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Guest Column

Stuart Firestein's (2012) recent book, *Ignorance: How it Drives Science*, highlights the need for scientists and researchers to teach what we don't know about the unknown part of research. He advocates that what we don't know about a phenomena or "knowledgeable ignorance" guides us to develop better questions and ultimately make real advances in science. This perspective allows researchers to continually focus on what they don't know and frame new questions that will deepen our understanding of phenomena. While Ellen Langer's (1989) insightful book, *Mindfulness*, doesn't specifically focus on ignorance, it does describe the dangers of individuals becoming too rigid with their routines and mindless in their thinking and behaviors. This concept of mindlessness often applies to educational researchers and it is a serious concern because researchers typically follow a research paradigm which guides their "thinking about researchable problems, theory, methods, and interpretation of data" (Padilla, 1990, p. 18). In other words, a paradigm is an accepted and shared model of research where the same rules and standards are applied (Kuhn, 1970). Our paradigms can often lead to mindlessness because they represent a uniform perspective of the researcher toward the problems being studied. The present article focuses on the concepts of ignorance and mindlessness and applies them to the current context of educational research. I maintain that addressing these concepts can improve the quality of educational research as well as improve educational practices.

Educational researchers seldom focus on the ignorance in their field and they often conduct mindless studies that do not advance the profession. Consequently, they often conduct research that has been criticized by many politicians, leaders, professional organizations, and educators. These criticisms have argued that education research: (a) has

been "inadequate," (b) has had little impact on educational practice, and (c) needs to be changed (National Research Council, 1999, 2002). Furthermore, these attacks on education research have specifically pointed out that: (a) the field is too diffuse and lacking in focus, (b) many studies are flawed methodologically, and (c) most of the questions posed are insignificant (Lagemann, 2000). Scott (2000), for example, claims that most education research is irrelevant to the real concerns of practitioners and that much of the research in the field makes claims that it cannot substantiate. Hargreaves (1996) similarly adds that there is a large amount of frankly second rate educational research which does not make a serious contribution to fundamental theory or knowledge; which is irrelevant to practice; which is uncoordinated with any preceding or follow-up research; and which clutters up academic journal that virtually nobody reads. More recently, Henig (2008), Goldhaber and Brewer (2008), and others have criticized educational research because it has been too politicized and misused for policy making.

These concerns of educational research have stimulated the federal government, nonprofit agencies, school districts, and others to try to reform educational research and move it to a more scientific, evidence-based approach. Unfortunately, this scientific-based research emphasis that focuses on randomized designs and value-added statistical models has not been able to address the complexity of conducting educational research in classrooms and other educational settings (Berliner, 2002).

Most educational researchers try to conduct “good” research studies. Unfortunately, these studies become “good enough” studies that often are published, but do not enhance the knowledge base or improve educational practice. The purpose of this commentary is to explain why the field should change from these adequate or "good enough" types of research and adopt a more "mindful" research approach that adds knowledge to the field and seeks to improve education. The following sections describe the concerns with this “good enough” approach and then describe the more “mindful” approach to educational research.

Good-Enough Research

“Good-enough” research is very prevalent in our field. Many of us have been involved in “good-enough” research studies. These may be either qualitative or quantitative small-scale studies, secondary analyses of existing data sets, or studies that focus on issues that are frequently addressed by other researchers (Goldhaber & Brewer, 2008). These studies may have adequate technical aspects (e.g., adequate design, reliability, and validity) and sometimes yield interesting findings, but the defining characteristic of these types of studies is that they are only minimally acceptable and they don’t have an impact on the knowledge base or educational practice. These studies may be good enough to satisfy requirements for doctoral dissertations and they often are good enough to be published in reputable professional journals, but these studies typically fall short in several different areas. One of the first serious concerns is that these studies often do not address a critical problem or area. The study may replicate other studies in the field, but it still may not be addressing the real critical issue in the area. Research is often driven by the enthusiasm of researchers rather than practitioners and policy makers who are interested in having the research help them address pressing educational issues.

A second limiting concern of “good-enough” research is that we often accept faulty research designs and inadequate samples because we perceive it to be too difficult to extend the research and obtain representative or large enough samples. Educators are often so fearful of working in schools, that we have been criticized for being “data dogs,” moving

in and out of schools so quickly that we collect a minimal level of data and nothing too "rich" because it will be too time consuming. We are also guilty of using convenience samples that don't allow us to generalize from our research.

A third area we don't often adequately address is the study's context. Context is a critical variable to consider when applying educational research findings and researchers often don't describe the specific setting where their study was conducted in sufficient detail. For transparency and replication purposes, samples of participants should be described as specifically as possible in terms of demographic factors and other relevant characteristics. The failure to address contextual differences is one of the primary explanations why states, school districts, and individual schools often see the implementation of new programs and school reform fail (Payne, 2008).

