



3-2021

Quality of Research Evidence in Education: How Do We Know?

Terri D. Pigott

Georgia State University, tpigott@gsu.edu

Charles Tocci

Loyola University Chicago, ctocci@luc.edu

Ann Marie Ryan

University of Texas at San Antonio

Aaron Galliher

University of Texas at San Antonio

Follow this and additional works at: https://ecommons.luc.edu/education_facpubs



Part of the [Education Commons](#)

Author Manuscript

This is a pre-publication author manuscript of the final, published article.

Recommended Citation

Pigott, Terri D.; Tocci, Charles; Ryan, Ann Marie; and Galliher, Aaron. Quality of Research Evidence in Education: How Do We Know?. *Review of Research in Education*, 45, 1: vii-xii, 2021. Retrieved from Loyola eCommons, Education: School of Education Faculty Publications and Other Works, <http://dx.doi.org/10.3102/0091732X211001824>

This Article is brought to you for free and open access by the Faculty Publications and Other Works by Department at Loyola eCommons. It has been accepted for inclusion in Education: School of Education Faculty Publications and Other Works by an authorized administrator of Loyola eCommons. For more information, please contact ecommons@luc.edu.



This work is licensed under a [Creative Commons Attribution-NonCommercial-No Derivative Works 3.0 License](#).
© AERA, 2021.

Terri Pigott

Charles Tocci

Ann Marie Ryan

Aaron Galliher

Quality of research evidence in education: How do we know?

The persistence of inequitable education is the fundamental fact facing educational researchers as we reflect on the quality and value of the evidence we produce (AERA & NAE, 2020; The Educational Opportunity Monitoring Project, 2020). As a field, we must critically examine what it means for us to develop increasingly sophisticated research tools and research design models while disparate outcomes along familiar lines of race and class continue apace. This issue's importance has been laid bare by the COVID-19 pandemic and global protests for racial justice in the wake of George Floyd's murder. If our research endeavors are not effectively combating racism in education, providing help as our schools refashion themselves for remote and hybrid teaching, or supporting schools in other ways to address the myriad of equity gaps they face, then what are we doing? What are we generating evidence of and for?

As education researchers, we are more than familiar with the criticism that our research is less robust and less effective than research in medicine or the physical sciences (e.g., Murnane & Nelson, 1984, as discussed in Feuer, Towne & Shavelson, 2002). After all, our progress on important issues of equity and access is slow and incremental; we have few blockbuster events like vaccines in medicine. But it may be that our research is more akin to public health than

medicine. Researchers in public health and education face similar challenges when implementing new interventions. For instance, the COVID-19 vaccine will be deployed within a context of persistent and long-standing health disparities (The Covid Racial Data Tracker, 2020) as well as highly politicized public discourses about the safety of vaccines, not to mention historical mistreatment of communities of color. The vaccine may be effective for preventing the disease once administered, but its ability to end the pandemic will be limited by the social context into which it is implemented: bureaucratic systems for decision making, disparate access to health care based on income and geography, historical racism shaping present-day institutions, widespread circulation of misinformation, and so on. Similarly, the quality of our research into new educational interventions is inextricably tied to the contexts where it is conceived, tested, and implemented (Berliner, 2002).

The diversity of education research also contributes to the difficulty in defining quality (Lagemann, 2002). Given that education researchers focus on all levels of our complex system of public education, our efforts to appraise the quality of education research tend to focus on technical aspects of research design. It is easier to assess the ability of an experimental study to support a causal claim than to assess whether an intervention will be accepted by teachers, students, and parents. It can be simpler to develop targeted research tools if the issue being studied is not placed into a historical perspective and carefully analyzed as part of intersecting, complex social contexts. Although the rigor of research design is critical for all types of education studies, it is insufficient for increasing the quality of our education research.

In this regard, our field is still significantly shaped by the “Coleman Report” (Coleman et. al, 1966). Commissioned as part of the 1964 Civil Rights Act, the *Equality of Educational Opportunity*, colloquially named after its lead author, James Coleman, sought to “survey and

make a report...concerning the lack of availability of equal educational opportunity for individuals by reason of race, color, religion, or national origin in public educational institutions at all levels” (Civil Rights Act, 1964, Section 402). To achieve this, Coleman defined “equality of educational opportunity” as the “equality of results, given the same individual input” (Coleman et al., 1966, p. 14) and the research team surveyed over 600,000 students and 50,000 teachers across more than 3,000 schools during 3 days in October 1965. This massive data set was then run through the relatively new statistical method of an input-output analysis using regression methods. The report’s core findings were that: racial segregation was widespread in public schools; there were distinct disparities in academic achievement between racial groups; and school effects on student achievement were much smaller than variation in individual background, particularly social class (Gamoran & Long, 2006).

