

Making Education Research Behave: Reflections from the Rural Lifeworld

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This talk addresses the connections between rural life and education research centered on rural places. It's informed by my experience of all three realms—life, education, and schooling. I worry about education research that can help in the struggle to sustain rural places, and from what I've read about the Penn State center, some of you share that worry.

Note that I just said “help in the struggle to sustain” and not the blithe “help to sustain.” There's a struggle going on, and any help that we might offer cannot be help in the abstract. Decent research of this sort entertains commitments, while systematically controlling for the usual threats to validity. We need, in short, to be especially clever about the things we choose to study.

My activities of late are supported by the National Science Foundation, through its program of Centers for Learning Teaching (see the Appendix for remarks about our Center, the Appalachian Collaborative Center for Learning, Assessment, and Instruction in Mathematics). The Foundation, on one hand, has spent tens, maybe hundreds, of millions of dollars improving rural mathematics and science education. I, on the other hand, argue that there is *no research* on which anyone might reasonably have based such an effort, except of course the tens of thousands of documents about mathematics education in which you will encounter no mention of rural places at all. This experience, too, is part of the point of this talk.

These remarks today are not principally directed at telling you how to *structure* or how to *manage* a center. My colleague Hobart Harmon has synthesized counsel of that sort sufficient to the task. Moreover, you do have a written plan; this talk, as we quantitative types like to say, is “orthogonal to” both Hobart's paper and to your plan. That positioning makes what I have to say a *contribution*, see, rather than a *distraction* or a *detraction*.

By the way, I *do not* believe that we can know all the facts before acting, or that research should *mostly* be about discovering the facts, nor that politicians pay very much attention to research, or facts, nor that they necessarily should. I *do* believe in democracy, which, in the view of many philosophers, differs quite sharply from oligarchy. Moreover, some of them, and I with them, find that a democratic oligarchy is not just an oxymoron—it's a *lie*. This talk turns on such an insight. Let's get started.

Mathematics of the Hen

My young neighbor came by one day late this summer. He lives in a trailer down the road. He's kept and bred a sow (which recently farrowed 23 pigs); he raises gamecocks; and his mare just foaled. "Forty acres and a mule?"—forget it: this kid and his spouse are doing it on a single acre.

On the day of his visit, he was looking for a few good hens. His Leghorns—the original factory hen—came indeed from an actual egg factory and haven't adapted so well, he discloses, to country living. "You got some *old* layin' hens," he says. I'm not sure if it's a question or statement.

I take his tone as an indication that the law of supply and demand may not obtain between neighbors like us. He's making the *demand*, but I have an *oversupply*, because my 15 hens lay 12 eggs a day. If Aimee has *two* for breakfast and the dogs have *four* for breakfast, that leaves a surplus of *six* eggs per day. This bit of advanced mathematics means that I've been thinking to turn 7.5 hens into soup some day soon. If you've never dressed live poultry, you have *no idea* how big that number is. Not to mention the fact that half a hen is not actually a

rational number so far as the hatchet is concerned. The neighbor has arrived just in time to save me from imploding under the weight of such introspection.

“Got any you wanna sell?” he says, getting to the point. “Hell,” I say, “I’ll *give* them to you; how many do you want?”

After a bit more theorizing of this sort, we grab three hens—Silver Laced Wyandottes, they are, and very fetching—and throw them into cages in the back of the neighbor’s battered truck. We slam the gate shut, and my neighbor raises his head. He looks at me intently for just about five seconds. He’s making a decision.

“You want a *pig*?” he asks.

Suffering Academics Gladly

This neighborly encounter embodies several layers of genuine motivation for studying rural schools and rural education. Naming them too briefly would do them injustice, but in *A Sand County Almanac* Aldo Leopold (1966) illustrates our long-standing stupidity in confounding rural education with being successfully schooled. He writes,

I once knew an educated [man], banded by Phi Beta Kappa, who told me that [he] had never heard or seen the geese that twice proclaim the revolving seasons to [his] well-insulated roof. Is education [asks Leopold] possibly a process of trading *awareness* for things of lesser worth? (p. 4, emphasis added)

Let’s now bring this issue very much closer to our academic home-base with a simple fact. What rural life is, and what it deeply means to those who live it, seldom—if ever—make it

onto the pages of the *American Educational Research Journal*, *Educational Evaluation and Policy Analysis*, the *Journal of Teacher Education*, or the *Journal of Research in Mathematics Education*.

