

## Improving the Yield of Rural Education Research: An Editor's Swan Song

Theodore Coladarci  
*University of Maine*

Citation: Coladarci, T. (2007, May 24). Improving the yield of rural education research: An editor's swan song. *Journal of Research in Rural Education*, 22(3). Retrieved [date] from <http://jrre.psu.edu/articles/22-3.pdf>

*In my 15th and final year as JRRE editor, I identify methodological and substantive shortcomings in the rural education research literature and, in turn, suggest strategies for improvement. I structure my observations around the following considerations: describing the rural context of research, making the rural argument, framing the research question, drawing on other disciplines, synthesizing the extant research, and distinguishing between (a) exploring empirical questions and (b) adducing data to support personal convictions.*

Rural education research is a considerably smaller enterprise than many other branches of educational research—surprisingly so, when we consider that roughly one in five public school students attends a rural school, and almost one third of all public schools are located in rural areas (Johnson & Strange, 2005, p. 3). Nevertheless, this modest endeavor has enjoyed steady activity for many years and with notable accomplishments along the way. For example, it can boast three academic journals that are committed, in whole or in part, to the dissemination of rural education research: the online open-access *Journal of Research in Rural Education* (<http://www.umaine.edu/jrre/>), *Rural Special Education Quarterly*, and *The Rural Educator*. And there is the Rural Education Special Interest Group, of the American Educational Research Association (AERA), which organizes rural education sessions at the annual AERA conference and facilitates communication among rural education researchers through its newsletter and listserv. Another organizational thrust can be found in the National Rural Education Association (publisher of *The Rural Educator*), which kicks off its annual convention with a two-day research symposium.

This field also has produced occasional syntheses of extant research, such as the seminal review by DeYoung (1987) and subsequent work by Khattri, Riley, and Kane (1997) and Kannapel and DeYoung (1999). Edited volumes have further captured the scholarly state of the art, the most prominent of which are the oft-cited compendia

by Sher (1977), Nachtigal (1982), and DeYoung (1991). The *Peabody Journal of Education* theme issue on rural education (Theobald, 1990) similarly should be noted, as should the rural education entry in the *Encyclopedia of Educational Research* (Helge, 1992).

In terms of federal acknowledgement of rural education research, 2004 saw a significant and unprecedented development in this field: The creation of the National Research Center on Rural Education Support. Funded by the Institute for Educational Sciences, the Center's work is organized around four programs of research: early literacy, early adolescent learning, technology and distance learning, and a supplemental research program that engages such topics as accountability, teacher retention, and rural economic development (see <http://www.nrcres.org/>).

This encouraging profile notwithstanding, the yield of rural education research nevertheless can be improved. The same can be said of any discipline, of course, but I believe it is particularly true for rural education research—a belief that has been shaped by published studies, conference papers and presentations, and the hundreds of manuscripts submitted to *Journal of Research in Rural Education* during my association with it.

In the pages that follow, which I offer in my 15th and final year as *JRRE* editor, I identify methodological and substantive shortcomings in the rural education research literature and, in turn, suggest strategies for improvement. My observations are structured around the following considerations: describing the rural context of research, making the rural argument, framing the research question, drawing on other disciplines, synthesizing the extant research, and distinguishing between (a) exploring empirical questions and (b) adducing data to support personal convictions.

None of what follows should be taken as a general repudiation of rural education research. Indeed, there are many instances of substantive, and systematic, contributions to the rural education literature. But there also are numerous and unsettling exceptions—exceptions that un-

---

This work was supported by the U. S. Department of Education (Contract ED-05-CO-0061). The views expressed herein should not be interpreted as reflecting those of the Department. Mike Arnold, Craig Howley, and Phil Pratt provided generous and thoughtful feedback on a draft of this article, for which I am grateful.

Correspondence concerning this article should be addressed to Theodore Coladarci, College of Education & Human Development, University of Maine, 04469. ([coladarci@umit.maine.edu](mailto:coladarci@umit.maine.edu))

necessarily limit the potential of rural education research and, in particular, the accumulation of knowledge that is desired in any discipline and necessary for its viability and import.

#### Describing the Rural Context of Research

There is no single definition of rural, as any reader of rural education research quickly, and often incredulously, learns. First, there are the formal classification schemes that have their origins in the U. S. Bureau of the Census, the Office of Management and Budget, the Economic Research Service (ERS) of the U. S. Department of Agriculture, and the National Center for Education Statistics (NCES). These classification schemes vary widely. For example, the ERS rural-urban continuum codes and county typology both classify counties, whereas the NCES locale codes (former and recently revised alike) focus on places; some schemes consider the type of economic activity, others do not; some are dichotomous, others are polytomous; and so on.<sup>1</sup> Differences notwithstanding, there is the recurring assertion that the purest definition of rural entails a population fewer than 2,500. This is more by default than by thought, however, for in these schemes “the rural is what is left over after the urban has been defined” (Farmer, 1997, p. 624). As a touchstone, then, the 2,500 figure leaves much to be desired.

