

Mathematics Education in Rural Communities: An Essay on the Parameters of Respectful Research

Craig B. Howley
Ohio University

This essay has three parts, each construed as a different parameter of rural education research on mathematics education: (a) research method, (b) content, and (c) the application of research. The author advises a conservative approach to method, a liberal approach to content, and a radical approach to application. The conservative approach to method accepts the existence of a knowable reality. The liberal approach to content views rural issues broadly and sidesteps deficit models of the rural lifeworld. The radical approach to application understands that the use of research findings in the policy realm embeds struggle and contradiction. Discussion concludes with relevant observations about mathematics education.

Objectively speaking, rural education is important to American schooling because local education agencies are the main actors in educational governance, and rural and small-town school districts comprise an astounding 63.8% of all public school districts in the U.S. About 20% of these districts are located within metropolitan counties. Rural is therefore far more common than most people realize. And yet, few established scholars devote serious attention to rural education.

Mathematics education is, of course, situated rather differently. It is understood as having relevance everywhere and enjoys commensurate funding. The research literature in the two distinct fields, however, exhibits almost no trace of the circumstances and meanings of rural schooling as they might apply to mathematics education (ACCLAIM, 2002). Moses and Cobb (2001) contend that knowing math is a lot like knowing how to read and write: a foundation of rights, justice, and power for communities and individuals. If Moses and Cobb are right, and the interests of rural places are left out of research agendas, the result will be continued silence and, possibly, continued powerlessness in rural places.

Among the tasks of my new 5-year mission (quite literally a 5-year mission) is to widen the opportunities for such contact (see the concluding section for more information). The difficulty, of course, is to explain rural education and, more particularly, the requirements for researching mathematics education in rural places that actively respects

rural people and places. This article is one effort to realize those opportunities. It is written with both mathematics education researchers and rural education researchers in mind, and it concludes with an invitation to researchers of whatever stripe to work with our project on these terms.

The Need for World-Class Research in Rural Education

Before we lay siege to Harvard and Stanford in order to liberate the world-class scholarly leadership awaiting our call, it would be important to realize we do not need world-class leadership nearly so much as we need scholarly leadership that is more locally grounded.

Arguably, world-class leadership is already part of the problem. In fact, academic lust for world-class status is alive and well in many universities with reputations far dimmer than those of Harvard and Stanford. These institutions would gladly sell out their host communities in rural areas in order to lay their hands on a fraction of the soft money that flows so easily downhill to the elite watering holes. Universities have global reputations to build or maintain—especially now—and they hardly want to be seen with their hick neighbors, much less working with them.

It's incredible that it all started here, is it not? There are individual exceptions, however, even in colleges of arts and science. Nick, for instance, is a physics professor at the University of Wisconsin. Nick has been interviewed, together with a dozen other people, every 7 years since he was seven years old for Michael Apted's¹ famous "Up" series. The series began in 1958 with *7-Up* and has recently concluded with *42-Up*.

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Correspondence concerning this article should be addressed to Craig Howley, 210A McCracken Hall, College of Education, Ohio University, Athens, OH 45701. (howleyc@ohio.edu)

¹Apted is a prominent Hollywood director whose really brilliant career is documentary filmmaking. Commercial credits include *The World is Not Enough* and *Gorillas in the Mist*.

I want to quote briefly from the transcript of the latest interview, which was conducted when Nick visited the old homeplace in his rural community. The off-camera interviewer (Apted, in fact) asks Nick, "It's incredible that it all started here, isn't it?" Nick is quietly annoyed and he replies,

Yes and no—you shouldn't underestimate what resources people have. . . . You shouldn't look at this little place and say, "How surprising that anything could emerge from here." I mean, these are fantastic people and . . . you don't get better teachers anywhere else than we had. So, no, it is not surprising. (Singer, 1998, p. 89)

Now, Nick went to Oxford University—more elite even than Harvard—for his undergraduate and graduate degrees. And he's saying he had no better teachers—by which he also means the neighbors from whom he learned how to live—than in his little podunk of a homeplace. My best counsel is that we researchers try fully to understand what Nick is saying. His statement applies to us and the work we have to do as we study math education in rural places. We don't at all need to ask "What made Nick a successful physicist?" We need, rather, to ponder what Nick meant in asserting the educative value of his homeplace—and then ask very different sorts of questions in our research projects.

