Multidisciplinary Perspectives to Advance Rural Education Research

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Abstract This chapter focuses on perspectives and recommendations of rural education researchers, practitioners, and policy makers about the critical role of research in rural education, the current condition of rural education research, and future directions. These perspectives were obtained from focused discussions of participants attending *Connect-Inform-Advance*, a National Conference on Rural Education Research held in April 2013 and sponsored by the National Center for Research on Rural Education. In order to capture the depth of these discussions, extensive notes were taken and analyzed qualitatively to glean insight into key considerations for future rural education research agendas. Results from the analysis resulted in four major themes: (a) defining and accounting for the rural context and culture, (b) identifying rural influences on student outcomes, (c) engaging in interdisciplinary and multidirectional research partnerships, and (d) disseminating rural research results and determining future targets.

Keywords Rural context · Rural partnerships · Rural research dissemination · Rural definitions · Rural student academic outcomes

Approximately 50 % of school districts in the United States are classified as rural (Johnson et al. 2014). As the demography of rural communities continues to change, research on this segment of our educational landscape must take into consideration its unique characteristics and pivotal concerns. There have been a series of syntheses of rural education research, each with recommendations for

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future research directions (Arnold et al. 2005; Cicchinelli 2011). Arnold et al. concluded that there was no topical area appearing in the rural education literature that had a sufficient body of research for policy makers and practitioners to make informed decisions about the success of any given intervention. He also cited earlier research (Arnold 2004) which showed that the top three research topics for rural school improvement were opportunity to learn, school size and school achievement, and teacher quality. Cicchinelli's work suggested that future research should use longitudinal state and national data sets to better define pressing needs and policy. He also emphasized the importance of research that would (a) promote better quality teachers and instruction and (b) study the effectiveness of school and district leadership. Additional perspective comes from Coladarci's (2007) paper written upon leaving his position as editor of the *Journal of Research in Rural Education.* His comments focused on methodological and substantive shortcomings of rural education research. Also addressed were future directions for overcoming such limitations, including a challenge to rural researchers to explicitly establish the relevance of rural to their research questions.

These early reviews are presented from a *researcher* perspective; however, it is clear that the perspectives of practitioners and policy makers must be considered in setting research agendas. Their recommendations about current and future needs in rural education research are essential to represent a broader perspective. Such a perspective was reinforced during discussions of participants attending *Connect-Inform-Advance,* the National Conference on Rural Education Research (National Center for Research on Rural Education, April, 2013). By engaging national *researchers, practitioners, and policy makers* in focused discussion about current and future needs in rural education research, the conference provided a platform for exploring the critical role of research in rural education, the current condition of rural education research, and future directions.

The purposes of the conference included engaging national researchers, practitioners, policy makers, trainers, and leaders in constructive dialogue about current and future rural education research, communicating current rural education research findings, and exploring methods by which research findings can be translated and transmitted to rural practice and policy. In order to capture the depth of the discussions at the conference, notes taken during these guided discussions were analyzed to glean insight into key considerations for future rural education research agendas, including how to more effectively translate research into practice and policy.

The conference included presentations organized around three sources that influence rural student academic success: teachers, communities and families, and school context. Teacher influences explored the impact of targeted professional development experiences as well as the differences in professional development experiences for teachers in rural, urban, and suburban areas. Community and family influences explored the impact that community resources and parent involvement can make in rural student academic success. Specific presentations focused on the utility and efficacy of parent-teacher partnerships in rural settings, the mediating effects of parent engagement on the relationship between rurality and young children's reading development, and community and family influences on American

Indian children's school readiness. The third source, school and contextual influences, included a presentation about combining empirically validated curricula with an innovative cultural approach to rural education, a descriptive study of differences in academic performance based on location and access to certain resources, and a discussion of methodological considerations that impact rural education research. After each set of influences were explored, conference participants took part in facilitated discussions. Discussion questions were designed to spur fruitful dialogue of current work in rural education research related to the conference themes and future directions for rural education research (see "Appendix" for a full list of questions). Analysis of the facilitated discussions offers insight into the current perceptions of rural education research by practitioners, policy makers, and researchers and provides future directions for the rural education research agenda based on this broad, multidisciplinary perspective.