While some have called for a consistent definition of rural (e.g., Helge, 1992), this probably is unrealistic. As Farmer (1997) confessed,

there is no singular or multifaceted definition that will suffice to satisfy the research, programmatic, and policy communities that employ the concept. . . . [T]he diversity of purposes for which the measures have been and will be used will likely assure that no universally applicable definition or measurement will be developed. (pp. 623, 625)

And this is true even when the possible definitions deal with easily measured considerations such as population size, population density, proximity to an urbanized area, type of economic activity, income and educational-attainment levels, commuting patterns, and the many other empirically ascertainable factors represented among these formal classification schemes. Now add to this definitional menu the decidedly less measurable but, some have argued, more important notions of “local commitments” and “meaning-making” that, more than geographic boundaries or the traditional constructs of demography, distinguish rural places (e.g., Howley, 1997, 2004).

No, the problem is not an absence of consensus regarding the meaning of rural. Rather, the problem in my view is that rural education researchers, in their reports and publications, typically fail to describe the context of their research in sufficient detail. Some researchers stop with a

simple report of population size (which may or not be less than the canonical 2,500). Others may drop in an additional contextual feature, such as distance to the nearest metropolitan area. More problematic, however, rural far too often is reduced in research reports to a veritable black box. The researcher announces simply that, say, “rural communities were selected” or “classroom observations were conducted in rural schools.” In such cases, the humorous aphorism that follows is infinitely more informative—to establish the rurality of an investigation—than what often is found in research reports: “*You know you’re rural when the only time you lock the doors on your truck is when you go to church so the neighbors can’t leave bags of squash on the front seat.*” Indeed, the images, scents, tactile sensations, and assorted inferences about the participants’ lives, values, and sense of community are almost inescapable. Moreover, they are essential to this work, and often they are altogether missing.

Why is this a problem? It is a problem because cursory descriptions of context in rural education research preclude the clear and informed interpretation of results from an individual study, the meaningful synthesis of results across studies, and, ultimately, the accumulation of reliable knowledge about rural education. And without the accumulation of knowledge, research cannot credibly inform either practice or policy.

We should not seek consensus on a single definition of rural, but we should ask that rural education researchers carefully describe the context of their (putatively rural) investigations. To be sure, deliberative discussion of—if not agreement on—the important ingredients of such description surely would be helpful to rural education researchers. The familiar considerations, mentioned above, are a good place to start: community size, density of population, proximity to urbanized areas, economic dependencies, median household income, modal educational attainment, and commuting patterns (physical and virtual alike). Characterization of the in- and out-migration trends in the community under study would be helpful as well, as would attempts to capture the community’s degree of physical and/or virtual isolation (which cannot be inferred from urban-proximity measures alone). Regarding isolation and access, for example, Cleland (1994) took a constructive first step in crafting a “connectedness index.”

To call for a rich description of context in any instance of rural education research is not to call for an agreed upon definition of rural. Rather, it is to call for the provision of sufficient information about the context in which the research was conducted so that readers can make informed judgments regarding generalizability. In short, only in this way can readers apprehend the investigation’s import for rural education—as *they* define rural. Clear descriptions in this regard also will be helpful to those who synthesize research, insofar as characterizations of the accumulated evidence could be more explicitly aligned with articulated conceptualizations of rural. Thus, the reader benefits, as does the field of rural education research itself.

As for the formal classification schemes with which I began this section, the many researchers who use federal data bases doubtless would be grateful if these data bases

<sup>1</sup> Helpful overviews of these classification schemes can be found at <http://nces.ed.gov/surveys/RuralEd/definitions.asp>. The recently revised NCES locale codes are described at [http://nces.ed.gov/whatsnew/commissioner/remarks2006/6\\_12\\_2006.asp](http://nces.ed.gov/whatsnew/commissioner/remarks2006/6_12_2006.asp).

included, beyond a single classification variable, a rich and diverse set of possible indicator variables regarding the rural-urban distinction. Researchers could then craft their own classification variable, explicitly defined, as they see fit. Further, comparative analyses could be conducted based on various combinations of indicator variables—again, reflecting different, and clearly articulated, conceptualizations of rurality. Here as well, both reader and discipline benefit.

#### Making the Rural Argument

Rich description of the research context is not enough to establish the rurality of an investigation—that the investigation speak unequivocally to the rural circumstance. In short, researchers are not entitled to offer conclusions about rural education just because their research takes place in (or draws on data from) a rural school, community, or region. Rather, researchers must establish warrants, or compelling justifications, for the rural-related conclusions they provide. Far too often, it remains unclear whether the researcher has uncovered a rural phenomenon or, instead, a phenomenon that is observed incidentally in a rural setting.

Consider the research-based claim, which I once heard in an AERA presentation, that rural adolescents are afflicted with “anomie.” Anomie, *Merriam-Webster’s 11th Collegiate Dictionary* tells us, is characterized by “personal unrest, alienation, and uncertainty that comes from a lack of purpose or ideals.” Perhaps there indeed is something about the rural circumstance that makes rural youth more vulnerable in this regard. Alternatively, perhaps any adolescent—rural and nonrural alike—is likely to show signs of personal unrest, alienation, and uncertainty. That is, the rural context of this particular study may be entirely incidental to the finding that these adolescents were anomic. In the absence of adequate warrants, this indeed would be the cautious conclusion of a perceptive reader (even though it would be at odds with the conclusion drawn by the researcher).