The shift from assessing schooling according to its inputs (money spent, availability of resources) to outputs (measurable learning and achievement) had a profound effect on educational research. It recast the assessment of education as “schools’ effectiveness in freeing achievement from the students’ socioeconomic background” (Kantor & Lowe, 2017, p. 572). This position reflected a “view (of) American schools as a rational system composed of variables available for manipulation—whether via hypothetical analysis or policy” (Hutt, 2017, p. 620). In turn, this placed new emphasis on research design and the ability to draw inferences, ideally causal ones, between the variables within schooling and students’ learning outcomes as measured against their demographic classifications.

But as soon as the Coleman Report was published, there was pushback against this conceptual shift. Prudence Carter (2016) highlights the critique offered by Charles Thompson,

professor of education and dean emeritus at Howard University, in 1968, who pointedly questioned,

“What does equality of educational opportunity mean? Does it mean the same opportunity to get an education? Or does it mean an opportunity to get the same education? Or the opportunity to be educated up to the level of one’s capabilities and future occupational prospects? Or the opportunity to learn whatever one needs to know to develop one’s own peculiar potentialities? Is only racially integrated education equal, irrespective of whether lack of integration is intentional or accidental? Is equality of educational opportunity a moral as well as a mathematical concept? (Thompson, 1968, p.194).

Carter follows Thompson to argue for a much more robust approach to educational research that addresses persistent inequities and disparate outcomes. She urges that researchers “must examine more deeply how inequality penetrates social relationships in school environments...They must also commit to understanding the relationship between the school’s organizational and cultural context and educational opportunity gaps that stubbornly persist both within and across communities.” (Carter, 2016, p.160). That is, our research must produce evidence that is sensitive to and engaged with the social contexts in which it was generated.

This volume continues in this vein of seeking to critique and expand the ways in which educational evidence is conceptualized and evaluated. We are interested in developing an understanding of the quality of education research that moves beyond a study’s technical merit. When assessing new education interventions, we often want to know if the intervention works, for whom, and in what context. But we also need to ask whose aims are served by our research and whose aims are neglected, how open are the researchers about their methods and values, how

does history bear on the subject and context being studied, and whose perspectives and biases are represented in the research?

The authors of chapters in this volume address the question: Quality of research evidence in education: how do we know? Across these authors, each working from diverse perspectives and paradigms, a number of themes emerge about how we should judge the quality of research evidence. Judgements about the quality of a research study are inextricably tied to the perspectives that frame the research question. Gough provides a framework for examining evidence claims that highlights both technical issues of methods and also the perspectives of those who want to use the evidence for policy-making. Wong challenges the field to think about whose values are served by our research, and to think about how to remake research to reflect the values of all students, particularly those who are likely overrepresented as research subjects and underrepresented as researchers themselves. Crain-Dorough and Elder outline how researchers and practitioners differ in their values and approaches to research and the use of evidence.

Many of our current conceptions of research quality fail to recognize the importance of how interventions work in local contexts and the role of practitioners in conceptualizing and guiding research. Taylor, Davis and Michaelson compare the research rating systems of three clearinghouses, highlighting their commonalities and the range of attention paid to how interventions are implemented. Ming and Goldenberg introduce a quality framework focused on credibility that centers research use by district and school-based practitioners. Welsh discusses research-practice partnerships as a way to engage both researchers and practitioners in research, highlighting the challenges for both in developing these partnerships.

Educational research needs to embrace openness in methods and reporting so that readers can understand the strengths and limitations of the evidence produced. Le Beau, Ellison and

Also develop guidelines for reproducible quantitative research, and discuss ways qualitative research might adapt reproducible practice. Allen-Platt, Gerstner, Boruch and Ruby review how researchers report and interpret null findings in randomized controlled trials, discussing how more in-depth descriptions of null findings could improve our research. Cian examines how qualitative researchers discuss validity, highlighting the limitations of current practice.

The volume closes with case studies examining issues of research quality in particular subfields. Phillipson and Phillipson examine the prevailing paradigms of early childhood research in Australia, discussing the opportunities afforded by concern with the local context. Ahram, Voulgarides and Cruz explore how differing views in research on disproportionality lead to different conclusions and advocate for a shared framework for researching these critical issues. Cawthon and Garberoglio propose a deaf-centered approach to research on deaf populations, calling for increased attention to the experiences of those who are deaf and for involving scholars who are deaf in that research. Streklova-Hughes, Nash, Schmer and Caldwell also interrogate how the concept of culture is enacted and researched in personalized learning, emphasizing the need for attention to the learners' and researchers' cultures when addressing this research area.