1 Method

1.1 Participants

Participants included 156 conference attendees from 19 states throughout the U.S. Participants represented a diverse range of professional perspectives related to rural education (see Fig. 1).

1.2 Data Collection and Analysis

The conference was organized around the three themes of interrelated influences and their impacts on rural school performance: (a) teaching, (b) family/community, and (c) school context. Research presentations addressing these three topic areas laid the foundations for the breakout roundtable discussions that were led by designated facilitators who had been invited prior to the conference to lead the

Fig. 1 Percent of conference participants representing different professional perspectives
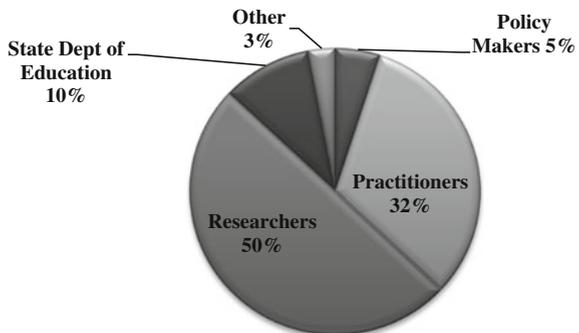
discussions. The facilitators were conference participants who represented various perspectives and who could stimulate productive conversations. The discussions for each topic area centered on the guiding questions prepared in advance and distributed to table discussion facilitators (see "Appendix"). Extensive notes of the discussions at each table were taken by either graduate research assistants or volunteer conference attendees. In all, 28 discussions were held across the three topic areas, and 46 pages of single-spaced notes were generated to capture these discussions. Notes from discussions contained mostly bulleted summaries of information but also included some participant quotes. These notes formed the basis of the qualitative content analysis.

We chose a general, inductive qualitative approach for educational research to understand the participants' perspectives related to the conference themes (Creswell 2012; Hatch 2002). Data analysis was conducted using qualitative research software MAXQDA to help codify and organize the roundtable discussion notes into major themes and ideas. Specifically, two graduate research assistants used inductive reasoning to independently identify code labels that captured the meaning of the recorded statements. Through research team meetings, a shared code list of eight overarching categories was developed by refining the initial code labels. These eight overarching categories were: connection of policy to practice, connection of research to practice, context, organizational structure, partnership, research, student outcomes and training. After these categories were identified, the research team looked for interrelationships and overlapping ideas among the categories to synthesize the data into major themes, as suggested by Bazeley (2013) and Saldana (2013).

2 Results

Analysis revealed four major themes in conference discussions: (a) defining and accounting for the rural context and culture in research, (b) identifying rural influences on student outcomes, (c) engaging in interdisciplinary and multidirectional research partnerships, and (d) disseminating rural research results and determining future targets. These themes emerged over the course of the 2-day conference and across the conference topic areas (i.e., teacher, family/community, and school context influences on rural student academic success).

2.1 Defining and Accounting for the Rural Context and Culture

The lack of a consistent definition of "rural" was a recurring theme throughout discussions. Specifically, participants commented that it can be difficult to capture a

unified definition of rurality. Since the rural context is considered a defining variable in conducting research in rural communities, the need for meaningful, relevant criteria for the rural designation is critical.