So, how does the rural education researcher establish such warrants? As with many things in life, it depends.

#### *The “Inherently Rural” Phenomenon*

In some cases, the phenomenon under study is inherently rural. Rural by definition, one could say. Here, the rural education researcher’s obligation is relatively straightforward: provide a clear argument that establishes the inherently rural nature of the phenomenon. An example is Maureen Porter’s delightful analysis of the county fair as a forum for cultural transmission from one generation to the next (Porter, 1995). The county fair, at least as Porter describes it, is incontrovertibly a rural institution. While there may be analogous institutions in nonrural locales, the county fair (so conceived) arguably is unique to rural communities. Consequently, the county fair as a context for intergenerational learning arguably is a rural phenomenon, and Porter’s study helps us think in new ways about rural education.

The “inherently rural” argument similarly can be made for K-12 schools, fall harvest recess, one-room

schools, home schooling on a working farm, island schools, and interminably long bus rides (to name a few). For any one of these, the rural education researcher’s task is to make the case that, as described and conceptualized, the phenomenon is uniquely rural and, as such, has no clear counterpart in nonrural contexts. Such a claim is not made casually or by fiat. Rather, the researcher adduces this argument thoughtfully, critically, and self-consciously. If the phenomenon is long bus rides, for instance, one must anticipate the constructively skeptical colleague who wonders how this experience is any different from, say, a long subway ride in New York City. In short, what makes a long bus ride *rural*?

With the “inherently rural” argument effectively made, the rural education researcher then crafts provocative research questions, the answers to which thus *necessarily* throw light on rural education. Consider, for example, a K-8 one-room island school miles off shore in Maine—as uniquely rural as Porter’s county fair. How does the teacher orchestrate instruction in the midst of such proximal diversity? What are the interpersonal dynamics among students, both socially and academically, in this physical and cultural setting? How does island life acculturate the teacher who is “from away,” and, conversely, how are islanders influenced by the culture imported by the teacher? To what degree, and how, is instruction embedded in island life as *place*? Educational research on inherently rural phenomena, as one might sense from these questions, resembles the stuff of anthropology.

#### *When the “Inherently Rural” Case Cannot Be Made*

Inherently rural phenomena are more the exception than the rule in the extant research on rural education. As a consequence, the rural education researcher typically must go further to provide sufficient warrant for any conclusion that invokes rurality. In particular, and regardless of methodological persuasion, rural education researchers must offer vivid contrasts between rural and nonrural contexts in order to establish the rurality of the phenomena they putatively uncover. Absent this, there will be lingering uncertainty whether rural education research is, in fact, *rural* education research.

Just what does it mean to “offer vivid contrasts between rural and nonrural contexts,” and how does one go about doing this? The answer to this question depends on the nature of one’s methodology. Although the quantitative/qualitative bifurcation belies the messy continuum, and the combinations and permutations, that characterize this distinction in practice, the bifurcation will be used here in the interest of simplicity and parsimony.

#### *Warrant by Design— Quantitative Investigations*

One way to offer vivid contrasts between rural and nonrural contexts is through the design of the investigation. The following considerations are for studies that emphasize formal statistical analyses, tests of statistical significance, hypothesis testing, and the like.

*Including a classification variable.* An obvious design strategy for making such contrasts requires a rurality/urbanicity variable of some kind, which the researcher then uses for making comparisons on other variables of interest. For example, one might compare the educational aspirations of rural, suburban, and urban youth, as Cobb, McIntire, and Pratt (1989) did in their frequently cited study. As discussed above, the classification variable must be explicitly and meaningfully defined. Further, the investigator must begin with a clear and compelling rationale for posing the research question that entailed the comparison. With these two conditions met, the classification variable then provides the desired contrasts between rural and non-rural contexts and, in doing so, helps us better understand whether we have uncovered a rural phenomenon. If, for instance, Cobb et al. had employed an all-rural sample in their national investigation, we would have known only that 37% of rural high school seniors would be satisfied with a high school diploma as their terminal degree. Does this state of affairs characterize high school youth in general (in which case rural is merely incidental to the reported statistic) or, rather, rural youth in particular? Absent a comparison of some kind, we would not know. Cobb et al. in fact did employ a classification variable, which enabled us to see that the corresponding figure for urban and suburban students (24%) was markedly lower than that for rural students.

*Employing statistical controls.* To probe the trustworthiness of obtained differences on the classification variable (e.g., regarding aspirations, connection to place, academic achievement, civic activity, coursework in high school), quantitative researchers also must consider statistically controlling for variables that may be conflated with rurality/urbanicity. Without adequate controls in place, the obtained differences may be either unwittingly exaggerated or understated (although exaggeration is more likely). Appropos of the Cobb et al. (1989) study, for example, Haller and Virkler (1993) found that the difference between rural and nonrural high school students' educational aspirations was almost halved, and practically negligible, once the socioeconomic status (SES) of the student was held constant. That is, educational aspirations seemingly have less to do with geographic locale than with SES. To be sure, one may object to the premise that, when SES is statistically excised from the classification variable, a meaningful notion of rurality remains. (Such an objection, of course, gets at what we mean—or should mean—by rural.) Nevertheless, if we *do* wish to disentangle SES from locale, then statistical controls are necessary. Otherwise, we do not know whether we are witnessing a phenomenon of rurality or, rather, a phenomenon rooted in SES.

