Scientists are becoming increasingly aware of the need to approach their teaching with the same expectations for evidence that they use in their science. They are coming to recognize that, just as in science research, research on undergraduate science education has a literature as well as standards for practice. I (M.L.L.) am a recent convert to this way of thinking. I taught for 30 years using mostly a lecture style and believed myself quite revolutionary when I used projected images to make cell biological points in class. I now teach using the results of discipline-based education research (DBER) and do my best to use instructional strategies that are demonstrated to improve student learning.

As this pool of converts grows, so too grows the number of individuals who are formally trained as scientists but are interested in using research-based approaches to teaching or in contributing to the literature of DBER themselves. Discipline-Based Education Research: A Scientist’s Guide was written with both audiences in mind. It does not “preach to the choir.” Rather, it opens the door to admit the convert, providing a guide to the purposes, findings, and practices of DBER, which are often elusive and opaque to scientists.

Given the title and content of the book, we were surprised not to find a clearly stated definition of DBER. Although the authors identified themselves as discipline-based education researchers (astronomy education researchers, in particular), they did not articulate how DBER differs from science education research or education research in general. We expect that this is because the field has yet to reach consensus on a definition. From my (E.D.) perspective, discipline-based education researchers have deep understanding of a scientific domain and proficiency with education research methodologies that make them uniquely prepared to study science teaching and learning, especially at the undergraduate and graduate levels. We approached our review of the book with this definition in mind.

**AUDIENCE**

From the title to the references, this book is clearly written for scientists who want to study teaching and learning in the
One shortcoming of the text is underreferencing. For example, the authors point out a series of effects that might jeopardize the interpretability of quantitative and statistical studies, but no references are offered for readers to explore these ideas further. It is likely that references are not included because many of these ideas are common knowledge for individuals with relevant, formal training. The strategic, rather than comprehensive, inclusion of references clearly indicates the importance of particular references and contributes to the book’s commendable succinctness. Because the book is intended to meet the needs of a less savvy audience, inclusion of a few more citations would have been helpful.

Another concern is that there is little if any mention of the breadth of disciplinary perspectives that impinge on education research. For example, the authors mention several science education research journals that are worthy of attention but do not point out the value of exploring the literature and approaches from the domains of cognitive, organizational, social, or educational psychology. The authors also could have been more explicit about the kinds of questions that each of these perspectives aims to understand, including other relevant perspectives such as cultural anthropology and sociology.

Even though the book’s hallmark is its approachability, a few topics seem a bit obscure. For example, the four approaches to analyzing data from a grounded theory perspective are defined (p. 57), but it is not clear how one is selected over the others and what the advantages or disadvantages of each might be. One last pet peeve: the use of multiple nouns as modifiers, rather than properly hyphenated compound adjectives, creates disconcerting mouthfuls such as “Analyzing Multiple-Choice Content Knowledge Test Scores” (p. 29).

CLOSING THOUGHTS

From our perspective, this book can be used for multiple purposes. It can be read cover to cover by those engaged in DBER. It can be communicated piecemeal to colleagues who are interested in learning from DBER. Finally, the take-home messages can be summarized and shared with others to illustrate the worth of DBER in general and the merits of particular methods and approaches unique to this type of research. In fact, the text is succinct and pithy enough (not to mention inexpensive at $18.95!) to distribute as part of faculty professional development efforts, which is what we plan to do. The choir of scientist-educators is growing, and a text framed with this audience in mind is both needed and welcomed.

REFERENCE

Shavelson RJ, Towne L (eds.) (2002). Scientific Research in Education, Washington, DC: National Academies Press.