



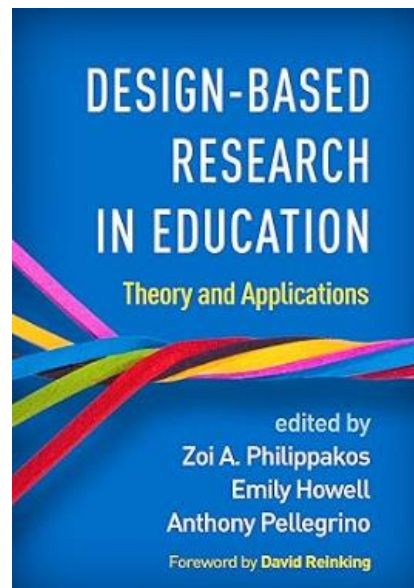
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Design-Based Research in Education: Theory and Applications is a clearly written guide and resource for researchers or current graduate students with at least some experience in educational research. The contributors explain the procedures, benefits, and considerations when implementing Design-Based Research (DBR) across a variety of educational contexts. The work is organized into 4 parts: (1) principles of DBR and application to educational research, (2) examples of how to use DBR in curriculum development and the role of teachers across various subjects, (3) applications of DBR in various educational settings, primarily language contexts, and (4) the relationship of pre- and in-service teachers as researchers within DBR and dissertation development and publication tips related to DBR. In essence, this publication is a love letter to DBR, albeit a measured and well-supported one, with the intention that readers will be compelled to use DBR for their next study.



Editors Zoi A. Philippakos, Emily Howell, and Anthony Pellergrino, all of whom are education researchers and practitioners, make the case for the relatively young DBR approach as a relevant and important education research design. They include detailed examples of studies by 35 contributing authors who have used DBR in their own research. Significant space is dedicated to providing support for research design and publication efforts by current and future researchers, practitioners, and other research partners.

A short five pages are dedicated to addressing the three main criticisms of DBR: (1) DBR is not methodological; (2) highly contextualized studies make DBR studies less generalizable; (3) and the iterative nature of DBR is subjective without a clear end. Despite the brevity of this section, very useful recommendations are offered to readers to address these criticisms when designing, writing, and publishing their own work.

Design-based research (DBR) is a relatively new methodology. However, it is not a single methodology, but an approach to educational research that can be used with a variety of other methodologies. The variety of such is illustrated across the various subjects, goals, and contexts of the studies that are highlighted in the text. While DBR has been around for decades, it is just recently that attention is being given to clearly defining and situating it among learning science research so that more researchers can effectively use it and publish their studies as design-based research. According to Campanella and Penuel (2021), what makes something a *design* study is that it is future oriented, meaning that it “asks questions about what could be learned about the world by changing it” (p. 6). DBR strives to test design ideas in real time and adjust so that interventions are ultimately useful in their current context. The iterative nature of DBR *in situ* to figure out how something can work in that context while in collaboration with practitioner-researchers, is what distinguishes it from other approaches. The challenge for researchers is to describe the iterative process so that others might be able to generalize and use what was learned for their own work.

The information provided in the text is in accord with what has been published about DBR in learning sciences research thus far. Sawyer (2014) describes DBR as iterative and collaborative with the intention to be useful by generating products and processes that are used in the educational context during and after implementation of the design. Adding to this understanding about DBR, in Part 1 (Chapters 1 and 2), it is made clear that DBR is not appropriate for answering casual questions about whether something works or not, but instead answers questions of “How can...?” a tool or practice be designed *to work* in a complex learning environment. These authors impart a deeper understanding of the power of collaborative relationships that exist between teachers and researchers in co-designing, implementing and refining an intervention. Much of the collaboration that is highlighted in the book is that of school-based leaders (teachers and instructional coaches) with researchers, with some elaboration on the role of other stakeholders such as district or state leadership.

David Reinking’s foreword is particularly insightful. As Reinking explains, the goal of DBR is not necessarily to scale, but to describe thickly and clearly the iterative design process and outcomes in a way that others might be able to apply to their own contexts. He uses the term “conceit” to characterize the nature of quantitative researchers and policymakers who are looking for *final answers* to “identify best practice for every teacher anywhere” removing individual teacher’s judgment from the equation. He advises that the U.S. Department of Education’s What Works Clearinghouse should be recast from a DBR perspective as “What

It *Takes to Work Clearinghouse*” (p. xvii). This might be the most salient statement about the nature of DBR in the entire publication and sets the tone for much of the book.

As DBR searches for what *works*, the iterative design process engaged in by DBR researchers ensures that understanding how to make interventions work within a particular context is the ultimate goal of the project. Teachers are a critical and indistinguishable part of the DBR educational ecosystem. Repeatedly, we see examples from the projects included in the book of interventions that are co-designed with input and data from teachers expressing their challenges, needs and solutions related to making the interventions work for *their* students. The real benefit to other researchers reading this book is that the DBR studies presented are highly contextualized and focused on local impact and usefulness of the intervention. It is up to the researchers to describe and illuminate their process clearly so that others might glean their own generalizations. Students and contexts vary so much that it is not reasonable to set out with a goal of scaling interventions up to a much larger context.

Another related and important assertion about DBR by David Reinking worth highlighting was that “DBR is about infidelity, not fidelity.” Again, a distinction is drawn between more experimental methods and DBR. How an intervention is used and necessarily adapted (infidelity) to *make it work* is more important and informative in DBR than the more antiquated research traditions that treat “classrooms like laboratories” (p. xviii). We can see evidence of this infidelity in the studies included in the text as descriptions and visualizations of the iterative processes that led to a changed and improved product throughout the study based on teacher input, researcher observations, and student data.

Another useful feature of the book is that many authors include the actual interventions and protocols that were generated during their projects. One feature of studies included in the book is an elaboration, mostly written as a table, of the iterative process itself, detailing the modifications to the research design or intervention with an explanation of what led to the change as a sequence of events or guiding questions. This aspect of each study vividly illustrates the essential iterative component of DBR and provides the reader insight into the thinking of researchers.

Overall, the example cases provided were enlightening and offered a wealth of applicable knowledge as to how DBR has been applied in varied contexts. However, because each chapter was uniquely organized into subheadings by the different contributing authors, drawing conclusions or making comparisons among the DBR studies was unnecessarily challenging. It would have been helpful to a relatively novice reader for each chapter to follow a similar format or contain common sections written by each contributing author.

Teaching and learning do not occur in vacuums, and it is imperative to find pedagogies and solutions that work for students and teachers in the *real-world*. DBR embraces this complex ecosystem, and proponents of DBR insist that we cannot disengage learning and teaching from the environments in which they

occur. DBR elevates the profession of teaching and invites teachers to collaborate with researchers to design interventions that work best for their students. I highly recommend this book to anyone interested in learning more about design-based research and how they might adapt it to their own learning science research.

References

Sawyer, R. K. (Ed.). (2014). *The Cambridge handbook of the learning sciences* (2nd ed.). Cambridge University Press. www.cambridge.org/9781107626577

About the Reviewer

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