplinary partnership.

1. Hire creatively. A number of scholars of rural education hold cross-discipline courtesy appointments, primary appointments in interdisciplinary departments and even joint appointments in closely related disciplines. Anecdotal evidence suggests these arrangements largely fail to nurture collaboration that transcends institutional and disciplinary boundaries. Very few scholars hold appointments in both colleges of agriculture and colleges of education. One powerful way to encourage transdisciplinary scholarship is to establish funding priorities and personnel policies that incentivize out-of-discipline and cross-college hires. Education foundations and policy departments should commit to hiring Rural Social Scientists while colleges of agriculture should invest in education researchers. Deans of colleges of education and agriculture should prioritize cross-college job sharing and cluster hiring. Furthermore, bureaucratic impediments that make it difficult for faculty to hold dual appointments across colleges must be removed.

2. Engage stakeholders. These disciplines must work together to radically engage practitioners and other rural education stakeholders. As it stands, academics fail “to attract and engage a broader audience of social scientists, practitioners, policy analysts, and others” (Beaulieu, 2005, p. 8). Practitioners, policymakers, families and communities could be strong and persuasive allies in advocating for increased rural education R&D support if stronger linkages existed between them and the academy. But in order for university-community partnerships to be sustainable, the relationships between university actors must be strong.

Existing outreach strategies, like developing professional development courses and extension curricula, fall short of the bold partnerships that must be taken. Colleges of education should establish full-time outreach professorships that resemble the cooperative extension model of land-grant colleges of agriculture. These applied researchers would partner with schools, districts, non-profit organizations and extension offices to disseminate current rural education research.

Similarly, Rural Social Scientists should expand school-based partnerships, like existing school-based 4-H clubs, to include in-service teacher training and district leader mentorships. Community development specialists and agents should incorporate school-family-community engagement into their purview.

3. Pursue funding. Both constituencies must place an “increased emphasis on interdisciplinary and even transdisciplinary learning and research...in the funding priorities of major research foundations and agencies” (Krannich, 2008, p. 16). By collaborating on major grants, Rural Educators and Rural Social Scientists will move toward transdisciplinary scholarship.
An example of a grant that encourages this sort of scholarship is the USDA AFRI Rural Development program that requires integrated proposals incorporating either an outreach or education component. One of the AFRI priorities is to “enhance understanding of and develop innovative strategies to build the rural workforce for the present and for the future, including projects to attract and retain rural youth” (USDA, 2009, p. 107) and “interdisciplinary applications focused on the creation of sustainable rural communities by protecting the environment, reducing poverty, and enhancing community economic vitality are strongly encouraged” (p. 108).

Susan Sheridan, Principal Investigator of the National Center for Research on Rural Education, and Thomas Farmer of the National Research Center on Rural Education Support have demonstrated that USDOE Institute of Education Sciences funds are also available to interdisciplinary teams of rural education scholars. The interdisciplinary efforts by National Science Foundation-funded teams at the (albeit short-lived) Appalachian Collaborative Center for Learning, Assessment and Instruction in Mathematics, and the Appalachian Math and Science Partnership should also prove encouraging.

4. Develop existing partnerships. While some scholars have published in both JRRE and RS (e.g., Schafft) most authors have published for a single rural education audience. By publishing outside of our “home” disciplines we can initiate transdisciplinary conversations with colleagues we may not otherwise reach.

Rural Social Scientists who study education have as much, if not more, in common with Rural Educators as they do with the scholars of food and agriculture within their own disciplines. As such the Education and Work Interest Group of the RSS could “become more proactive in attracting rural scholars in allied social science fields” (Krannich, 2008, p. 17) by expanding conference participation to include colleagues from colleges of education and by organizing pre-conference symposia. Similarly, Rural Educators must ensure that groups like the Rural Education Special Interest Group of the American Educational Research Association and the Rural Education Working Group of the Rural School and Community Trust are inclusive of Rural Social Scientists with appointments in colleges of agriculture.

In this paper we have identified complementary strengths and conflicting approaches of Rural Educators and Rural Social Scientists who engage in education research. By examining the influences of Rural Educators and Rural Social Scientists on rural education scholarship we have extended a long series of comprehensive reviews of the rural education literature. While many of the observations found in earlier reviews reappear here, we are hopeful that the transdisciplinary strategies we have outlined will commence a new season of rigorous, place-conscious, policy-relevant research.

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