We asked our authors for statements of positionality as one emerging theme of the volume was the centrality of researchers' perspectives to the quality of a research study. Access to the field of education research is restricted and the field is internally plagued with inequalities, both of which often fall along racial and gender lines (Patton, 2004). A field circumscribed by oppression lacks the collective imagination and deliberative capacity to produce research equal to the problems it studies. It is imperative that we intentionally and assertively broaden the

scope of researchers and provide the necessary support for scholars from traditionally marginalized backgrounds to pursue new lines of inquiry.

We ourselves are a diverse team. We include a Biracial female researcher with expertise in meta-analysis and the assessment of the quality of quantitative research design. There is also a White female historian and qualitative researcher who has participated in mixed methods research projects with a background in teaching at the secondary level and teacher professional development. Another is a White male urban public school teacher turned historian and qualitative researcher. The final member of our team is a White male PhD student working on new interdisciplinary methods in music education. Our work together in bridging differences in perspectives, approaches and biases has pushed each of us to new understandings about research, and hopefully serves as a small example of the direction education research should take.

At the risk of invoking an overused metaphor, there is no “silver bullet” to cure our significant education and health disparities given how deeply they are carved into our social cartographies. How the COVID-19 vaccines are distributed and received may offer a step toward new and hopefully better directions; however, we have a long way to go to shift how we do research across fields. We face similar challenges in education research and need to marshal a concerted and conscious effort to address the devastating disparities that persist in education. Our modest hope for this volume is to raise questions about how we might do this by rethinking how we approach education research. We invite you to engage in these chapters and rethink the assumptions that underlie the questions you ask, the studies you design, the quality of the evidence you collect, and who participates on your research team, and in your studies.

References

AERA and the National Academy of Education. (September 24, 2020). Joint statement in Support of Anti-Racist Education. <https://www.aera.net/Newsroom/Statement-in-Support-of-Anti-Racist-Education>

Berliner, D. C. (2002). Comment: Educational research: The hardest science of all. *Educational researcher*, 31(8), 18-20.

Carter, P. (2016). Educational Equality Is a Multifaceted Issue: Why We Must Understand the School's Sociocultural Context for Student Achievement. *RSF: The Russell Sage Foundation Journal of the Social Sciences*, 2(5), p.142-163; DOI: <https://doi.org/10.7758/RSF.2016.2.5.07>

Civil Rights Act, 42 USCS § 2000e (1964).

Coleman, J. S., Campbell, E. Q., Hobson, C. J., McPartland, F., Mood, A. M., Weinfeld, F. D., & York, R. L. (1966). *Equality of educational opportunity*. Washington, DC: U.S. Government Printing Office. Retrieved from <http://files.eric.ed.gov/fulltext/ED012275.pdf>

The COVID Racial Data Tracker. (2020). <https://covidtracking.com/race>

The Educational Opportunity Monitoring Project. (2020). <https://cepa.stanford.edu/educational-opportunity-monitoring-project/achievement-gaps/race/>

Feuer, M. J., Towne, L., & Shavelson, R. J. (2002). Scientific culture and educational research. *Educational researcher*, 31(8), 4-14.

- Gamoran, A., & Long, D. (2006). "Equality of educational opportunity": A 40-year retrospective (WCER Working Paper No. 2006-9). Madison: Wisconsin Center for Educational Research.
- Hutt, E. (2017). "Seeing Like a State" in the Postwar Era: The Coleman Report, Longitudinal Datasets, and the Measurement of Human Capital. *History of Education Quarterly*, 57(4), 615-625. <https://doi.org/10.1017/heq.2017.36>
- Kantor, H., & Lowe, D. (2017). Introduction: What Difference Did the Coleman Report Make? *History of Education Quarterly*, 57(4), p.570-578.
- Lagemann, E. C. (2002). An elusive science: The troubling history of education research. University of Chicago Press.
- Murnane, R. J., & Nelson, R. (1984). Production and innovation when techniques are tacit: The case of education. *Journal of Economic Behavior and Organizations*, 5, 353-37
- Patton, T. O. (2004). Reflections of a Black woman professor: Racism and sexism in academia. *Howard Journal of Communications*, 15(3), 185-200.
- Thompson, Charles H. 1968. "Race and Equality of Educational Opportunity: Defining the Problem." *Journal of Negro Education*, 37(3): 191-203