*Testing for interactions.* Quantitative researchers should allow for interactions, both in their initial hypotheses and in their subsequent analyses. An interaction, to take the simplest case, is where the relationship between two variables is influenced by a third variable. For example, if we observe that our lower-ability students learn more from tightly structured and carefully sequenced instruction whereas higher-ability students learn more from a discovery approach, we are witnessing an interaction—the inter-

action of instructional method and student ability in their effects on student learning.

The best example of interaction in rural education research concerns the well-established positive correlation between student achievement and SES. As every student of educational research knows, higher-SES students tend to have superior achievement to lower-SES students (Sirin, 2005; White, 1982). Yet, the magnitude of this relationship is influenced by a third variable: school size. As many researchers have shown, there is less of a relationship between student achievement and SES among smaller schools than there is among larger schools (e.g., Coladarci, 2006a; Friedkin & Necochea, 1988; Howley & Bickel, 1999; Howley, 1996; Huang & Howley, 1993; McMillen, 2004; also see Lee & Smith, 1997). That is, school size and SES “interact” in influencing student achievement. Stated less formally, smaller schools appear to diminish poverty's power to undermine student achievement (e.g., Tompkins, 2006).

Furthermore, a statistically nonsignificant relationship can be misleading, and allowing for interaction may cast the needed illumination. In the Coladarci (2006a) study, for example, school size was unrelated to eighth grade achievement (controlling for SES). But when subsequently examined, the interaction of school size and SES was statistically significant. Given this analysis, school size *is* relevant to student achievement, but its relevance could be seen only by testing for interaction.

In any case, formal tests of the interaction between SES and school size have permitted additional insight into the possible benefits of smaller schools. In particular, the obtained interaction suggests that smaller schools, by virtue of their smallness, are somehow able to disrupt the achievement disadvantage of lower-SES students. We now need well-designed studies to understand the educational psychology behind this constructive disruption, but the demonstrated interaction provides justification and direction for such studies.

*Comparing conditions in a rural context.* Unlike the previous design strategies, this strategy allows for an entirely rural sample. Here, the contrast is between conditions—conditions that are hypothesized to differ in rurally relevant ways.

For example, I once attended an intriguing presentation in which the speaker described the use of software involving American Indian bead patterns to facilitate mathematical knowledge and reasoning among Indian students. This endeavor honors the value of place, which is a central concern among many rural educators (e.g., Haas & Nachtigal, 1998; Theobald, 2006; also see Gruenewald, 2003). From a research design perspective, however, an important question surfaces: How do we know that the place-sensitive nature of such software—familiar and culturally rooted bead patterns—really matters? Perhaps comparable place-neutral software, involving, say, equally attractive and intriguing patterns but not demonstrably tied to local culture, would prove equally effective in promoting student motivation and mathematics achievement. This unsettling uncertainty easily can be investigated by randomly assigning students to either place-sensitive or place-neutral software and then comparing outcomes across the

two groups. An alternative design, provided that certain assumptions are met, would be to have each student use both versions of the software (with place-sensitive occurring first for half of the students, place-neutral first for the other half). In either case, the systematic comparison of conditions answers the fundamental question here: Is “place” central to the instructional effectiveness of this software, or is it incidental?

*The Literature-Based Warrant—  
Quantitative Investigations*

Xu and Corno (2006) employed an all-rural sample of middle level students in their study of gender, family help, and homework management. Thus, they had no classification variable for making comparisons; nor were they able to compare conditions in the manner just considered. In their concluding discussion, however, Xu and Corno systematically compared their results to what had been found in a comparable study involving urban students. The findings were similar in some cases; in others, they were not. Xu and Corno brought these similarities and differences to the surface and, in turn, offered thoughtful interpretation and speculation.

This illustrates a literature-based strategy for making the rural argument. Here, the operative comparison is between one’s findings from a rural context with what has been reported elsewhere by researchers pursuing related questions but in nonrural settings. Through prose, the researcher explicates the similarities and differences in this regard. A literature-based strategy serves a necessary compensatory function in quantitative research when a comparison group is impractical or not available to the researcher. By demonstrating that one’s putatively rural findings in fact differ from comparable investigations conducted in nonrural settings, the rural education researcher provides an important warrant for any claim of rurality. Indeed, in the absence of a design strategy for establishing rurality, it is the obligation of rural education researchers to at least demonstrate that their results from a rural setting differ from what has been found by others in nonrural settings. Otherwise, rural is relegated to the incidental.

*Qualitative Investigations*

For more qualitative forms of research, such as participant observation, ethnographic interviews, and analysis of documents and artifacts, the rural argument here too can be established through either design or literature-based strategies. (Again, this is when the “inherently rural” case cannot be made.)

