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The Improvement Science Dissertation in Practice
Book Review

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Jill Alexa Perry, Debby Zambo, and Robert Crow: *The Improvement Science Dissertation in Practice*. Myers Education Press, 2020. 180pp. Paperback: $29.95. ISBN-978-1-9755-0320-8

We have an imminent need to adapt and transform PK-12 education. The education world we live in, filled with COVID contingency planning, responses to Critical Race Theory deniers, on the fly hybrid learning, and enshrined expectations that privilege status quo thinking must compel us to re-imagine PK-12 education. To achieve this transformation, we need educators, administrators, and systems to re-set their ways of being. To get here, we need to rethink the practices we implement to support and train education practitioners to lead. In their book, *The Improvement Science Dissertation in Practice* (2020), Perry, Zambo, and Crow compile tools; provide analysis of what an EdD program should be; and offer support to all those who wish to reframe and re-imagine the education doctorate to meet the complexities and pragmatic needs of learners enrolling in EdD programs today.

The first two chapters lay out an argument for Improvement Science and a practice-based doctorate with a practice-based product as its endcap. The remaining chapters build the reader's repertoire of how to operate: either as this type of doctoral student or how to design and implement this type of doctoral program. The authors skillfully construct chapters three through eight with an explication of the elements and approach of an Improvement Science Dissertation in Practice (ISDiP), extracting from their experiences with EdD programs and EdD students at three distinct universities. Improvement Science is the signature methodology the authors explicitly advocate, stating that "improvement science is a methodological approach built on pragmatism and science that uses disciplined inquiry to solve [Problems of Practice]" (p. 27). They lay out a compelling case for the rigor and science behind Improvement Science and simultaneously explain its unique applicability for practitioners who desire to take action and see impact within their existing communities, spheres of influence, and professional roles. They situate the scientific practice by tying Improvement Science to Deming's (1993) work on systems theory, Bradford's (2017) definition of science, and connecting it with Plan-Do-Study-Act (PDSA) cycles.

The central focus of a Dissertation in Practice (DiP) is an actionable problem of practice rooted in personally meaningful work to the learner, focused on transforming education, and producing equitable educational outcomes. Building upon both, Douglas Archbald's (2008) argument that dissertations should have the goal of organizational improvement and community benefit, and Rick Mintrop's (2016) thesis that a dissertation should be actionable for the dissertator, these authors assert that EdD learners are scholarly practitioners who "attempt to solve tough educational problems" in a "systematic fashion" (p. 51).

Following their arguments about why an ISDiP ought to be the signature pedagogy of EdD programs serving practitioners, Perry, Zambo, & Crow provide more of a guidebook, with tools, to supporting students and faculty. They devote a chapter each to problems of practice, reviewing literature, theories of improvement, measurement, testing and writing, and implications—each of these are elements of the ISDiP, sections of the dissertation, and the authors state these also must be infused within EdD coursework.

Within Chapter 3 on Actionable Problems of Practice (PoP), the authors define an actionable problem of practice as one with a "perceived need by the individuals affected by the problem," "conceptualized in a way that makes it actually improvable," "large enough to be of strategic concern to the organization, yet limited enough in its nature that concrete and tangible improvements can be feasibly attempted and evaluated" (p. 55). Within the chapter, they encourage EdD programs to support learners to uncover PoPs that are actionable, through the introduction of critical tools that individual doctoral students or programs could utilize, including System Maps (p. 58), Conceptual Frameworks (p. 59), Fishbone Diagrams (p. 60), and Process Maps (p. 64). Each of these tools enable scholar practitioners to solidify and analyze problems of practice through multiple levels and various vantage points. These tools are valuable for the dissertating scholar practitioner, and they are useful for EdD program teams to analyze and improve their own programs.

Chapter 4, Reviewing the Literature, differentiates between more traditional literature reviews and the type of review an EdD student ought to conduct. While they share that this is where faculty can bring their scholarship and research skills, they also push hard on the idea that faculty and students must not see a literature review as an exhaustive, synthesis exercise, and instead must view the literature search as a place to situate the actionable problem of practice within theory, scholarship, and practice. They introduce a Conceptual Framework (p. 84) as a way that learners can depict the literature, practice-based knowledge, and professional knowledge base and how they inform the problem of practice and possible action. This Conceptual Framework is a valuable visualization tool for scholar practitioners to depict and explicate their work.

Chapter 5 focuses on theories of improvement and driver diagrams to represent these, and it explores what a theory of improvement is and why it is another important element for practitioner, educator, doctoral learners. A theory of improvement describes "how the scholarly practitioner will move from problem analysis to actually tackling the problem during the testing phase" (p. 90) and situates how the doctoral learner will take action and operate as a practitioner. The writers share multiple versions of the Driver Diagram (pp. 89-93), supporting doctoral learners to create these visuals as a means to articulate their theories and pushing EdD programs to build these process steps into the course sequences and doctoral journeys of the learners.