Structure of this essay. This essay has three parts, plus several illustrations of what I mean at the very end. Think of the three main parts each as a different parameter of rural education research into mathematics education. The three parts deal with (a) research method, (b) content, and (c) the application of research. I advise a conservative approach to method, a liberal approach to content, and a radical approach to application. Remarks about mathematics education are reserved for the conclusion.

Method

If you really get into research, you will soon enough give up the simple word *method* in favor of the word *methodology*. It means "method" but has the added advantage of scaring audiences. That feature is very handy if your audiences are graduate students who need to take this stuff seriously, but can hardly believe that it really is necessary to take a stance toward reality, or to question the existence of reality, or to decide how to study it whether "it" really exists or not. They think you merely jest when you talk this way. By the time they get to the dissertation, they are no longer laughing, of course.

My conservative perspective on method is really quite simple. Reality exists. We can know many of its features by devoting sufficient care and attention to our investiga-

tions. A more liberal position says that reality is debatable, but that we can sort of intuit it. A radical position would insist that social reality is created almost entirely by ideology and that in order to know reality, what you really have to know is ideology.

Now, personally, I believe that the radical version is true, and that it's a fine grounding for political critique. Much of politics, after all, is speech (i.e., words only spoken). But the radical position has always impressed me as much less useful for designing research that you expect anyone but academics or literati to heed (if not exactly read). This means I don't advise critical theory or postmodernism as a research paradigm for this work. I probably have some explaining to do.

We've subjected our doctoral students at Ohio University to Lincoln and Denzin's tome on qualitative methods, with particular attention to their four-part scheme describing research perspectives. The four parts are something like positivist, postpositivist, critical theorist, and constructivist (really meaning postmodernist). The scheme is very handy for graduate students, of course, if a bit too neat for reality.

The basic ideas behind the four perspectives are real simple. Is there really something solid "out there" to study? Or do words constitute reality, so that reality is really the way words (and other symbols) are used? Positivism and postpositivism shade toward the former position—the existence of a solid reality—and critical theory and postmodern-style constructivism toward the latter—reality as a sort of text. Positivism and postpositivism are more conservative, whereas critical theory and constructivism are considered more intellectually radical. Whether they are politically more radical is a topic of ongoing debate.²

I advise a postpositivist approach to rural education research. Why?

Positivism is too deterministic for the social sciences. Critical theory and constructivism, on the other hand, are 20th century innovations specifically in the social sciences, which means you can use them to understand the history and politics of science, but applying them to the study of the material reality of natural science would strike even some of their proponents as a misdirection.

My argument here is that for a start we ought to treat rural context as structurally conditioned and, therefore, presenting a material reality. By structure, of course, I refer to very durable features of economics, politics, history, and

²If critical theory is confined to the academy, its function is arguably conservative. The argument may not, of course, win much credence, but those who believe in a material reality need to entertain the possibility. Constructivism might be charged with conservatism because it has so thoroughly displaced behaviorism as received wisdom—and with, again, little evident change to the material conditions of schooling.

culture that fashion the circumstances that we somehow so solidly encounter as *rural*. The structures constitute, or condition, or guarantee a material reality that is available for us to study.

Now, this insight about the wisdom of studying the influence of durable structures in the rural circumstance means that *rural* is not reducible to a geographic category, nor to a residual category of *urbanized place*.

The rural circumstance is not about residence, just as being a person with black, brown, or red skin is not about color. The rural circumstance is much more than residence, and that is what so many education professionals—including academic researchers—cannot apparently fathom. Most of what rural people do and are is invisible from the cosmopolitan perspective of university research and multinational business. This blindness—this oversight—is precisely why it's incumbent on math education research, in designing appropriately rural studies, to grapple intellectually with the material structures of economics, politics, history, and culture that condition rural lives.³ The education of individuals is profoundly shaped by these structures, and these structures shape even more profoundly the institutions and technologies of schooling, into which contemporary society tries desperately, and with such lack of success, to pour so much of the process of education.

Coming to know mathematics in rural schools and communities, then, is nested within all these structures, not just for academics and education professionals, but also for students and communities. The structures inevitably shape the engagements of learning and teaching as well as the evasions of learning and teaching that transpire in rural schools and communities. This is a complex reality, and the observation indicates that, from the vantage of living and loving in rural places, we'd probably find that some of the engagements make bad sense and that some of the evasions make good sense. In short, some of what we must find will be counterintuitive and if some of it is not, we are not doing good research.