*Warrant by Design.* With respect to a design strategy, for example, the qualitative researcher can include at least two field sites differing in rurality. Comparisons are then made between the sites in terms of the themes emerging from the data. Herriott and Firestone (1983) emphasized that multi-site qualitative studies in policy research

address the same research question in a number of settings using similar data collection and analysis procedures in each setting. They con-

sciously seek to permit cross-site comparison *without necessarily sacrificing within-site understanding.* (p. 14; emphasis added)

Although focusing on policy research, their point is equally instructive in the present context. For example, if a rural education researcher wishes to investigate the particular challenges that a remote rural school district faces when implementing a school improvement model, it would be a methodological strength—given the researcher’s objective—to include in the investigation a nonrural (but otherwise similar) district that is implementing the same model. Do the two districts experience the same sorts of challenges, or, rather, does the rural district in fact confront implementation challenges that meaningfully differ from those faced by nonrural districts? Absent the contrast that this design component affords, rurality risks becoming an incidental feature, rather than a critical dimension, of the investigation.

Woodrum (2004) employed an interesting variation on this theme in his qualitative study. Although both of his field sites were rural (in southeastern Ohio), part of Woodrum’s analysis involved the comparison of Appalachian parents’ views with those of non-Appalachian parents. A considerably finer distinction than, say, rural versus urban, Woodrum’s comparison nevertheless revealed interesting and informative differences in how these two cultures viewed the role of schooling in the lives of their children.

To be sure, a multi-site qualitative study can be difficult in rural education research because of the labor-intensive nature of qualitative investigations, the likely distance between sites, and other daunting logistical considerations. Moreover, the very idea of making such comparisons may go against the methodological grain of a qualitative researcher. As a colleague recently protested to me at an AERA session, “What you are saying goes against everything qualitative researchers believe in!” Nevertheless, by comparing one’s qualitative findings across rural and nonrural sites (or, following Woodrum’s lead, across relevant groups within site)—themes emerged, meanings made, interpretations rendered, and so on—the researcher speaks to whether the findings are in any way particular to rural circumstances. Insofar as rural particularity is often presumed (if not explicitly stated) by qualitative rural education researchers, the multi-site design strategy for making the rural argument at least should be considered.

*The Literature-Based Warrant.* Where a qualitative researcher finds the multi-site investigation to be either impractical or unpalatable, the aforementioned literature-based strategy should be employed for making the rural argument. That is, the findings are compared, wherever possible, with comparable investigations conducted in nonrural sites. To return to the implementation of a school improvement model: If a single rural site had been selected for study, then the researcher’s inferences about the rural particularities of this implementation experience would be informed—and buttressed—by comparing this rural experience with what is known from implementation efforts in nonrural school districts, as reported by others.

## Other Observations

### *Framing the Research Question*

I have focused on the provision of warranted conclusions regarding the rurality of one's research findings. This discussion would be woefully incomplete were it not to acknowledge the importance, in this regard, of the initial research question that frames the rural education investigation. Specifically, rural education researchers must carefully establish the relevance of rural to their question. The research question must be justified as a *rural* question. And this is true regardless of one's methodological orientation.

Returning to the example of adolescent anomie: Given our present understanding of anomie, of adolescence, and of rural (versus other) communities, how might rural circumstances arguably be related to adolescent anomie? In short, why is there any reason to believe that anomie may be more prevalent, or more of a problem, among rural adolescents than among other adolescents? Unless there is clarity on this point up front, the ultimate results will be difficult to interpret at best, and meaningless at worst.

### *Drawing on Other Disciplines*

Rural education research often is conceived rather narrowly, not taking advantage of disciplines outside mainstream education. By also 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. There are encouraging exceptions to this myopia, to be sure. Several immediately come to mind: The Barnhardt and Kawagley (2005) analysis of indigenous knowledge systems among native Alaskans; Alan DeYoung's case study of school consolidation in a rural community (DeYoung, 1995; also see Cuban's [1995] thoughtful review of this work); the Hardré and Reeve (2003) investigation of rural-student motivation and persistence in high school; Maureen Porter's aforementioned study of the county fair (Porter, 1995); Tom Schram's account of the Laotian refugee experience in a small town (Schram, 1993); and Paul Theobald's *Call School* (Theobald, 1995), his captivating history of rural education in the Midwest. But again, these are exceptions to the general rule. 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.

### *Synthesizing the Extant Research*

It has been two decades since DeYoung (1987) published his review of the rural education research literature. We are long overdue for a sequel. As I acknowledged at the outset, there have been notable contributions in this regard (e.g., Khattri et al., 1997; Kannapel & DeYoung, 1999), but none intended to have the scope of DeYoung's synoptic review. The absence of a current and comprehen-

sive 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.

### *Exploring Empirical Questions Versus Adducing Data To Support Personal Convictions*

Each phase of research, from the formulation of the general question at the outset to the closing provision of implications, is necessarily influenced by the particular dispositions of the researcher: theoretical orientation, methodological affinity, values, interests, concerns, priorities, and the like. This fact of life does not compromise the trustworthiness of one's research (unless the predisposition is, say, a penchant for fabricating results, misrepresenting the methods employed, or trumping data with personal bias). Rather, it simply means that what investigators personally bring to their research inevitably affects—from soup to nuts—what they do and how they do it. This is no less true for rural education research.