A fourth area where we accept mediocrity is in our choice of analytic procedures. In some quantitative studies, for example, we may report descriptive and inferential results, but we avoid advanced analytic models (e.g., structural equation modeling or hierarchical linear modeling) because we are unfamiliar with the technique or it is too time consuming to complete. In qualitative studies, this may consist of a failure to do member checks because it is perceived too difficult to get feedback from our participants or, again, too time consuming.

A final area where we often accept "good enough" research is in the interpretation area. We generally include brief explanations or summaries of our findings, but we fail to thoroughly interpret the results or critically examine our work. Instead of examining plausible rival hypotheses that may suggest some alternative explanations for the results of our study, we merely state that future studies need to have larger sample sizes in more diverse settings using randomized selection.

Mindful Research

Technical or methodological proficiency is an important research skill, but it is not sufficient to carry out high-quality research. If researchers can improve their skills in detecting plausible rival hypotheses or alternative interpretations that are different from the interpretation made by the researcher, then the quality of their own research will improve (Huck & Sandler, 1979). Furthermore, researchers also need to develop "thoughtfulness" or "reflectiveness" about research (Seltzer & Rose, 2006) and describe the ignorance of their work so that others can develop better questions and gain more understanding of phenomena.

There are several areas or components of research studies where researchers could be more mindful of their work. While introductions and reviews of research in typical research articles are often merely written to provide a context for the study (i.e., show where the study fits into the current body of research in the area), sometimes the introduction/review section can provide some unique value and be especially thoughtful or mindful. Occasionally, novel theoretical/conceptual models are presented and described that make sense for practitioners, researchers, and policy makers. Other more traditional reviews of research may similarly provide value if they relate two or more distinct educational concepts. Research or reviews that link apparently disparate areas can again provide value to educators and researchers who often see things only in the traditional way they've been doing things.

A final example where the introduction or review of research can provide value is in the actual description of studies reviewed. None of us are familiar with all of

the studies conducted in a particular field. A mindful review can (a) include new studies that we are not familiar with, (b) summarize them in a succinct way or method (e.g., table) that clarifies the research for us, or (c) explicitly address the gaps in the knowledge base.

Mindful research can also be included in methods sections. I am always interested, for example, in the instruments that researchers use. A mindful study to me would highlight why a particular instrument was chosen and what the instrument measured well. Similarly, I would be interested in having researchers describe what their particular instruments didn't measure well. Describing the "ignorance" of the methods section is clearly illuminative and would be of great value to most researchers.

It's easier to understand how the results and discussion sections could be more mindful. In addition to reporting the findings accurately, it would be especially mindful if the researcher highlighted unanticipated outcomes or presented the findings in a new or novel way of reporting. For a discussion section to be mindful, it is important that there is a critical discussion of (a) important policy and practical implications, (b) new research studies that should be conducted, and (c) how the findings relate to the current theory and research in the field. In addition, it would be extremely valuable if the researchers highlighted what they didn't learn from the study and the ways that "ignorance" could be developed in new studies that may help us gain understanding of the phenomena.

I am not suggesting that all research articles need to incorporate all of these thoughtful or mindful components, but researchers should attempt to advance the field by providing some value in at least some of these areas. These suggested changes are important to develop more mindful approaches to research, but in order for educational research to make a difference in improving education we still need to address the issue of focusing on critical research issues. As John Easton, the current director for the Institute of Education Sciences, has recently argued "our greatest challenge is in working better with practitioners and policy makers to use the research to make schools better places where students learn more" (Easton, 2010, p. 1). Others have similarly advocated for "use-inspired basic research" (National Research Council, 2002; Stokes, 1997) or engineering approaches to educational research that focus on how to make things actually work in the settings we want to improve. As the eminent researcher, David Berliner (2009) succinctly describes it, "it is the tinkering by teachers and researchers and the study of their craft by the teachers themselves, that seems to me the most likely to pay off in improved education" (p. 311). The Carnegie Foundation for the Advancement of Teaching, for example, describes this collaborative process as building networked improvement communities in education (Bryk, Gomez, & Grunow, 2011). Penuel, Fishman, Cheng, and Sabelli. (2011) similarly describe the emerging model of design-based implementation research that focuses on the persistent problems of practice from multiple stakeholders' perspectives and calls for reconfiguring the roles of researchers and practitioners.

In their recent book on improving teaching, *Professional Capital: Transforming Teaching in Every School*, Andy Hargreaves and Michael Fullan (2012) argue that the "professional expertise is not just having and being aware of evidence, it's also about knowing how to judge the evidence and knowing what to do with it" (p. 54). I strongly agree with their perspective and I also maintain that educational researchers similarly need to be able to (a) be more mindful and reflective of the quality of their own work, (b) focus on the "ignorance" in their research, and

(c) try to work collaboratively with researchers from other disciplines, practitioners, and policy makers to address important research questions. When these three activities are done on a more consistent basis, it will promote more mindful research that will make a difference in education.

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