In fact, only one of these high-profile outlets to which aspiring pinheads flock has ever called for such research. Which of them do you suppose it was...? Interestingly, it was the last one mentioned.

When rural lives do make it even as far as the newspaper, it's as objects of pity, poor taste, or both. According to a recent *New York Times* story (Nieves, September 26, 2000, p. A1), for instance,

The fact remains that very poor people still live along the back roads of Appalachia, in houses that look like abandoned barns. Some of them even live right on the roads for all the world to see.

Talk about isolation! It sounds like either the reporter or the copyeditor, and possibly both of them, don't get out of Scarsdale often enough. My chicano colleagues characterize this attitude as follows: *Lo Mexicano, sí; Los Mexicanos, no.*" In other words, give us Mexican culture without the Mexicans. In my hometown of Athens, Ohio, it is distinctly the case that the university prefers its Appalachian culture without those dirty Appalachians.

But here's a third fact: after West Virginia, Pennsylvania is the most Appalachian state in Appalachia. This is your story too, if you choose to own it. This work cannot be taken up, however, with smiley faces: it has powerful enemies.

Don't worry, we have some friends, too. (Yes, [West] Virginia, you do have a friend in Pennsylvania.)

What's Rural?

On planet earth there is one solid, peer-reviewed journal devoted exclusively to rural education research, and that's the *Journal of Research in Rural Education*, founded in the early 1980s by Walt McIntire and carefully continued for the past 11 years by Ted Coladarci, both of them, and their journal, at the University of Maine in Orono. But even there, in the one-best-home of rural education research on the planet, the representation of what I'm going to call "rurally articulated issues" is inadequate according to the editor.

Perturbed by this circumstance, he challenged a number of colleagues to contribute papers to a symposium, "What's *rural* about rural education research?" We had a good time putting on the show and an even better time afterward, at dinner. At the end of the evening, Ted confided that he also had another question, "What's *research* about rural education research?" I laughed aloud at the time, but that question has occupied me more and more of late, as I've worked with doc students and rurally novice—not to say *virgin*—researchers.

The two questions, however, reflect a reality that is easy to point to: it's the rural lifeworld. I'm an academic and the reason I call it "the lifeworld" and not just "life" is the German philosophers Alfred Schütz, Edmund Husserl, and Jürgen Habermas; in other words, the realm of phenomenology crossing, via the Frankfurt School, into something I'd call "critical theory light."

"Life" though comprehensible as a word, if not in fact, is all-encompassing. The concept of 'lifeworld,' however, is tensely related to the institutions of social control and administration;

what Habermas calls “the systemworld.” (I think that’s right, but I don’t take any of these guys too literally. And there’s not much in the method of phenomenology that concerns me as a researcher; not much, that is except for the intense appreciation of experience that comes with living.) Anyhow, the overarching hypothesis embedded in an *awareness* of the lifeworld—perhaps it is more properly a *perspective* instead of a “hypothesis”—is that nearly all our formal institutions (notably including the media, schooling, and much professional practice in general, including that of educational research) are—each, severally, and all systematically—denuding everyday life of meaning. Our experiences are a primary source of meaning, but they are being willfully restructured in ways not unlike the restructuring of genetic code. Hostile interests, I’d say, are restructuring the various bases of our experience and our bodies alike.

What are the implications? So far as the rural lifeworld goes, David Orr, in *Earth in Mind*, observes:

We are, by and large, an urban people without much vitality in the rear. Rural areas continue to send their young to the cities, and their economies are thoroughly colonized by outside forces, not the least of which is television.... There is a related loss that is even harder to measure: the loss of the sort of intelligence about the land that once resulted from the close contact with soils, animals, wildlife, forests, and the seasons fostered by farming and rural living. (Orr, 1995, pp. 174-175)

Schools cannot only *stop* what they are doing to aid in this destruction of rural awareness, rural consciousness, and the rural lifeworld, but they can do *something else*. So can educational research. This is our struggle, and it is part of a larger struggle. Now, the same interests bent on

destroying rural places, rural lives, and the rural lifeworld do not want the likes of us to join either the larger or the smaller struggle.