That said, the personal convictions of rural education researchers are at times rather strong. (A related observation is that the distinction between research and advocacy can be quite blurred in rural education research: advocacy groups sponsoring research, and researchers engaging in advocacy.) It is not unusual to hear a rural education researcher espouse a seemingly unconditional belief regarding, say, the virtue of small schools, the evils of school consolidation, or the hegemony of state standards. Are such beliefs open to temperance or refutation, either in the interpretation of one's own data or that reported by others? Are such beliefs any different from asserting that democracy is good, atheism is bad, or mountains are more beautiful than the sea? Strong personal convictions, even when about empirically testable propositions, border on the metaphysical, and this makes empirical verification problematic. Indeed, when strong personal convictions are combined with a weak rural argument, it is no longer clear that (to play off of an earlier lament) rural education research is, in fact, rural education *research*. Instead, what we have in this case are prior convictions and commitments cloaked in data—"values disguised as findings," to borrow an expression from Beach, Becker, and Kennedy (2006, p. 502).

What can be done about this? First, rural education researchers simply must be held more accountable for persuasively making the rural argument. It is not sufficient to find a report of research compelling merely because it is eloquently crafted, passionately delivered, or congruent with personal experience. Nor is it sufficient that the report is credible, coherent, or plausible (a con artist's tale, as Phillips [2000] would remind us, is all three). Funding agencies, journal editors, reviewers of proposals for papers to be delivered at research conferences, and anyone listening to a presentation of research findings must be unyielding in their expectation that a persuasive rural argument be made. Phillips (2006) captured the general objective well in his emphasis on "*constructing a convincing case*, a case that [is] so competently constructed—that [binds] various types of evidence together with cogent argument and

analysis and critique of rival hypotheses—that it would stand up to critical scrutiny and produce conviction” (p. 17; emphasis in original). Although the way *evidence*, *argument*, and *hypotheses* play out will depend on the methodology employed (e.g., an educational ethnography versus a multiple regression analysis), the researcher’s obligation to construct a “convincing case” holds regardless.

Second, it would be difficult for research results to merely recapitulate the investigator’s personal convictions if more of an emphasis were placed on earnest attempts to disconfirm, refute, or falsify. Paraphrasing the renowned philosopher of science Sir Karl Popper, Phillips (2000, p. 183) noted that “any fool can find confirmations for an hypothesis, but what is crucial is whether or not refuting evidence can be found.” He elaborates:

[T]he field of education is beset by conflicting theories and viewpoints, all of which were inspired by *some* observations or data and which are held by their adherents thereby to be established; therefore, carrying out studies that merely add to the stock of reasons that can be offered as to why a theory is right achieve little. For one thing, adherents of opposing theories can do the very same thing—it is a fact of life that theories (including the most fanciful) usually have *some* evidence in their favor! To researchers working in the midst of such complex social/educational situations, Popper’s insight comes as a breath of fresh air—it is intuitively plausible that seeking confirming evidence is far inferior to seeking refuting evidence! (Phillips, 2000, p. 143; emphasis in original)

A recent study of mine (Coladarci, 2006a; also see Coladarci, 2006b) serves as illustration. As noted above, a recurring finding in rural education research is that SES and school size interact in affecting student achievement: the correlation between SES and achievement is weaker among smaller schools than it is among larger schools. But perhaps this interaction has nothing to do with the ability of smaller schools to somehow disrupt the achievement disadvantage of lower-SES students, as small-school advocates would have us believe. Rather, perhaps the weaker relationship between SES and achievement among smaller schools simply reflects the operation of a “statistical artifact”—in this case, the lower reliability of school-level achievement that is known to afflict smaller schools (e.g., Coladarci 2003; Hill & DePascale, 2003; Linn & Haug, 2002). This rival explanation is plausible indeed, given that low reliability reduces a variable’s ability to correlate with another variable (e.g., Thorndike, 1982, p. 222). In short, I examined whether the interaction between SES and school size held up even after the low reliability of small-school achievement was taken into account. (It largely did.)

In conducting my study, I was not motivated by a desire to debunk popular opinion regarding the virtues of small schools. Quite the contrary: I sought to determine whether a celebrated proposition in the rural education literature could withstand a sincere attempt to falsify it. If such an attempt were to fail, then we all are entitled to a

greater confidence in this proposition—a greater *warranted* confidence—than could be claimed otherwise.

Although the preceding example draws on quantitative research, the espoused value of searching for disconfirmation can be found among qualitative researchers as well. For example, Miles and Huberman (1994, pp. 270-275) encourage the qualitative data analyst to look for negative evidence, entertain rival explanations, and follow up surprises. Such an orientation is echoed by the American Educational Research Association in its *Standards for Reporting on Empirical Social Science Research in AERA Publications*. Regarding qualitative investigations, the document says this:

Once initial classifications, pattern descriptions, or in-depth interpretations are developed, researchers may review the corpus of available data to locate all relevant instances to support the claims, to search for confirming and disconfirming evidence, and to try out alternative interpretations. They may also return to data collection if additional evidence is needed to confirm or disconfirm a pattern. This process results in an initial set of claims or interpretations which represent the preliminary conclusions or learnings from the research. The available sources of evidence may be re-reviewed, and alternative interpretations may be tried out, in the process of developing the final conclusions or learnings that will be reported.