Let me put my position on method more simply. The rural circumstance exists. You can see it, touch it, live in it and you can even live from it quite well, though with difficulty and never stupidly. The ways rural lives look, feel, nourish, and challenge communities and individuals arise from centuries of social relations so durable as to be largely habitual and predictable. Rural is not willfully shaped by discourse or superficial changes in discourse. Rural is there, it's real, and we can study it rather objectively. To frame our questions, however, we critically need to reflect on rural economics, history, politics, and culture.

While we cannot very well establish laws relating the various features of schooling and the rural circumstance, as we would reputedly try to do in the strict positivist perspective, we can, in the more circumspect postpositivist perspective, actually establish tantalizing relationships

among contexts, processes, and outcomes. By adopting a postpositivist stance, as well, we can establish these relationships using widely appreciated methods. This means our work would be more likely to get a public hearing (not, that is, a hearing confined to academe).

This conclusion about method is a terrible irony, because it means that we adopt a materialist (even structuralist), postpositivist perspective on reality in part because the discourse it uses to interrogate reality and to report its findings is more comprehensible to a wide audience than would be the products of any of the alternatives. That irony is hardly disturbing, however: to speak is a political act.

Content

I advocate a liberal approach toward content. Such a usage, of course, has very little to do with (ordinary, partisan) politics per se. By conservative, this discussion indicates a narrow as opposed to a more circumspect (or liberal) view of content. This circumspection consists of seeing content as co-extensive with context.⁴

The justification here is partly based on a rejection of conservative views of content. Now, there is a "light" view of the conservative take on content and a "dark" view. I begin by rejecting the light view and conclude by rejecting (it will go without saying) the dark view.

The conservative-light view takes the position that research about mathematics education in the rural context is about mathematics education. This is certainly the way most research into the topic over the past 40 years has actually been conducted in the field of mathematics education, especially with respect to rural context. The conservative view

³The word *rural* needs to show up a lot in the reference list as material evidence that a study might actually privilege rural issues.

⁴Certainly one might have advocated a more circumspect view of method. I took another choice for the reasons previously given: the nature of the intended audience. These choices are generated from a pragmatic outlook on the work of research on the view that education research is an applied field.

⁵Those who like math deeply and rightly appreciate the reflexive property of equality ($a = a$). It really works for the real numbers, but its utility in the social and political world is far less certain. The problem is that the reflexive position assumes that we really know what best practice looks like and that it's pretty much the same everywhere. The best math education research, however, understands very well that context influences the way children learn mathematics. From a psychological (rather than a sociological) perspective, context principally influences an individual's construction of mathematical objects. Context conceived sociologically has received considerably less attention in mathematics education, and this is arguably one reason for the neglect of rural context in the field. By and large, however, recent mathematics education has taken the liberal perspective advocated in this essay.

sounds deceptively sensible.⁵ These studies report that the setting was rural, and then proceed to ignore the ruralness of the setting (and this is why I claim that math education research is nearly silent on rural issues).

Context is immaterial to content in the light version of the conservative view. The clear task is how to get more of the content actually happening well, and so context principally presents the challenge of how to tweak best practice so that more of it can happen in particular places—for instance, in Adams County, Ohio; or MacDowell County, West Virginia; or in the public schools of Philadelphia, the District of Columbia, or New York City. Whether in the countryside or in the big city, on this view (conservative-light), we just want better mathematics learning, and we should figure out what to do to get it. From this vantage, context is more likely to be conceived as a clumsy impediment to a fiercely desired goal.

The conservative stance toward content comes with an embedded, but quite hidden, view of rural places that is the kiss of death to studying the rural context: the view that rural life is fundamentally deficient. This is conservative-dark.

Jim Goad (1997), in a self-indulgent work raucously titled *The Redneck Manifesto*, points out correctly that rural people are the only group to have escaped the prevalent (if seldom seriously honored) injunctions against bigotry. One can, he claims, mock country people as ignorant and clownish with impunity almost any time one pleases.

This hidden curriculum of the conservative stance toward content is the principal negative reason I advise a more liberal stance toward content. The principal positive reason I advise a liberal stance is that it's logically consistent with an objective concern for rural places, institutions, and people. If you don't respect something, you shouldn't study it. The deficit view is a hidden bias that's fatal to the object of study. Far from harboring a bias, a respectful stance actively constitutes objectivity. So much for the rejection of the light and dark versions of the conservative view.