Beyond specific rural definitional criteria, however, there is also the need to more carefully identify contextual variables that could influence educational experiences in rural settings. As one participant stated, "Rural communities have special contexts, and research needs to be done to highlight the contexts so we can bring light to them." Another urged, "What we are saying is look deeply at our place. We are not saying this is exactly going to be what your place is. But after looking at your place deeply, we might compare and see some commonality." Participants acknowledged that there are contextual factors that define rural schools/communities outside of those typically reported (i.e., free and reduced lunch, etc.) that can help with understanding rural communities and the differences among them. These factors—such as cultural diversity, distance traveled to school, increase in commuter residents, access to technology, and economic affluence and stability—may have a unique impact on the educational experience of students attending rural schools. Consolidation was also mentioned as a critical factor, as it impacts the role of community in the school and can lead to a loss of identity and culture. For example, the distance traveled by students to attend school, and thus the distance parents must travel in order to participate in conferences or other school activities can influence the "connection" between families and school. Participants acknowledged that identifying and defining these factors can be difficult. As such, they suggested that it is important to determine which factors are context relevant and should be accounted for in research and which are context independent. Participants also suggested that identifying and understanding these contextual influences will help researchers understand the local culture, which is important to gaining trust, accessibility, and sustainability for researchers.

Some participants stated it is important to consider the commonalities that exist among rural communities and between urban and rural communities. By focusing on common characteristics of rural schools, researchers could explore broader research objectives so that they can focus on similar issues that can then be translated to the local context. Participants also commented that presentation of contextual variables in research reports would help practitioners and policy makers assess the relevance for their local situation.

2.2 Identifying Rural Influences on Student Outcomes

Participants identified several factors that are important to consider when examining rural student outcomes. First, an overarching concern was a lack of a unified definition of and methods for measuring student success. Participants pointed out that the differences in rural student outcomes may not be captured because we may not be measuring "right" things or measuring them in ways that make sense. Several participants suggested that standardized testing is insufficient for capturing

the breadth of student success. As one participant mentioned, "What we consider success is probably broader than achievement." Others mentioned that having a broader meaning of the important outcomes may shed light on different ways to solve problems. For example, it was suggested to consider outcomes such as critical thinking and engagement.

Second, participants wondered what factors influence these outcomes and how they can be captured in research. Suggestions were made to more deeply explore the nature of achievement outcomes by looking at mediators and moderators that are affecting the outcomes. Participants discussed that there are a myriad of influences (e.g., student engagement in the classroom, community support, parent involvement, and educational experiences) on rural student success that are not traditionally considered in research but need to be examined in future studies. Described as "inner relationships," these factors were recognized as complex and potentially interacting in their influence.

Third, participants discussed the role distance education can have in rural education. Some felt that distance education provided opportunities to advance student achievement and provide unique opportunities, but others felt it could provide a threat to some schools. One participant asserted, "If someone would come in and open up an online school, our enrollment would be halved." Also mentioned was the isolation of online classes, asserting that online classes are "pretty lonely" with limited sharing and meeting with classmates. The conclusion was that a completely online program might not work because of the lack of interpersonal communication and the opportunity to develop in-person social skills.

Lastly, although professional development opportunities for rural teachers were seen as pivotal to rural student success, many barriers to participation in such training were cited, including cost, distance to be traveled, or technology required to attend virtually. One participant commented that college teacher training should also be examined: "In higher education, we complain about the quality of the students coming into college. We don't realize that we are part of the problem because we train the teachers who taught them, so in a sense we train those students." The need for follow-up to research interventions and rural teacher professional development was also brought up as key to improving student success. Coaching was mentioned as a promising strategy to ensure that the knowledge gained is applied to their teaching, sustained over time, and used to improve student outcomes. Another suggestion to improve rural student performance was training teachers on how to use data to make instructional decisions.

2.3 Engaging Interdisciplinary and Multidirectional Research Partnerships

Overall, participants identified that multidirectional partnership among research, practice, and policy will help accomplish a translational agenda that comes from a

meaningful, ongoing dialogue among multiple stakeholders. Participants noted that "Researchers need to be available to help those who would like to implement the research." Others discouraged "parachute" research where data are gathered and researchers are not heard from again. They suggested that building partnerships would promote more acceptance and investment in the research process by the community. Furthermore, it was mentioned that building a bi-directional relationship could also help reduce the fear that research results would present a negative picture of educational quality.