This iterative process of developing claims or interpretations, seeking confirming and disconfirming evidence in the data, sometimes collecting additional evidence, and trying out alternative claims or interpretations, supports the development of warrants for claims or conclusions. (AERA, 2006, p. 38)

Regardless of methodological orientation, then, rural education researchers are encouraged to approach their craft with the constructive skepticism of a devil’s advocate.

## Conclusion

As I acknowledged at the outset, the discipline of rural education research has enjoyed significant activity and accomplishments over the years, and there is every reason to believe that this will continue. The yield of rural education research nevertheless can be improved, however, and the discussion above is meant to throw light on possible ways to effect such improvement. I harbor no presumption that readers will find this discussion complete or inarguable; like anyone, I have my biases and blind spots. But if my observations cause rural education researchers to be more self-conscious in how they do their work, and the consumers of this research to be more expectant of warranted conclusions regarding putatively rural phenomena, then the effort will have been a success.

## References

- American Educational Research Association (2006). Standards for reporting on empirical social science research in AERA publications. *Educational Researcher*, 35(6), 33-40.
- Barnhardt, R., & Kawagley, A. O. (2005). Indigenous knowledge systems and Alaska Native ways of knowing. *Anthropology and Education Quarterly*, 36(1), pp. 8-23.
- Beach, K. D., Becker, B. J., & Kennedy, M. M. (2006). Constructing conclusions. In C. F. Conrad & R. C. Serlin (Eds.), *The Sage handbook for research in education: Engaging ideas and enriching inquiry* (pp. 493-509). Thousand Oaks, CA: Sage.
- Beaulieu, L. J. (2005). Breaking walls, building bridges: Expanding the presence and relevance of rural sociology. *Rural Sociology*, 70(1), 1-27.
- Cobb, R. A., McIntire, W. G., & Pratt, P. A. (1989). Vocational and educational aspirations of high school students: A problem for rural America. *Journal of Research in Rural Education*, 6(2), 11-16.
- Coladarci, T. (2003). *Gallup goes to school: The importance of confidence intervals for evaluating "Adequate Yearly Progress" in small schools*. Washington, D.C.: The Rural School and Community Trust. (<http://files.ruraledu.org/docs/nclb/coladarci.pdf>)
- Coladarci, T. (2006a). School size, student achievement, and the "power rating" of poverty: Substantive finding or statistical artifact? *Education Policy Analysis Archives*, 14(28). Retrieved November 3, 2006, from <http://epaa.asu.edu/epaa/v14n28/>
- Coladarci, T. (2006b). Do small schools really reduce the "power rating" of poverty? *The Rural Educator*, 28(1), 1-8.
- Cleland, C. L. (1994, October). *Measuring rurality*. Paper presented at the 1994 meeting of the Southern Demographic Association, Atlanta.
- Cuban, L. (1995). [Review of the book *The life and death of a rural American high school: Farewell Little Kanawha*]. *Journal of Research in Rural Education*, 11, 121-124.
- DeYoung, A. J. (1987). The status of American rural education research: An integrated review and commentary. *Review of Educational Research*, 57, 123-148.
- DeYoung, A. J. (Ed.). (1991). *Rural education: Issues and practices*. New York: Garland.
- DeYoung, A. J. (1995). *The life and death of a rural American high school: Farewell Little Kanawha*. New York: Garland.
- Farmer, F. L. (1997). Rural, Definition of. In G. A. Goreham (Ed.), *Encyclopedia of rural America: The land and people* (pp. 623-626). Santa Barbara, CA: ABC-CLIO, Inc.
- Friedkin, N. E., & Necochea, J. (1988). School system size and performance: A contingency perspective. *Educational Evaluation and Policy Analysis*, 10, 237-249.
- Gruenewald, D. A. (2003). The best of both worlds: A critical pedagogy of place. *Educational Researcher*, 32(4), 3-12.
- Haas, T., & Nachtigal, P. (1998). *Place value*. Charleston, WV: Clearinghouse on Rural Education and Small Schools.
- Haller, E. J., & Virkler, S. J. (1993). Another look at rural-nonrural differences in students' educational aspirations. *Journal of Research in Rural Education*, 9, 170-178.
- Hardré, P. L., & Reeve, J. (2003). A motivational model of rural students' intentions to persist in, versus drop out of, high school. *Journal of Educational Psychology*, 95, 347-356.
- Helge, D. (1992). Rural education. In M. C. Alkin (Ed.), *Encyclopedia of educational research* (pp. 1118-1123). New York: Macmillan.
- Herriott, R. E., & Firestone, W. A. (1983). Multisite qualitative research: Optimizing description and generalizability. *Educational Researcher*, 12(2), 14-19.
- Hill, R. K., & DePascale, C. A. (2003). Reliability of No Child Left Behind Accountability Designs. *Educational Measurement: Issues and Practices*, 22(3), 12-20.
- Howley, C. B. (1996). Compounding disadvantage: The effects of school and district size on student achievement in West Virginia. *Journal of Research in Rural Education*, 12(1), 25-32.
- Howley, C. B. (1997). How to make rural education research rural: An essay at practical advice. *Journal of Research in Rural Education*, 13(2), 131-138.
- Howley, C. B. (2004). *Ten precepts about the circumstance of rural education*. (Occasional Paper No. 11.) Appalachian Collaborative Center for Learning, Assessment, and Instruction in Mathematics. Athens, OH: ACCLAIM Research Initiative. Retrieved June 10, 2006, from [http://www.acclaim-math.org/docs/occasional\\_papers/OP\\_11\\_Howley.pdf](http://www.acclaim-math.org/docs/occasional_papers/OP_11_Howley.pdf)
- Howley, C. B., & Bickel, R. (1999). *The Matthew Project: National Report*. Athens, OH: Ohio University, Educational Studies Department. (ERIC Document Reproduction Service No. ED433174)
- Huang, G., & Howley, C. B. (1993). Mitigating disadvantage: Effects of small-scale schooling on student achievement in Alaska. *Journal of Research in Rural Education*, 9, 137-149.
- Johnson, J., & Strange, M. (2005). *Why rural matters 2005: The facts about rural education in the 50 states*. Arlington, VA: Rural School and Community Trust.
- Kannapel, P. J., & DeYoung, A. J. (1999). The Rural School Problem in 1999: A review and critique of the literature. *Journal of Research in Rural Education*, 15, 67-79.
- Khattry, N., Riley, K. W., & Kane, M. B. (1997). Students at risk in poor, rural areas: A review of research. *Journal of Research in Rural Education*, 13, 79-100.
- Lee, V. E., & Smith, J. B. (1997). High school size: Which works best and for whom? *Educational Evaluation and Policy Analysis*, 19, 205-227.
- Linn, R. L., & Haug, C. (2002). Stability of school-building accountability scores and gains. *Educational Evaluation and Policy Analysis*, 24(1), 29-36.
- McMillen, B. J. (2004, October 22). School size, achievement, and achievement gaps. *Educational Policy*