Developing Improvement Measures is the content of chapter 6. The authors articulate four sets of measures within Improvement Science for doctoral learners writing an ISDiP: 1) outcome measures, 2) process measures, 3) driver measures, and 4) balance measures. Given the short cycle nature of improvement science, various measures may be more apparent in different projects. Nevertheless, the authors contend that inquiry courses should be infused into the program of study for EdD students and a move away from traditional methods courses should be pursued. Additionally, programs should set learners up to explore their own positionality, given the unique role and action-orientation that scholarly practitioners take and the caution they must exhibit when interpreting measures and results that they are often directly implicated within.

Chapter 7 focuses on theory testing; the presupposition is that scholarly practitioners ought to take action and test their theory of improvement and attempt to implement change within a 90-day cycle of change. The authors build from the PDSA model and create a doctoral student approach: SIAR: Strategize, Implement, Analyze, and Reflect. They share a SIAR template (p. 128) where learners can document their inquiry questions, hypotheses, measures, implementation plans, analysis, and reflections. Their aim for the SIAR tool is two-fold: 1) support EdD students with their ISDiP and 2) build their lifelong, practitioner leadership, by adding problem generation, problem solving, and problem analysis tools to their toolkits.

Chapter 8 is almost explicitly, a faculty-facing chapter, where more explicit university lessons learned are detailed, suggestions are offered on doctoral committee role and approach, and EdD programs are encouraged to backwards map themselves—thinking about where they want their graduates to be in the future and therefore the DiP, the courses, aligned admissions process, and mentorship that are needed as well.

In their 2021 book review, Hawkins and Martens situate Perry, Zambo, and Crow's book and its call to action within the history of the Carnegie Project on the Education Doctorate (CPED) and education doctorates, provide an overview of the chapter contents, and encourage the use of the text for students, faculty, and individuals considering EdD matriculation. They lay out three critical uses of the text: "an introductory text for the first class," "a reference text for other classes," and "a tool to support the design and development of the ISDiP (Improvement Science Dissertation in Practice)." I wholeheartedly agree with this endorsement, and in our early years of EdD program design, the text has been essential. Similar to Hawkins and Martens, we have embedded the text within EdD team meetings for faculty and staff and incorporated the text within our courses on applied methods and problem of practice identification. Their sage recommendations to embed the text early within the EdD curriculum and to share with outside committee members who will support EdD scholar practitioners with their dissertations in practice ought to be heeded. Additionally, the authors' recommendation for a follow-up text that shares "vignettes of student and faculty experiences" that organically describe the experiences of the ISDiP would be a tremendous supplement to this text. This would serve as a critical next step in living out a doctoral program that centers the "already highly skilled practitioners" looking to "enhance and build upon that existing expertise" (p. 7). Additionally, these vignettes being accompanied by examples of ISDiP and the range of products they could look like would be a great contribution to the field.

Hawkins and Martens (2021) provide a strong synthesis of *The Improvement Science Dissertation in Practice* throughout their review. And on balance, their review highlights the numerous strengths and possibilities within the publication, and I agree with these. I also offer constructive ideas about the text.

Perry, Zambo, & Crow's approach to their book is pragmatic and educative. They situate the EdD and its evolution, and they create a burning platform for why EdD programs must evolve, providing concrete tools for change. This text is a must read for those facilitating in, advising in, teaching in, studying in, and considering EdD programs. And while it is a must read, the authors could have pushed their argument a bit more vocally as to why EdD programs must change, situating our current education reality in context, namely identifying how poorly we are underserving Black, Brown, Indigenous, and all minoritized students and families within PK-12. The authors could more directly assert that EdD programs today, who are educating current and future leaders, must augment and change their approaches so that their graduates are equipped to serve and lead in all communities. EdD learners and graduates must understand the systemic reasons our education system is flawed, have the skills to apply anti-racist research methods, and implement change efforts that create and sustain anti-racist education communities.

Additionally, the authors' arguments about what practitioners need, seems wise, and yet, there is presumption that most EdD students have full-time jobs, where they can apply and practice their improvement science work. This may or may not be true. Additionally, some EdD students with full or part-time positions, may face significant organizational pushback when attempting to address problems of practice that are entrenched within organizations, especially as they relate to race, class, or coming to terms with entrenched systemic behaviors. It is essential to support faculty and students through this adaptive work. A continued discussion of how to enact systemic, antiracist change as an actor and employee within the system is another important area for further discussion and would provide support for students, communities, and faculty.

Finally, the authors situate improvement science as distinct from qualitative and quantitative methods (p. 54, Table 3.2), rather than depicting improvement science as overarching. This could fuel the critique that improvement science may not be rigorous enough, as it is distinct from established methods, and it situates improvement science as outside of qualitative or quantitative methods. The incomplete visual within Table 3.2 provides potential fodder for critics and it obfuscates reality for those who understand the importance of improvement science in research, practice, and leadership. Improvement science is more of an approach, a cycle, a way of thinking, rather than a type of research or a singular methodology. This nuance is important to bridge conversations between scholars, academics, and EdD scholar practitioners.

Notwithstanding these few critiques, this book is an essential, easy to read text, for those teaching in EdD programs, leading EdD programs, and for students in these programs and considering them as part of their future. It is relevant for this moment in time in America, and globally, to ensure our PK-12 schools serve all of our kids, and our EdD programs set up the leaders who work in PK-12, higher education, non-profits, community organizations, and all of the spaces where we must collaborate to build the education present and future we needed centuries ago and need today.

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