One group of participants summarized, "The foundation of rural research is building relationships, building capacities, and creating meaningful opportunities." Collaborations and partnerships need to be developed among various educational stakeholders such as local educational agencies, educational service units, state agencies, higher education, local school boards, families, communities, researchers, and policy makers. Participants also indicated that funding agencies could benefit by participating in these partnerships.

Research partnerships were viewed as providing a platform for more informed decision-making for policies and educational interventions. One participant noted that "It is important to get input about what needs to be studied; stakeholders should drive the topics of research." Another stated that researchers should "get schools to invest in research prior to beginning projects in order to design projects that schools want." Also discussed was the need for research to inform policy makers so that they make informed decisions about educational policy while assessing past initiatives. Furthermore, participants mentioned that school boards can use data from research not only to make decisions but also to engage in data-driven strategic planning.

Participants expressed a desire to advance the research agenda through continuing the dialogue that was started at the conference and to build "more authentic partnerships" among educational stakeholders. They recommended that systems of communication should be developed to promote a continuous dialogue among the different stakeholders. This ongoing dialogue and relationship was seen as key to "marry research and practice so that they understand each other." Developing ways to effectively maintain communication and insure sustainability was seen as a critical, but challenging, step. Participants suggested that responsibilities to each other should be defined. Ultimately, these partnerships were seen as a way to "elevate the status of research in the community" in such a way as to promote the application of research to educational practice and policy.

2.4 Disseminating Rural Research Results and Determining Future Targets

Participants consistently commented that rural education research must identify efficient and effective means for ensuring that rural practitioners and other

consumers responsible for implementing educational programs have access to research findings. One discussion group noted, "Teachers are incredibly hungry for what works." Participants commented that it can be frustrating if results are hard to find or delayed in their publication: "The results don't come out until years later. We want the results now, not after the kids are gone." They suggested that after research is concluded, the researchers should communicate the results to the participating schools so they can know the impact of the programs on student outcomes.

Participants noted that research results should be communicated in a user-friendly and easily consumable format (e.g., video/modeling examples, focus on outcomes) that emphasizes how the research is effective so that results can be translated into meaningful, understandable discussions that practitioners can apply to their local situations. In addition to sharing results, participants also commented that they needed to have an idea of the resources necessary to support and implement the researched interventions so that they can be effective in their implementation. As one group suggested, "You have to empower the schools with the knowledge and data to make decisions." Technology was mentioned as a powerful platform to help share the results given its searchable online websites or databases. Newsletters to teachers were also seen as a viable option.

Participants addressed the need for a comprehensive research agenda using multiple rigorous methodologies to advance the field of rural education research. According to one participant, rural education researchers need to "develop methodologies that will allow us to capture the unique factors of rural communities instead of excluding them from designs/research projects."

Throughout the discussions, specific suggestions for future rural education research were provided. Participants urged that research critically evaluate existing issues in rural education, such as staff turnover and how rural teachers need to allocate their time to fulfill multiple roles. Participants also suggested targeted evaluation of the *sustained* impact of teacher professional development experiences. Longitudinal research was suggested to explore the long-term impact of educational interventions. Participants stressed the need to move away from a deficit model to build upon existing strengths. Community-related variables, such as service-learning opportunities, social services availability, generational influences, family involvement and the "big picture of community" were discussed as pivotal considerations for future research. Overall, participants echoed what one of the panelists shared, "Research validates the good things we're already doing. It's important to remind folks that there are a lot of things we already know how to do and do well. Confirmatory research is really helpful as opposed to big city researchers coming in and saying 'that's all wrong, this is how to do it.'"

3   Discussion

The results of this study shed light on future approaches to rural education research and extend and complement earlier comprehensive reviews provided by rural researchers. As did earlier authors Arnold et al. (2005) and Cicchinelli (2011), this study provides recommendations of priority areas for future research. For example, this research supports previously identified areas such as teacher professional development and community influences. This study also focused on key methodological considerations, addressing some of the concerns raised by Coladarci (2007) regarding the lack of rigor in existing rural research. For example, this research identified the need for longitudinal research to focus on sustainability and long-term effects on teachers and students, as well as the use of multiple rigorous methodologies.