A more liberal view of mathematics education in rural places accepts the position that context actively influences educational objects, processes, meanings, and, more critically, purposes. But more importantly, as a research endeavor, it will focus not on mathematics curriculum and instruction per se, but more on their interactions with context—particularly the larger context of history, economics, social class, and ethnicity.

The liberal stance, then, is a constructivist view, not principally of instruction and cognition (psychological constructivism, very familiar to mathematics education researchers), but of the lived experience of being in rural schools and communities (a form of social constructivism). A fair minority of mathematics educators have engaged this idea of social constructivism, if the recent AERA program is a good indicator. And in fact, the old SST curriculum—

science, society, and technology—embraced the challenge of context decades ago, not in reality, of course, but as a definitive part of the science curriculum. Liberalism of this sort is fairly traditional. One should realize, of course, that the slide from conservative to liberal to radical is, in the language of mathematics, a continuous function. The operant terms are more and less.

If one believes that the important work of schooling has to do principally with technical issues—such things as instructional design and curricular scope and sequence and with a rather predetermined and comparatively certain content—one is likely to embrace a more conservative (narrower) stance. If one instead believes instead that the important work of schooling is the cultivation of intellect in all its powers—an extensive capacity to take on momentous ethical, political, historical, and cultural issues—one will probably insist on a more liberal (broader) stance. From this vantage, a liberal approach to content is quite traditional: one could call it the liberal arts tradition (a tradition admittedly better at laying claim to noble purpose than following it!).

On the more liberal view, the price of doing research that focuses on rural context is the commitment to carry through with attention to the interaction of the context of schooling with the content of schooling. A critical insight animates this commitment: Schooling cannot constitute—that is, make up—a decent education absent circumspection about context.

Application

A radical approach to application insists on seeing an issue with its roots dangling in full view. So, a conservative method has a narrow focus, a liberal content has scope, and a radical application has roots. Beyond the circumspection (i.e., inclusion of context) required with content, application within the rural context requires perspicacity (keen discernment, in this case, of contextual dynamics governing the uses of research).

Again, justification begins with a repudiation of the conservative view of the applicability of research. Note that the discussion in this case also does not characterize the conservative approach as wrong, misguided, or unworthy, but—again—as inapt to the purpose, which is to respect and understand the rural circumstance in hopes of improving mathematics education in and, critically, *for* rural communities. This hope is the motive for being involved with application at all. It makes application necessary. For an applied research field, the appropriateness of this position seems evident.

The traditional, conservative, narrow view of application is the one I learned in high school, in physics class, actually, with our young teacher Artie Lehrhaupt. In this traditional view the applicability of education research rests

entirely with advancing the consideration of interesting intellectual problems and not very immediately with the problems of the real world. We've pretty much abandoned this view of natural science, somewhat to my chagrin. Artie tried to cultivate in his students the high and noble purposes of science, the serene beauty of contemplation, and the wonder of natural laws lurking unseen in reality. It was very convincing, and Artie helped me see the connection between philosophy, music, mathematics, and science, and he actually encouraged us to read. I'm still grateful for his gifts. They have served me very well.

In the conservative view, however, applications of the sort that concern us in education research are the province of technologists, not of scientists. That's the view I learned in high school, in any case. Among education researchers, however, this view sounds like wasteful luxury. Most education researchers take a more liberal view, and I will describe that position shortly. For now, note that there is much to admire in the conservative view. In particular, the conservative perspective acknowledges a key truth that liberally-minded educationists don't; namely, the conservative perspective understands that desperation to apply research findings, or desperation to conduct research for practical reasons, is bound to be thoughtless. Scientists learned this lesson in developing the nuclear bomb, and they've written extensively about their insights. Desperate times drove them desperately on, and they've given humankind an evil legacy. The bomb is there, and it will inevitably and unavoidably be used again, sometime. History is long and we forget that. Put simply, desperation for applicability undercuts the distance from reality that decent research requires.