What's rural about rural education research? The short answer to our first question, then—what's rural about rural education research—is that *rural* consists of meanings related to the rural lifeworld as those issues confront the conventional agenda for schooling. It just doesn't make sense that the point of rural education would be to undermine the meanings inherent in, and generative for, rural life and rural communities.

For you dedicated pinheads, this is an ontological point. Reality can't really succeed like this. At least: a sustained rural reality cannot continue in this fashion. The point here is mostly about institutions, not mostly about teachers and administrators, by the way. Working in schools is just plain tough, and teachers, like *numbers*, are our natural friends in this work.

Evidently, something important is going on with respect to rural schooling's oversight of the rural lifeworld. The possibility of improving the odds for those who educate in rural communities (and I'm not now talking only or even mostly about school professionals) is one reason that education research is important; research should enlarge our understanding of "*what's going on here anyway?*" Basically, we're about as clueless as we can be, institutionally speaking, without being dead. The work of education concerns ignorance and we're in the thick of it in rural education research.

The oversight of the rural lifeworld by rural schooling is terribly irksome. My colleagues and I have therefore improvised a couple of lists intended to illustrate this point about the difference between rural purposes for schools and what we, after Raymond Williams, like to call "cosmopolitan" purposes. I'm just going to slap some of those items on the overhead projector so you can get the idea. Incidentally, "cosmopolitan" in Williams's usage means "world-city"

and definitely not “sophisticated” or “better.”¹ The fact that we automatically regard “cosmopolitan” as a marker of decency and worthiness (of perspicacity and tolerance, actually) is a symptom of the problem, according to Williams.

Don’t ask if the list is warranted by empirical research! It does not concern the findings of empirical study, but the *warrant* for empirical study. So yes, it is warranted, but in the reverse direction. This stuff is about theory, a framework that comes from an appreciation of the tension between lifeworld and systemworld. Theory is far simpler than most academics are trained to know, because theory is about relationships among ideas, and not about relationships among theorists. Habermas and Williams are the names if you need names. Here’s the list:

Rural Purposes	Cosmopolitan Purposes
caring for rural places	constructing deficiencies for rural places
showing pathways to decent rural adulthoods	increasing the level of students’ aspirations
sustaining the small local school	providing world-class buildings
developing curricula to sustain rural places	offering a broad high school curriculum
grounding education in local knowledge	implementing state and national reforms
serving rural communities in practical ways	Consolidating districts and closing schools

¹ Keep this distinction in mind the next time someone throws the phrase “world-class” at you. You might, for instance, want to ask which class is the “World Class.”

I'm not going to comment on the items; you can just reflect on them as I keep talking at you.

Just as the rural lifeworld harbors meanings that are generative for rural people, it harbors issues generative for rural education researchers. It harbors these meanings whether or not our devotion to professional norms blinds us to them. Our job in rural education research, as my colleagues and I see it, is to find those issues and articulate them. Two caveats are in order: first, this list is not comprised of virtues in one column and vices in the other, but of complexity across both. Second, don't take the list too literally. It portrays a way of thinking, but is not much of a thought in itself.

So much for the *rural* part of *rural education research*; we're now treading on the heels of the next question, the research part of the enterprise.

What's Research?

What is *research* about rural education research? Let's clarify the question.

There are two senses in play here, the first concerning the generic border between research, on one hand, and similar scholarly endeavors that are *not* research, on the other hand. The second sense deals with the space for rural issues (as just defined) within the business-as-usual of education research.

We cannot actually address the first and simpler question, however, lacking an articulation of the implications of the more challenging second sense. That is, a lot has happened in educational research that is not helpful for rural education research, and this circumstance explains why so much education research is so profoundly disappointing with respect to the issues that matter most to rural people.

We start therefore with an accounting of the reason that “what’s rural” so rarely makes it into the body of education research in the first place. Although this approach might seem to you the wrong end at which to start, the story will not be so strange or difficult as it might at first seem. The answer, however, is decidedly *not* that rural education research is of such poor quality. The poverty of rural education research does not distinguish it from other education research.² The answer, instead, concerns the focus (and related purpose) of much, perhaps most, education research.

