
Democracy & Education

The Wisdom of Practice Meets the Pursuit of Scientific Inquiry

A Response to *Scientifically Based Research and Teacher Agency: Combating “Conspiracies of Certainty”*

Michael A. Neel (Peabody College at Vanderbilt University),
Barbara S. Stengel (Vanderbilt University)

Abstract

Stemhagen and Nomi argued that the influence of many contemporary forms of education research, especially scientifically based research, inevitably position teachers as problems rather than as active agents whose judgement is indivisible from the activity of teaching and learning. We share the authors’ intuitions and concerns about the divide between research and teaching but also wonder if there remains another way into some of the concerns they raise. We start with a different question but one we think is fundamental to Stemhagen and Nomi’s critique: How do the findings of empirical research make their way into the work of teaching? By answering this question, we hope to reframe the authors’ concerns and reconsider their recommendation that teachers become participatory action researchers. It is distressing that practitioners and researchers have not yet found ways (despite the insights of John Dewey and other theorist and practitioners over more than a century) to substantively account for each others’ growing understanding because both the wisdom of practice and the pursuit of scientific insight are central to the effective and generative practice of educating children and adults.

This article is in response to

Stemhagen, K., Nomi, B. C. (2021). Scientifically Based Research and Teacher Agency: Combating “Conspiracies of Certainty.” *Democracy and Education*, 29(2), Article 2.

Available at: <https://democracyeducationjournal.org/home/vol29/iss2/2/>

IN A PIECE entitled “Scientifically Based Research and Teacher Agency: Combating ‘Conspiracies of Certainty,’” Kurt Stemhagen and Brionna Nomi argued that the influence of many contemporary forms of education research, especially “scientifically based research,” inevitably positions teachers as problems rather than as active agents whose judgment is indivisible from the activity of teaching and learning. Their work continues along the lines of Baez and Boyles’s (2009) useful monograph, *The Politics of Inquiry: Education Research and the Culture of Science*, which highlights the relentless empiricism of what counts as educational research in circles of policy and practice. Baez and Boyles, citing Lincoln (1995), destabilized the

notion of the detached observer of educational practice and call for “a better understood (and more ethical) relationship between the researcher and the researched” (p. 10).

Stemhagen and Nomi (2021) initially examined the characteristics of scientifically based research (SBR) on the one hand and alternative epistemological conceptions of education research on

MICHAEL NEEL is a lecturer at Peabody College, Vanderbilt University’s Department of Leadership, Policy, and Organizations. Barbara Stengel is Professor Emerita Peabody College, Vanderbilt University’s Department of Teaching and Learning.

the other. They argued that educational research approaches (like SBR) that pursue objectivity and generalizability at the expense of the contextual realities of classrooms are problematic. Given SBR's vision of scientific rigor—a vision that depends on uncompromising fidelity to prescribed practices and aims to produce lawlike rules of practice to be obeyed—they argued that teachers are positioned as objects to be controlled. In the specific case of teachers involved in an SBR research program, the interest of both researcher and teacher is tightly focused on fidelity to a particular program of action that must be followed to preserve the integrity of a study, thereby reducing the teacher to a kind of instructional robot with little need for interactional judgment.

Stemhagen and Nomi (2021) turned to philosophical conceptions of teaching and teachers to emphasize that the activity of teaching is not, and cannot be, merely the implementation of certain acts or procedures, because it always involves a highly contextualized, judgment-bound, relational exchange between students, teachers, and content. The teacher agency that is fundamentally necessary for educational interactions, therefore, is sacrificed in SBR-like approaches to achieve fidelity to scientific standardization.

The problematic nature of SBR-like approaches Stemhagen and Nomi (2021) suggested, extends beyond teachers in a study's sample to also include teachers who will later be expected to implement the prescriptions of the research program after it has been researched, presuming "it works." That is, the epistemic illusion that the findings of the research program are generalizable across contexts leads to further control of teachers who are again constructed as agents of implementation rather than persons engaged in interactions with considerable situational and relational complexity.

In protest to the vision of teacher as faithful program implementer, Stemhagen and Nomi (2021) conceptualized a more authentic and productive vision of a teacher that is grounded in teaching as craft (McDonald, 1992) and inquiry in a Deweyan sense (1929). McDonald's teacher was always crafting "a workable relationship for the moment" in the midst of "the wildness" of educational interactions. This vision of the teacher is paired with Dewey's emphasis on the teacher as responder/inquirer, not one who carries out procedures but one who investigates each situation and develops the instructional design/response that fits the demands of the situation.