One key theme from the conference discussions was the importance of capturing and accounting for the rural context and culture and the lack of a consistent definition of "rural"—a shortcoming that has been noted by others. Coladarci (2007) argued, for example, that without a consistent definition, it is imperative that researchers describe the context of their research in detail. One panelist during the conference urged researchers to clearly identify contextual variables arising from their research that could provide direction for future explorations. These variables may not have been an initial research focus but arise out of the researchers' direct experience with the target audience and setting. While this reporting may be at the qualitative and descriptive level, it provides a starting point for rural education research to document meaningful contextual variables—variables that go beyond traditional population figures, geographic location, and locale codes. These unique rural characteristics can form the basis for urban-rural comparisons, but also comparisons *between* rural populations. By providing a clear definition and categorization of these contextual factors, research could also aid in providing comparison and contrast points between rural contexts. Such comparisons can, for example, lead to better understanding of why one instructional or organizational approach (e.g. coaching or family-school partnerships) is more suited to a particular rural context than to another. It is only through such documentation that we can begin to understand the nuances of rural education and its unique characteristics and underlying mechanisms that mediate and moderate outcomes. Such understanding can also facilitate researcher-school partnerships. Conference participants suggested that understanding rural culture is important for gaining access, trust, and sustainability.

Conference participants also identified the importance of defining rural student academic success broadly—going beyond a focus on achievement and standardized tests. This result is consistent with those found in earlier studies (Arnold et al. 2005), showing that instruction was a recurring topic in rural education research, as was student life and work planning. The Arnold study went on to identify student achievement, and organizational structures of rural schools that could support achievement, as a priority area for future research. Cicchinelli's (2011) update of

the Arnold et al. study suggested that rural research has shifted from an emphasis on instructional programs to an outcome focus, examining factors influencing student achievement, attitudes and behavior. Teacher professional development, another topic of prominence in the conference, was seen as a critical influence.

The National Conference on Rural Education Research, *Connect-Inform-Advance,* was organized to include representatives from educational research, policy and practice in discussions about rural education research, and conference participants emphasized the need for interdisciplinary partnerships among these three constituencies. This theme, not explicitly articulated in previous research reviews, was seen as providing a critical foundation to achieve a translational research agenda. Partnership discussions were far reaching and touched upon elements of rural context, student outcomes, and future directions. Conference attendees emphasized the need for input from stakeholders (e.g., policy makers, practitioners, families, communities) in determining research agendas and defining research questions. This multi-directional dialogue was seen as the ideal way to develop a meaningful research agenda and better insure that research findings get infused into practice. These collaborative relationships may help to address some of the definitional issues identified by participants. Working together, all parties can determine how to define student outcomes and rurality, as well as account for the unique context of rural communities. These partnerships can help insure follow-up to ensure lasting improvement for teacher practice and student success outcomes, as well as needed funding priorities. These partnerships could also provide a built-in opportunity for dissemination and input on how to communicate findings so that they are easily transferable to practice and can empower schools to improve teacher quality and student outcomes.

This need to get research results into the hands of practitioners more quickly and in a user-friendly format was a common topic running throughout the discussion. One rural practitioner provided a clear example of the issue. She commented that she could not understand the research document provided to her prior to the conference because the terms and acronyms were unfamiliar. Communicating the results in ways that the various stakeholders can understand is a critical step in the dissemination process. The field needs to consider how this process can best be accomplished, considering such factors as new and existing delivery methods (web, social media, print), target audiences and their go-to information sources, and utility (timeliness and readability).