Much research about schools investigates issues of curriculum and instruction (known as C&I to those of us in the ed biz). In the very few cases that C&I research efforts take up rural issues, their usual aim is to *engineer* ways that the best stuff done *anywhere* can be done just as well in rural schools, where the conventional judgment rules that the best stuff is so rarely, and so badly, done. There are exceptions to this generality: but they have exerted little influence so far. And the C&I fields are challenged by pedagogical myopia.³

Consider the reigning consensus about pedagogy, and this “reigning consensus” applies across the field of education and not only to C&I: (a) good teaching is good teaching; it’s basically the same everywhere; and (b) teaching is the most important influence on learning.

² This is a point—the poor quality of education research—on which I agree with the research conservatives; we quickly part company over what this poverty indicates and what to do about it, however. Devotion to rural places and people is a marvelous position from which to argue the salient points, incidentally—as fine as urban education or the relationship of globalization to education.

³ My close friends in mathematics education are justifiably outraged at the way math is taught. But, interestingly, those friends are working to help their doctoral students engage rural context in their work and studies, partially, I imagine, on the basis of the perspectives articulated in this presentation. In our Center we have in fact adopted a short theoretical framework that states our principles. It’s meant to say plainly to ourselves and others what we are up to. Jerome Bruner—and I’m not kidding—says this is the best use of language. This is my one bit of operational advice: write something short that (honestly—and briefly—and accessibly) states your center’s commitments and ideas. And, while you’re at it—be pushy.

Curiously to my mind, many educators believe that, other influences being less proximate than events in the classroom, *teaching causes learning*. To many of our colleagues—probably to many or most of you—this proposition may seem like a no-brainer: “*duu-uh!!*”.

There is an alternative, however, even within C&I—the theory that teachers “facilitate” learning rather than cause it. So there’s ample room for doubt about even this bit of prevailing wisdom.

In any event, in the dominant view, context is believed to be a relatively much weaker influence than teaching, whether we are speaking of causality or more gently of “facilitation,” simply because context is banished to the outside of the classroom—where it remains conveniently remote, by which I mean *safely* remote. The importance that “context” does have in this set of pedagogical beliefs, however, is usually negative—context is most frequently a barrier to the good stuff teachers want to do. From the standpoint of the profession, this assertion about the negative valence of context is accepted as true even in middle-class communities (too little parental attention, too much divorce, too many pushy parents, too many kids spoiled rotten—you know the litany), but the negativity of context is taken to operate most viciously in the case of poor, colorful, and, yes, rural communities.⁴

There’s a simple logical chain here; just let me flip it up on the machine so you have it clearly before you. I’m calling it a folk theory for the sake of modesty and laziness. The point, again, is not who said this, but that it is so commonly believed and acted upon.

⁴ Of course, one may speculate that we professionals have worked hard to keep the lifeworld out of the classroom, and, in concert with other institutions, actually to drain meaning out of the lifeworld.

The Chain of Pedagogy
a research-based folk theory

1. Human minds are the same everywhere => culture & place are immaterial.
2. C&I the most proximate influence => C&I is the most important influence.
3. Some C&I practices are better => set them as the standard ('best practice').

∴ to improve learning, use 'best practice' everywhere & overcome contextual deficiencies.

Adherence to this doubtful but research-based theory militates against doing rural education research because it trivializes the import of the rural lifeworld. So for a start, one can maintain that this mode of well-approved, well-rehearsed, and increasingly well-funded research is not only *not rural*, but more surprisingly and more to the point, it is not even *research*. It's not research because it is insufficiently doubtful. It gives not a second, doubtful glance, at anything at issue in the domain of rural meaning. It walks, quacks, and looks like a duck, but when it comes to rural education, it is a red herring. If one takes the time to search for "rural" as a keyword in C&I studies, most of the studies thus identified address the generic preoccupations of the field and the only connection to rural is setting: rural issues figure not at all in conceptualization, research design, data analysis, or findings. And the rural lifeworld is completely invisible in most of these studies.

This is precisely the situation in mathematics education research, as I know from surveying the work of the past 15 years or so, and it would be strange to find matters arranged differently in the other C&I fields.