Like others who have emphasized the role of teachers as professional (e.g., Shulman & Wilson, 2004), Stemhagen and Nomi (2021) defended teachers as decision-makers involved in complex interactions that shift moment to moment, rather than as simply technicians responsible for the implementation of prescriptive tasks. Consequently, the authors demonstrated that empirical investigations that reduce the work of teachers to a means-end mechanism for research have not only obstructed the moment-to-moment relational work of teaching but have obscured the very phenomenon under investigation. Considering these arguments, Stemhagen and Nomi proposed an alternative to SBR and fidelity-focused research in the form of participatory action research, an approach that directly addresses

relevance and puts the teacher in charge of the research (McDonald, 2012; Morales, 2016).

In sum, there are two substantive (and admittedly important) questions at issue in this paper. First, how should researchers, particularly learning scientists who intend to abide by certain traditional interpretations of empirical fidelity, engage with teachers in attempting to study teaching and learning? Stemhagen and Nomi (2021) suggested that this cannot be done while preserving the integrity of teaching as a professional and situated exercise of intelligence and autonomy. Second, can SBR and similar research programs that aim to generalize to theory direct the work of teachers? With respect to this question, they answered, quite simply, no. We share the authors' intuitions and concerns about the divide between research and teaching today and appreciate what they have brought to the table. But we also wonder if their answers are too definitive. As a thought experiment, we start with a different but related question: How do the findings of empirical research make their way into the work of teaching? By answering this question, we hope to reframe the two questions above and reconsider the authors' recommendation that teachers become participatory action researchers.

With Dewey (1910) and Stemhagen and Nomi (2021), we consider the work of teaching, like all human activity, to be a blend of more or less well-formed habits of value and action punctuated by rich inquiry when habits fail (Dewey, 1910). When it comes to teaching, both habits and inquiry design (or better, redesign) the environments and interactions that make specific learnings for students likely, if not inevitable. Teachers are not—and cannot be—robotic implementers of some scripted program. Neither are teachers free agents who act *ex nihilo* or even from privately held intuitions, goals, and strategies. Instead, teachers are professionals using available resources (including, but not only, the results of research related to teaching and learning) in the service of their students' growth and their communities' well-being.

Both habitual teaching practice and thorough inquiry require pedagogical reasoning, that is, the capacity to interpret a teaching task—with respect to, at a minimum, the age, background, and capacity of the students, the demands of community life, the resources available, and the ethical and political realities of the world around them—and then to respond with the action(s) that results in learning and development. All this the teacher does in concert with particular curricular goals that are grounded in disciplinary elements of a school subject area. Many days and in many situations, the needed pedagogical response has a certain automaticity about it, especially for veteran and accomplished teachers (Bransford et al., 2005). But other days, and in other situations, automatic responses are problematic—because of changing circumstances, different people, or novel challenges.

In the face of a pedagogical challenge, teachers run through (whether consciously or not), a checklist of possible factors impacting the situation *and* a checklist of resources that include knowledgeable colleagues, supportive materials whatever the source, and potentially the results of educational research found in scholarly journals, but perhaps more often, in other professional publications, available resources, or professional networks. In

other words, teachers are always asking—with Dewey—“what does the known demand?” and then responding accordingly. This involves a process of recognizing a glitch or interruption in one’s habitual practice when it occurs, interpreting the situation as thoroughly as time allows, considering possible actions and assessing the potential impact of each in the light of community values and expectations, and then responding—in a pattern of action that, if successful, may become a new professional habit.

Novice teachers, of course, do not typically have such professional habits, that automaticity to draw on (Wasley et al., 1997). This is one reason why the first couple years of teaching are exhausting and new teachers typically underperform relative to more experienced peers. Every planning and design decision must be thought through because it is novel and inherently disruptive. At this early phase of a teaching career, a scripted routine for certain aspects of instruction may be quite helpful to a new or struggling teacher. Such a routine can provide the basis for reflection and, in combination with the findings of multiple cases, a teacher’s development of effective professional habits (Lampert, 2010). Even such a resource, however, could never tell a teacher exactly what to do in a moment of instructional interaction.

When we take Deweyan pragmatism seriously, therefore, we recognize that pedagogical judgment is not simply a function of obedience to discoverable principles or laws (as the results of educational research) but that principles are situated in a process of interpretation and response that makes use of both the findings of research and the wisdom of practice as lenses through which one might better understand what is happening and more accurately anticipate the likely result if one acts this way and not that. In short, both research findings and practical guidelines are potentially informative but never determinative of a teacher’s action. With Dewey in mind, “good teachers” are those who have become “response-able,” enacting warranted habits based on both formal research and the wisdom of practice and drawing on any range of individual, contextual, and empirical resources to respond in fitting ways when taken-for-granted habits fail and require reconstruction.