There is far too much desperation in the application of the findings of education research, and the desperation increases precisely because so many people clamor for education research that is truly and immediately practical. The longing for research that is truly and immediately practical is desperation that is masquerading as common sense. Worse, in this masquerade it is welcomed as common sense, and in this charade such ersatz common sense does great mischief, as I will explain shortly. So I do think a conservative approach to application has something to offer; its extreme remove from the real world, however, means that it just doesn't comprehend enough of the story to guide us, once we've adopted a respectful attitude toward the rural lifeworld. Not only is it not keenly discerning of the context of application, it's not concerned about application at all.

Unfortunately for us in education research, basic research is not even possible. What we have in education is applied research, and I know this is true because Gene Glass says so.

Glass is mathematically brilliant, author of the most comprehensive and best-selling text in statistics for educa-

tion research, and inventor of meta-analysis, but he claims he has become more wise than he once was and is no longer a "quantoid." A quantoid is a positivist with a remarkably foolish view of reality: If you can count it, it must be the truth. Glass now seems to believe that application is a conversation with reality. His view, however, is a radical, not a liberal view, in my telling anyhow. You may dimly recognize elements of critical theory and the postmodern in his position, though I doubt Glass is either a critical theorist or a postmodern.

I agree with Glass's stance on application. What else could application be in our field but a conversation with reality? I'm getting ahead of myself, however, because I want to unpack the liberal perspective now.

Like Glass's view, the liberal perspective does not take any education research as basic. If you have doubts about this point, ask yourself what basic research problems education as a pure discipline would be asking that sociology, psychology, and political science are not already asking. Those would be the questions that history, philosophy, literature, and religion would be asking. In the liberal view, research should be more like evaluation, and this seems to me the prevailing view with respect to application. This assertion has found recent confirmation in the prevailing scientism in Washington: Finding out what works is essentially the evaluation of claims made by those who produce educational products. This is worthy work, but it has a big problem: the problem of what works (see Glass, 1987).

The problem of what works looms large in our field and we have dreadful difficulties talking about it since most of us were classroom teachers who, at one time, were very, very sure that some of what we did "worked" and some "didn't work." We tend as researchers to think that the same sensibility must apply to the educational system and to educational programs as a whole. Everyone is rushing, quite desperately it seems to me, to find out what works and then, even more desperately rushing to make "what works" work. Sadly, we have not discovered much about how to make what works work. Even more sadly, what works does not work all that well. Penicillin overcomes pneumonia rather handily. Phonics instruction works rather differently, more modestly, and with much, much less certainly.

To put it simply: In the liberal mode we want to put research to work telling us what works. The liberal view, at least in its most debased forms, turns every research project into an evaluation project. Each year that I attend AERA, more of what is talked about under the rubric of research is very, very ordinary evaluation.

Readers may well ask, "Is there a problem with that?" Indeed there is: and it is a very practical problem, alluded to above. Alas, evaluation also has trouble telling practitioners the truth about what works. The crux of the issue is the difference between phonics instruction and penicillin. With education evaluation, in all efforts to show the valid-

ity of reform programs or products, the overall positive effect sizes given in evaluation reports mask substantial variability. Yes, on average, there are benefits, but, no, in many schools the achievement benefits not only do not materialize, but achievement deteriorates and does not bound back to higher levels. Our “what works” is a very dicey “what works,” unlike the reliable efficacy of penicillin.⁶ For instance, in two fifths of the cases, statistically significant improvements materialize, but in only half of those cases are the improvements practically significant. In an additional two fifths of the cases, no statistically significant improvements are noted, and in the remaining one fifth of cases, things get significantly worse. (This is a hypothetical case to illustrate the problem.)

In essence, you have a validated program that does real good in 20% of sites and real damage in 10% of sites. It looks good on average, but the average is rather meager, and the likelihood of improvement not very good. In actual programs, of course, the proportions of good and evil vary, but the pattern of uneven success for “what works” in education is constant.

“Working” with respect to schooling is always a question of odds rather than certainty. Just because the odds are better than even will not necessarily make many of us winners. Moreover, as researchers, we should refrain from seeing in better-than-even odds signs of an underlying certainty of universal good that would materialize if we just got rid of the human beings who mess things up (Mintzberg, 1998). Our special burden in education is human beings who always mess things up. We’re only human, and especially so as social science researchers.

Now, here comes the point for those of us involved in researching mathematics education in rural places: Do we really want to do more of this sort of research (that is, research masquerading as evaluation) just in order to determine if Math Program X is generally a little better in rural schools as compared to Math Program Y? In the end, you know, we will be stuck with exactly the same problem (all over again). The rurally validated program will be a bad fit in some rural places. And the rurally unvalidated program may even be a good fit in some other rural places. We probably need to do some of this work from the vantage of rural competence rather than rural deficit, but this work should be of second or third rank.