So, we see that the standard practice of education research will not lead to research in rural education because it either effectively denies the reality of rural places, or misconstrues (and disrespects) such places as the *enemies* of education. One of the most frequently heard charges is that rural parents “don’t value education.” With 30 years in the country, I’ve yet to meet a single rural person for whom that is true. Many are properly suspicious of schooling.

This brings us to the project of research, as compared to similar activities that are not research. The views here are equally sharp, but less surprising.

Unlike other enterprises, research is founded on doubt.⁵ Evaluation is founded on faith and a contract. Engineering is founded on the need to make it go. Though all of them use data, it’s a danger to confound these three enterprises, and since I’m working backwards, I won’t belabor the point just yet. What concerns us for the next few minutes is the idea of doubt and a few related constructs.

Why are most of us humans not up to the task of doubt? The answer is that most of life requires faith, not doubt. Doubt is a severe existential burden, it makes people unhappy, and that is why philosophers have traditionally been portrayed as melancholy. It also explains why philosophers have not valued happiness.

Let’s consider the light side. The work of education, particularly of teaching and leading in schools, is, in the best of circumstances, a passionately faithful endeavor, and for good reason. Life is tough and children are young, but they are going to make it. We can help: that’s the needful optimism.

⁵ This claim is at least strongly arguable. Even in the postmodern mode, the role of doubt remains strong. I would also argue that research, as opposed to other forms of scholarship and writing, must be solidly grounded in the analysis of empirical data as the mode of doubting.

Even here, however, considerable doubt, perspicacity, and grit is the difference between staying optimistic and sliding into the bitterness and cynicism of terminal burnout. The survivors are, in fact, all too rare. In the end, in the lifeworld, doubt turns out to be as useful as faith. Doubt is perhaps easier to sustain than faith, but more difficult to use productively than faith. And this fact explains the origin of research: it's an arena in which doubt should be productive.

Now for the dark side. Given the political economy of this wealthy nation, which propagates great inequities among its citizens, faithfulness and the commensurate hesitancy to doubt, also makes formal schooling a passionately gullible enterprise. Educational researchers—as compared to other researchers—therefore face a dual challenge: first, to doubt *well* in the midst of requisite faith, and second and simultaneously, to look for *more things to doubt*. We need to doubt better and more within a profession given to faith verging on gullibility. This tense task falls to hardly anyone else in society, including those in the esteemed natural sciences. The social sciences are indeed the hard sciences, with research about schooling the hardest science of them all.

Rural education researchers, as compared to other educators, need to deploy a *greater level of doubt over more numerous objects* than is typical among members of the tribe. In fact, a view of *what's rural* requires educators to move against the grain of professional valorizations and commitments (characterized on our list as “cosmopolitan”), but the *methods of study* also need to cross the grain of typical research practice in education.⁶ In particular, we need to deploy a more context-friendly view of context. Some of us believe that content *comes* from

⁶ The argument here is about research design and not about methodological tools. I am not commending critical theory, Foucauldian analysis, or semiotics as research methods per se. These traditions, to my view, are most useful to ground interpretations of data (both qualitative, but especially quantitative) gathered in the usual ways.

context, and that context is the *site* of learning. In fact, like nature and nurture, content and context shape each other.

We've worked backward now, from the hard to the easy stuff, and now, at last, it's time to distinguish research from closely related activities. *Evaluation* is not research, and *engineering* is not research. Whether or not these activities might have a place in your center is another matter, but in our Center, we've agreed in principle not to confound them with research. This sounds simple and easy, but it is not.

Evaluation, mind you, was once called "evaluation research," so the impulse to confound the endeavors has a long lineage, doubtless going back, for instance, to medicine. Most medical *research*, however, is about drug pushing. Incredibly, determining the efficacy of a substance in treating disease is regarded as "research" in the medical world. Medical "research" might well be the paradigm, therefore, for research everywhere. This is exactly the sort of vantage from which the U.S. Department of Education now wants to deploy its research dollars. I'm personally in favor of doing some of this stuff, especially if, as with drug pushing, we require the developers of commercial curriculum materials to foot the bill.

Neither in medicine nor in education, is such work *research*. It's all *evaluation*.