The point is that the products of educational researchers (in the form of law-like statements, formulas for instruction, narratives for emulation, or heuristics for interpretation) can enter the work of teaching—and teachers’ deliberation—as grist for the mill of pedagogical reasoning. Assuming that there is a substitute for teachers’ thinking-into-action, whether in an actual research study or not, is a delusion, and Stemhagen and Nomi (2021) understood this.

Notably, we do not say here how educational research should proceed, exactly. For that, we send our readers back to Baez and Boyles (2009). Our intention is simply to emphasize the missed opportunity to state clearly how research findings are related to pedagogical reasoning and practice, and to consider the implications for research and teaching and teacher research. In that effort, we press into questions that are at one and the same time technical and fundamentally ethical in nature: namely, (1) How is the researcher positioned in relation to teaching? And (2) How is the teacher positioned in relation to the research?

How Is the Researcher Positioned in Relation to Teaching?

Given that fidelity to a teaching protocol is, in the strict sense, a fool’s errand when it comes to studying teaching and learning, researchers can and should shift their expectations about what it means for a teacher to participate in a study. The problem is not necessarily that a researcher needs to ensure fidelity to a specified program or intervention in order to justify useful conclusions, admittedly an important feature of empirical research that claims to abide by certain scientific standards. The real problem is that teachers’ wisdom, the regularities and grounded practices that emerge from their pedagogical judgment, is not front-loaded into the design of most research interventions in such a way that would cause teachers to line up to participate. Teachers are only likely to sign on willingly when an intervention matches and/or confirms their judgment about what the situation requires.

As noted, teachers already have routines that they faithfully execute on a regular basis. They don’t reinvent new strategies every day or even every year. They enact habits that typically (or at least they believe) serve them well. However, there are numerous ways teachers might be encouraged to challenge their taken-for-granted pedagogical approaches and commitment: the experience of dissatisfaction generated within their practice, the introduction of alternative practices available from colleagues or represented in professional publications, or a carefully constructed conversation with a knowledgeable (and practice-savvy) researcher who convinces that teacher that an intervention derived from theory (and pilot studies) is worth considering. Teachers told to implement routines that don’t make sense to them will defeat the research by failing the fidelity test anyway. Fidelity cannot be imposed from without; it has to be a commitment from within the teachers’ horizon of practice.

In our work with teachers in schools, we have observed innumerable situations in which clearly specified and carefully designed interventions, agreed to by researchers and school administrators, were both intentionally and unintentionally subverted by teachers who chose to act in responsive and responsible ways for the good of their students in a particular context. In one case, the leveled reading materials specified by the program were ignored by students who found them uninteresting and irrelevant. The teachers simply replaced those materials with more compelling (for those particular students!) books and articles and went on their pedagogical way, even as data gathering for the program continued. In another case, teachers scrupulously adhered to the prescribed routines for literacy instruction when observers came to “fix” the teachers, but then adjusted to suit the rhythm of the day when researchers were no longer present. The point is that teacher participants must be brought into a study because they perceive the intervention to (at least likely) be of value to themselves and their students. If that is the case, and only if that is the case, they will enact fidelity.

The limiting nature of fidelity has long been recognized as problematic in public policy intervention studies (e.g., Weatherley & Lipsky, 1977), a field with similar complexity to classrooms. Scholarship on scaling policy interventions, education

and otherwise, are less frequently focused on replication and commitments to fidelity in implementation in order to focus on adaptation and “integrity” in implementation (Morel et al., 2019). Insights drawn from studies of scaling educational practices suggest “focusing less on a prescriptive to-do list but rather on the central ideas and theory of change that undergird key practices” (Cannata et al., 2020). Letting go of fidelity, then, is an acknowledgment that implementation of any instructional program or practice is and will always be a kind of adaptation. Such a shift from attention on scientific fidelity to the contextual realities of situated classrooms empowers teachers to adapt when it is in their interest and allows researchers to encounter the actual complexity of the phenomenon under investigation.

When teachers are invited into both the design of the intervention and the implications for adapting the intervention to their classrooms, it is not a hardship to act with integrity to the core principles (but perhaps not always the prescribed sequence or language) of the intervention. This brings the research study under the umbrella of the kind of (temporally bounded) inquiry that teachers regularly employ as they test new seating arrangements, changed assignment sequences, new modes of evaluating, or revised framing of curricula. They don’t change every practice every day; they select an approach based on best available understanding and stick with it long enough to find out whether it accomplishes the goals hoped for. For teachers, “long enough” will likely be a shorter time period than a research project requires. This too is a subject for negotiation between researchers and teacher implementers as data is reviewed periodically.