In conclusion, future rural education research needs to honor the unique characteristics of the rural context and culture while looking for common factors among different types of communities. Research questions need to better address the needs and characteristics of rural education to better serve students, teachers, and administrators in rural communities. These ideas, as well as the four major findings that emerged from the analysis of conference discussions are reflected in specific chapters that follow. Defining and accounting for the rural context will be specifically discussed in a chapter focusing on defining and communicating rural (Chapter "Defining and Communicating Rural"). Rural education research partnerships will be explored in a chapter on multi-disciplinary approaches to rural education research

(Chapter "Partnership-Based Approaches in Rural Education Research"). Rural student outcomes are examined in a series of chapters dealing with interventions in the areas of mathematics, science, and language and literacy (Chapters "The Effectiveness of E-Coaching in Rural Science Classrooms", "Accelerating the Mathematical Development of Young Navajo Children", "Investigating Teacher Professional Development with Distance Coaching to Promote Students' Response to Reading Interventions in Rural Schools" and "Rural Language and Literacy Connections: An Integrated Approach to Supporting Low-Income Preschool Children's Language and Literacy Development"). Family and community influences are discussed in Chapters "Rural Parenting: Cumulative Risk and Parenting Process", "The Effects of Rurality on Parents' Engagement in Children's Early Literacy", "Improving Education Outcomes for American Indian Children: Community and Family Influences on Rural Student Academic Success" and "Family-School Partnerships in Rural Communities: Benefits, Exemplars, and Future Research". Future directions are explored in all chapters, as authors report on next steps to advance research related to their respective area. The final chapter synthesizes material from individual chapters and summarizes future directions for rural education research. Our hope is that the overarching themes emanating from the multiple (research, practice, policy) perspectives and related research agendas specified in the chapters that follow will collectively and systematically provide fruitful directions for the next generation of research in rural education.

Appendix: Guiding Questions for Roundtable Discussions

Questions Addressed at Each Roundtable:

1. What have we learned from research that can inform practice and policy related to (a) teacher, (b) family and community/school and (c) contextual influences* on rural student achievement?
2. What can we learn from future research that can inform practice and policy related to (a) teacher, (b) family and (c) community/school and contextual influences* on rural student achievement?
3. What are the challenges associated with conducting research related to (a) teacher, (b) family and (c) community/school and contextual influences* on rural student achievement and how can we meet these challenges?
4. What is needed at this point to move this rural education research agenda forward?
5. What are the ongoing supports needed in this interplay among research, practice, and policy to make this a meaningful and progressive process that leads to

improved outcomes for rural students? For example, how do we maintain collaborative partnerships so that the dialogue leads to meaningful research and application?

6. Thinking ahead to translation of research to classroom, what should we bear in mind when conducting research that we hope will lead to acceptable and meaningful outcomes for rural students?

7. How can researchers, practitioners and policy makers best incorporate feedback from teachers, parents and caregivers regarding intervention acceptability and utility?

Questions Dealing with Teacher Influences on Rural Academic Success:

1. How can schools, districts, states and universities use research to inform professional development opportunities for rural teachers?

2. How can practitioners' experiences with current professional development practices, including coaching, inform future rural education research?

3. Based on the research and your experiences, what are your perceptions of the role of distance technology research in influencing rural education practice and policy?

4. What are the next immediate steps for rural education research, practice and policy related to teacher influences on rural students' success?

Questions Dealing with Community and Family Influences on Rural Student Academic Success:

1. How can schools, districts, states and universities use research to inform family-school partnership approaches/programs implemented in rural communities?

2. How can families' and practitioners' experiences with family-school partnership approaches/programs inform future rural education research?

3. What are the next immediate steps for rural education research, practice and policy related to community and family influences on rural students' success?

Questions Dealing with School and Contextual Influences on rural Student Academic Success:

1. Based on the research and your experiences, what do you believe schools, districts, states and universities have begun to learn about school and contextual factors that influence student outcomes in rural communities?

2. How are changes in rural education environments—including demographic factors, school consolidation, and the growth of charter schools—influencing rural education research?

3. What are the next immediate steps for rural education research, practice and policy related to school and contextual influences on rural students' success?

*Discussions focused on just one of these three influences.

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