- Analysis Archives*, 12(58). Retrieved October 22, 2004, from <http://epaa.asu.edu/epaa/v12n58/>
- Miles, M. B., & Huberman, A. M. (1994). *Qualitative data analysis* (2nd ed.). Thousand Oaks, CA: Sage.
- Nachtigal, P. (Ed.). (1982). *Rural education: In search of a better way*. Boulder, CO: Westview.
- Phillips, D. C. (2000). *The expanded social scientist's bestiary*. Lanham, MD: Rowman and Littlefield.
- Phillips, D. C. (2006). *Muddying the waters: The many purposes of educational inquiry*. In C. F. Conrad & R. C. Serlin (Eds.), *The Sage handbook for research*
- Porter, M. K. (1995). The Bauer County Fair: Community celebration as context for youth experiences of learning and belonging. *Journal of Research in Rural Education*, 11, 139-156.
- Rathge, R. (1997). Rural demography. In G. A. Goreham (Ed.), *Encyclopedia of rural America: The land and people* (pp. 626-629). Santa Barbara, CA: ABC-CLIO, Inc.
- Schram, T. (1993). Laotian refugees in a small-town school: Contexts and encounters. *Journal of Research in Rural Education*, 9, 125-136.
- Sher, J. (Ed.). (1977). *Education in rural America: Reassessment of conventional wisdom*. Boulder, CO: Westview.
- Theobald, P. (1990). Introduction. [Theme issue: "A look at rural education in the United States."] *Peabody Journal of Education*, 67(4), 1-6.
- Theobald, P. (1995). *Call school: Rural education in the Midwest to 1918*. Carbondale, IL: Southern Illinois University Press.
- Theobald, P. (2006). A case for inserting community into public school curriculum. *American Journal of Education*, 112, 315-334.
- Thorndike, R. L. (1982). *Applied psychometrics*. Boston: Houghton Mifflin.
- Tompkins, R. (2006). Small schools, small districts: Good for rural kids, economies, and democracy. *Rural Americans* (Issue 14). Retrieved June 19, 2006, from <http://www.demos.org/pubs/KitchenTable014.pdf>
- White, K. (1982). The relation between socioeconomic status and academic achievement. *Psychological Bulletin*, 91, 461-481.
- Woodrum, A. (2004, September 7). State-mandated testing and cultural resistance in Appalachian schools: Competing values and expectations. *Journal of Research in Rural Education*, 19(1). Retrieved June 22, 2006, from <http://www.umaine.edu/jrre/19-1.htm>.
- Xu, J., & Corno, L. (2006, March 10). Gender, family help, and homework management reported by rural middle school students. *Journal of Research in Rural Education*, 21(2). Retrieved June 21, 2006, from <http://www.umaine.edu/jrre/21-2.pdf>