Now, in education, evaluation is a kind of ritual attached to the transfer of large sums of money devoted to various sorts of activities. I talk to evaluators often and they mostly tell me it's boring work and they're in it for the money. They tell me no one reads what they write.⁷ Of course, many people say that no one reads research, but it's not true. Every week I hear from people—mostly ordinary citizens—about the things I study. This is not something I ever

⁷ It is true that much educational evaluation is gussied up as if it were research, and a few people—mostly academics--do read evaluations in that form.

expected, but it happens because of the things chosen, strategically, for study. In short, ordinary rural people will wade into research when the work touches issues they can recognize as their own.⁸

Obsessing on evaluation, however, as the most important domain for intellectual attention debases the project of educational research. Evaluation's view of education is a tad narrow, as well. Education is not a succession of curricular and pedagogical treatments. With education (as opposed to the drug-pushing and flesh cutting that we call medicine) the whole outstrips the sum of the parts by at least one order of magnitude, and maybe several. Education (and schooling that aims to be educative) embeds questions more interesting, important, and intellectually complex than most that medicine is used to addressing. One day, medicine may actually do medical research, but, in truth, medical research is in its infancy. Again, I think drug testing is essential. It's just not research. Few people will accept this assertion. I don't care.

Now let's dispense with engineering.

Engineering moves one step further *away* from research, of course, because it concerns the development of some product or process. Examples are legion. But the tendency to confound research with engineering is endemic to education research. Our entering doctoral students always want to pose engineering questions for their dissertations. The classic engineering question is something like: "How do we improve 4th grade achievement scores in my school?" Every "how to" question is an engineering question. In point of fact, these students may do studies that allow them to frame recommendations. What they need to learn, however, to

⁸ Typically, the audience for research is understood to be researchers, and there is something terribly wrong about this assumption. The assumption rests on the inaccessibility of methodology to lay readers—a threat that is easily overcome with derivative manuscripts developed for a wide audience. In my case, however, lay readers have accessed and questioned me about full-length academic manuscripts available online. Their questions are usually appropriate and insightful.

do proper research is patience and distance, and they develop these qualities as they learn to doubt better and more frequently.

In higher education, the concept of “service” is more applicable to development than to research proper, though, yes, I do think writing textbooks should go into the “research” hopper for tenure decisions. I’m not talking about that sort of trivia, however.

And non-profits galore, some of whom I dearly love, are brightly at work fostering the common good—usually in the engineering mode. Sometimes their engineering is informed by research, and sometimes by evaluation. My favorite non-profits, however, are not into engineering. Instead, they position themselves as activists or advocates, and not as engineers.

Engineering, you see, too often replaces politics⁹ with the aura of science, technology, and, yes, the findings of research. Increasingly, expertise trumps politics in America. Unfortunately, the sort of investigation required by engineering—let’s call it formative evaluation—is very different from the sort of investigation required by politics. Don’t get confused: I’m not talking about *research for politicians*, I’m talking about research for *ordinary people who constitute the body politic*. But we tend to conduct research for politicians, you see, precisely because their agencies pay for it so handsomely. Good work is still possible under these circumstances, but one has to be careful. Education research, on the whole, needs to do a lot more than glory in the vanity of its elite rituals. This all I have to say about engineering as education research. I want to conclude with some observations about the culture of research in a “center.”

⁹ Politics, rather than being the “authoritative allocation of values,” is the articulation of and struggle to define the public good. The usual definition in education (‘authoritative allocation of values’) is a case in point: it’s a conception of politics as engineering. In essence, expertise trumps politics, and this, thought Christopher Lasch, indicated that American elites had hijacked American democracy (Lasch, 1995). Expertise is a tool to which only some have access, most particularly, the large corporations that have become the dominant “citizens” (despite their lack of standing as citizens).

The Culture of Research in a Center

It's easy to create an entity called a center. It's much more difficult to populate a center and allow the center thus populated to evolve a vigorous intellectual culture. Within universities, moreover, the challenges may be greater than within non-profit organizations devoted to research. All the academic stars I have ever known have told me this, and I'm inclined to think they're right.