⁶Perhaps one should say, “the once reliable efficacy of penicillin,” for the bugs have adapted to this threat—and there is a possible systemic lesson for education in this history of resilient bugs. The introduction of really robust “workings” will probably produce systemic adjustments that we cannot perceive and which could make matters worse. For instance, Maria Montessori’s methods were developed for children of the poor and now—they really worked—they benefit children of the rich.

Far from being wild-eyed, the radical view has a more sober view of reality than the other views. The conservative view of application says that reality doesn’t matter all that much. The liberal view says that research should improve reality without knowing what reality is. The radical view, by contrast, says that reality is contradictory and application will always be compromised and ambiguous. The radical view is honest about what works: nothing works in the sense of working everywhere. Large sums are spent developing and validating good programs. They need to work, therefore, but the actual workers are only human and mess things up.

This outlook on what works is heresy, but the radical view of application does something even more heretical. It says that, given the limited practical benefit of validating programs, we need to be very suspicious of our notions of “what works.” Works for whom? Damages whom? What does it work to do? Is this good work? Why and why not? What *is* required? Who says so? In fact, the public has not only a right but an obligation to ask such questions. Researchers should be asking them too.

A radical perspective on application appreciates the fact that research findings enter a conversation about how ordinary people would like reality to be. What research needs for this work, but too often lacks, and which evaluation is by definition designed to avoid, is an edgy critical outlook on reality. And please note that in dealing with content-context relationships different from those prevailing in the mainstream (as in studies of the African American circumstance or the rural circumstance), this critical edginess is what animates the research project at the outset and enables its application in the end. That’s why a respectful view of content is critical.

Taking Action for Rural Mathematics Education Research

First, one wants to conduct research that will make a difference for rural communities and rural students. So one chooses a method that is comprehensible and accessible to a wide audience, and one should choose conservatively for this reason. Second, one must approach the rural context liberally, meaning respectfully, simply in order to allow oneself to see clearly the object of investigation. Third, one wants to design research that is provocative, that intends critical responses in the public domain, so one assumes a rooted (radical) stance that avoids the posture of all-knowing expert.

In this radical view of application and practice, questions are not just for experts to pose, because it is most important for ordinary people to ask and answer such questions. Indeed, cultivating this species of intellect is the work of education. Schooling could help, but it seems to help less and less. It certainly helps less than it might everywhere, and fails particularly among rural people whose

aspirations for staying rural and articulating better rural lifeworlds are hardly considered valid in the 21st century.

The funny thing is, the more self-evidently practical we try to make it, the less truly practical education research becomes, since our obsession with practicality makes us ever more desperate and iteratively less thoughtful. When this is our approach, we are really helping to disseminate what doesn't work, and doing it in a way that magnifies the problem. Even researchers need help avoiding this trap.

What sort of mathematics instruction, curriculum, and education policy will help rural communities and students thrive mathematically, and thrive with mathematics? We don't know. But we're beginning to pose the questions.

In September 2001 the National Science Foundation authorized the creation of the Appalachian Collaborative Center for Learning, Assessment, and Instruction in Mathematics, a collaboration based principally in five universities. Together with my colleague Jim Schultz, I serve as co-director of the Center's research initiative.

Unique to our center among the others recently established is an exclusive focus on the rural context of mathematics education. ACCLAIM takes rural context seriously with (a) a respectful view of rural context and (b) a pluralistic stance toward research. The Center has adopted a framework that commends four relevant principles to researchers (ACCLAIM, 2002, p. 2), believing that research in this domain should . . .

1. describe the salient relationships between mathematical knowledge and rural context;
2. examine rural schools as they serve or subvert the development of mathematical knowledge and expertise within the rural lifeworld;

3. examine hypotheses about the place occupied by mathematics knowledge in and (prospectively) *for* rural communities; and
4. elaborate theories of, and knowledge about, pedagogy of place for mathematics education in rural schools.

The Center has modest funding to support research, and we have not predetermined the questions to be addressed. That decision may be taken in time, but for now, almost any set of questions that regards mathematics and math education in the rural lifeworld seriously and with some depth will suit the purposes of the Center.

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