We expect that this relatively messy envisioned vision of integrity is as close as a researcher can get to fidelity without obscuring the phenomenon of teaching. Research on teaching worth its salt, then, will be at least as faithful to the wisdom of practice as it is to the “rules” of empirical research, and that will never be accomplished by a research project that so interferes with the phenomenon of teaching as to make it unrecognizable. Those who enter into fruitful research-practice partnerships, then, have to pay attention to integrating both the rules of empirical research and the wisdom of practice. Pragmatist modes of thought that can preserve the dualism in tension are likely the only generative approach(es). We suggest, therefore, that researchers will have to be faithful to the wisdom of practice (even where that “wisdom” is being challenged) and the practical wisdom of the practitioners, if researchers want to actually learn anything about what is purportedly under investigation. And further, this implies a responsibility for researchers to make their findings more widely known to practitioners through accessible venues and platforms once their work is scrutinized through publication in scholarly journals.

How Is the Teacher Positioned in Relation to Research?

In both empirical research and schooling discourse, teachers are typically positioned as consumers of research findings. That is, the findings are developed, formulated, and stated independent of teachers’ insights and then teachers somehow make use of them. As we suggested, just exactly what constitutes “use” is not as obvious as a diner using a fork or a painter using a brush or a

researcher using a computer. Research findings are useful but not useful in the same way as a concrete tool for extending one’s capacity. It is telling to note that education researchers often employ a metaphor of “application” at the conclusion of education research report, providing hints as to how the findings—separable though they are from practice—can be pasted onto pedagogical routines in such a prescriptive way as to redirect those routines to effect better practice. As we argue, however—in support of Stemhagen and Nomi’s (2021) pragmatist approach—the application of rules or principles cannot be done simply. Such regularities or guiding principles have to be part and parcel of pedagogical reasoning.

Given that generalizations from empirical research are not prescriptions but are rather statements of likely eventualities under the same circumstances, the teacher has no direct moral or professional obligation of fidelity (or put differently, “obedience”) to research findings that express seeming best practice; their obligation is to remain current with respect to well-established findings and to draw on those findings in constructing fitting responses to specific pedagogical challenges. To teach reading well, for example, we expect that a teacher would be able to recognize the myth that poor children grow up linguistically impoverished, a myth debunked by empirical research (Dudley-Marling & Lucas, 2009).

In other words, the teacher must remain a teacher. This activity is not organized by the rules of scientific research but by pedagogical reasoning in moments of situated response. Here, we may depart somewhat from Stemhagen and Nomi (2021), and some other PAR advocates, by arguing that teachers need not and cannot play by the formal rules of empirical research, action research, or otherwise. It is unavoidably true that teachers engage in inquiry that is loosely systematic to achieve a wisdom of practice, but the constraints of scientific inquiry (i.e., formally demonstrable validity and reliability among other considerations) are far too time-consuming for teachers and only marginally supportive of the work of teaching. Adopting the well-formed habits of a researcher is not likely to directly impact the quality of a teacher’s practice. In an age that increasingly heaps new expectations onto the backs of teachers (Rothstein, 2002), we suggest that the demands of defensible action research are generally not worth the time and effort required.

At the same time, we recognize that systemic inquiry into teaching and learning can be important for the improvement of schooling. When teachers encounter forms of PAR (or any research design) that support their ongoing practice by offering opportunities to strategically examine instructional habits and valuable resources that allow for prospective reconstruction of those habits, they will be able to add researcher collaboration to their “grist” for the mill that is the work of teaching. For teachers, then, we offer this consideration: What does this formal inquiry (and the potential findings) offer you in terms of ongoing support for your ability to better interpret and respond to instructional interactions?

To the extent that certain types of research programs, PAR or otherwise, ensure for teachers valued opportunities to strategically

examine instructional habits and valuable resources that allow for prospective reconstruction of those habits, we are enthusiastic supporters. And, to the extent that certain types of research programs, PAR or otherwise, ensure that researchers encounter teachers' wisdom of practice as necessary in the design and implementation of a classroom initiative and adaptation as a feature and not a bug of classroom research, we are again big fans. An example of a research program that attempt to thread this needle include collaborations like InquiryHub (<https://www.colorado.edu/program/inquiryhub/about-inquiryhub>), a research-practice partnership intended to build curriculum in alignment with Next Generation Science Standards (NGSS) and in light of attention on a range of student performance and interest indicators.

Conclusion

We are delighted to continue the conversation set out so clearly by Stemhagen and Nomi (2021). It is distressing that practitioners and researchers have not yet found ways (despite the insights of Dewey and other theorist and practitioners over more than a century) to substantively account for each other's growing understanding. Both the wisdom of practice and the pursuit of scientific insight are central to the effective and generative practice of educating children and adults. We trust that both the conversation and the practices that researchers and teachers employ can be enriched by this ongoing dialogue.

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