What evidence that one could gather might suggest the evolution of a "vigorous intellectual culture" for a center that aims to do research? That's easy; it's productivity. Of course, it's not so easy to foster the conditions of productivity, especially along the lines suggested in this essay. The reason it's difficult is that this sort of work rests on a set of commitments that rub many people the wrong way. As a matter of fact, if you're into rubbing people the right way, that's all you need to do—productivity itself is almost irrelevant. This is just how organizations are in our field. Or so my own experience suggests. More particularly, there are a lot of university-based centers with the word "rural" in their name; most of them produce very little and little that is very good.

Your challenge in State College, then, would seem to be how to create an edgy and energetic organizational culture in a center devoted to rural issues. I'm going to get very conventional right here at the end. Chester Barnard remains, to my mind, one of the original voices in organizational theory. He was a college dropout and he wrote in an oppressively ponderous pseudo-academic style. I guess he thought it gave him credibility. He was wrong, his ideas didn't need it. Conventionally, he observed that organizational effectiveness was the fulfillment of organizational goals. (Oy vey.) With Barnard, however, organizational

efficiency—the quality that bears directly on productivity—was the capacity of the organization to fulfill individual goals.

My advice here is that in order to articulate rural issues properly in the research mode you need to populate a center with scholars devoted to critique—people who understand the tensions of the rural lifeworld—and you need consistently to enable their empirical work. These folks will want to do that work, because they will be able to do it hardly anywhere else.

That ends this talk, pretty much. There's only one more observation to make, and it comes again from Mark Twain—it's very gratifying to have such a figure take an interest in my work. He said, about all such endeavors as this talk, "Noise proves nothing. Often a hen who has laid an egg cackles as if she has laid an asteroid." I'm very attached to my asteroid, space cadet that I am. Thank you and please take good care of it.¹⁰

¹⁰ See Addendum for other Twain quotes used for informal opening remarks.

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Appendix

Our particular Center, which is one of 13 that have been funded, is a collaboration of six universities to deliver a doctoral program, to do research, and to foster teacher development in *rural* mathematics education. Rural education is, you might say, is our signature work within the system of centers. I jointly direct our Center's research initiative with Jim Schultz, Morton Chair of Mathematics Education, both of us at Ohio University. Our scope of research interest in rural places is national and even international—not merely Appalachian, although Appalachia is our primary domain for recruiting doctoral students. NSF funds the entire Center at about \$2,000,000 per year. Our grant is for five years.

The whole operation—both in our Center and across all 13 centers—is intended to build the capacity for leading the next generation in mathematics education. Notice that I didn't say “the next generation in mathematics education *reform*.” The reason is that my reform probably isn't your reform. *Many rural communities feel that way*. That's the point, too, in a nutshell.

We recently concluded our second year. Our first cohort will embark on dissertations at the end of the summer of 2004. We have produced about 50 publications, thus tripling the global collection of writings about rural math education. And we have just recruited our second doctoral cohort. I've worked with several university and non-profit research efforts, and the group that guides our Center feels to me like a highly functional team. Our evaluators say it is, too. We subscribe to a set of guiding principles that feature the word “rural” prominently, and we confront difficult issues with equal measures of grace and passion...which, contrary to popular opinion, don't cancel each other out.

Our center is founded on the theory that we can build local *capacity* for the improvement of rural mathematics education by delivering a comparatively (but not absolutely) innovative doctoral program and conducting relevant research. We have devised a theory, program, process, and maybe product to foster capacity. It might be called engineering, but none of us has used this metaphor. Our scope is place, context, and power: in other words, our action is more like politics than like engineering.

Addendum

Twain:

It usually takes more than 3 weeks to prepare a good impromptu speech.

I never let my schooling interfere with my education.

Dance like no one is watching. Sing like no one is listening. Love like you've never been hurt and live like it's heaven on earth.

This last one was not used in the talk, but only because 4 quotes from Twain seemed excessive. Nonetheless, this is a good one, and it very much applies to the spirit in which one needs to conduct research of the sort recommended! Do not imagine that people are watching or arguing with you over your shoulder. There's plenty of time for that stuff after you're finished and the work is published. In particular, do not fear making enemies with good work. Such enemies are the ones we need. The enemies of bad work would, in general, be our friends.