

reported in the study? This puts your intellectual rigor on display. The very notion of intellectual rigor connotes that as important as it is to employ systematic analytical strategies and techniques, the effectiveness

and quality of those strategies and techniques depend on the quality of thinking that directs them. Which brings me to this chapter's rumination: Avoiding Research Rigor Mortis.

MQP Rumination # 9

Avoiding Research Rigor Mortis

I am indulging in one personal rumination per chapter. These are issues that have persistently engaged, sometimes annoyed, occasionally haunted, and often amused me over more than 40 years of research and evaluation practice. Here's where I state my case on the issue and make my peace.



**Look for a pattern in what follows.
See if you detect a theme.**

Rigor (definition). Unyielding or inflexible; the quality of being extremely thorough, exhaustive, or accurate; being strict in conduct, judgment, and decision (*Oxford Dictionary*); scrupulous or inflexible accuracy or adherence (*Random House Dictionary*)

Measurement rigor. The underlying psychometric properties of a measure and its ability to fully and meaningfully capture the relevant construct; the fact that data have been collected in essentially the same manner, across time, the program, and jurisdictions, adds methodological rigor; the reliability and validity of instruments (Weitzman & Silver, 2012)

Research design rigor. The true experiment (randomized controlled trials) as the optimal (gold standard) design for developing evidence-based practice (Ross, Barkaoui, & Scott, 2007)

Methodological rigor. Design elements that support strong causal attributions and analytical generalization (Chatterji, 2007; Coryn, Schröter, & Hanssen, 2009)

Evaluation research rigor. Evidence testing the extent to which valid and reliable measures of program outcomes can be directly and confidently attributed to a standardized, high-fidelity, consistently implemented program intervention; the most rigorous evaluation is the randomized controlled trial (Chatterji, 2007; Henry, 2009; Ross et al., 2007; Rossi et al., 2004); "methodological rigor can be assessed from the evaluation plan and the quality of the evaluation's implementation" (Braverman, 2013, p. 101)

Analytical rigor. "Meticulous adherence to standard process . . . ; scrupulous adherence to established standards for the conduct of work" (Zelik, Patterson, & Woods, 2007, p. 1)

Rigor mortis. Latin: *rigor* "stiffness," *mortis* "of death"—one of the recognizable signs of death, caused by chemical

changes in the muscles after death, causing the limbs of the corpse to become stiff and difficult to move or manipulate

Research rigor mortis. Rigid designs, rigidly implemented, then rigidly analyzed through standardized, rigidly prescribed operating procedures and judged hierarchically by standardized, rigid criteria, thereby manifesting *rigorism* at every stage

Rigorism. Extreme strictness; no course may be followed that is contrary to doctrine (*Random House Dictionary*)

Research rigorism. Technicism—reducing research to "the application of techniques or the following of rules" (Hammersley, 2008b, p. 31)

Did you find the pattern? Did you detect a theme?

Read on for the *countertheme*. (A countertheme is like a counterfactual: a theme that might be dominant, even should be dominant, in an alternate universe where the dominant theme is not so *dominant*.)

The Problem

"The Problem of Rigor in Qualitative Research"—that's the title of a classic article (Sandelowski, 1986) and a common refrain in textbooks about research methods. The "problem," it turns out, is that by traditional and dominant definitions of rigor, qualitative methods are inferior. But different criteria for what constitutes methodological quality lead to different judgments about rigor, the central point of this chapter as illustrated in Exhibit 9.2 (p. 666). "The 'problem of multiple standards' describes the inherent difficulties in selecting which, among many viable candidates, is *the standard* process to which performance should be compared" (Zelik, Patterson, & Woods, 2007, p. 2). Rigor begets credibility. Different criteria for what constitutes methodological quality and rigor will yield different judgments about credibility. That much is straightforward.

The larger problem, it seems to me, is the focus on methods and procedures as the basis for determining quality and rigor. The notion that methods are more or less rigorous decouples methods from context and the thinking process that determined what questions to ask, what methods to use,

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what analytical procedures to follow, and what inferences to draw from the findings. Avoiding *research rigor mortis* requires rigorous thinking.

Rigorous Thinking

No problem can withstand the assault of sustained thinking.

—Voltaire (1694–1778)
French philosopher

Rigorous thinking combines (a) critical thinking, (b) creative thinking, (c) evaluative thinking, (d) inferential thinking, and (e) practical thinking. *Critical thinking* demands questioning assumptions; acknowledging and dealing with preconceptions, predilections, and biases; diligently looking for negative and disconfirming cases that don't fit the dominant pattern; conscientiously examining rival explanations; relentlessly seeking diverse perspectives; and analyzing what and how you think, why you think that way, and the implications for your inquiry (Kahneman, 2011; Klein, 2011; Loseke, 2013).

Creative thinking invites putting the data together in new ways to see the interactions among separate findings more holistically; synthesizing diverse themes in a search for coherence and essence while simultaneously developing comfort with ambiguity and uncertainty in the messy, complex, and dynamic real world; distinguishing signal from noise while also learning from the noise; asking wicked questions that enter into the intersections and tensions between the search for coherent meaning and persistent uncertainties and ambiguities; bringing artistic, evocative, and visualization techniques to data analysis and presentations; and inviting outside-the-box, off-the-wall, and beyond-the-ken perspectives and interpretations.

Evaluative thinking forces clarity about the inquiry purpose, who it is for, with what intended uses, to be judged by what quality criteria; it involves being explicit about what criteria are being applied in framing inquiry questions, making design decisions, determining what constitutes *appropriate* methods, and selecting and following analytical processes and being aware of and articulating values, ethical considerations, contextual implications, strengths and weaknesses of the inquiry, and potential (or actual) misinterpretations, misuses, and misapplications. In contrast with the perspective of rigor as strict adherence to a standardized process, evaluative thinking emphasizes the importance of understanding the sufficiency of rigor relative to context and situational factors (Clarke, 2005; Patton, 2012a).

Inferential thinking involves examining the extent to which the evidence supports the conclusions reached. Inferential

thinking can be deductive, inductive, or abductive—and often draws on and creatively integrates all three analytical processes—but at the core, it is a fierce examination of and allegiance to where the evidence leads.

A rigorously conducted evaluation will be convincing as a presentation of evidence in support of an evaluation's conclusions and will presumably be more successful in withstanding scrutiny from critics. Rigor is multifaceted and relates to multiple dimensions of the evaluation. . . . The concept of rigor is understood and interpreted within the larger context of validity, which concerns the "soundness or trustworthiness of the inferences that are made from the results of the information gathering process" (Joint Committee on Standards for Educational Evaluation, 1994, p. 145). . . . There is relatively broad consensus that validity is a property of an inference, knowledge claim, or intended use, rather than a property either of a research or evaluation study from the study's findings. (Braverman, 2013, p. 101)

In reflecting on and writing about "what counts as credible evidence in applied research and evaluation practice," Sharon Rallis (2009), former president of the AEA and experienced qualitative researcher, emphasized rigorous reasoning: "I have come to see *a true scientist* [italics added], then, as one who puts forward her findings and the reasoning that led her to those findings for others to contest, modify, accept, or reject" (p. 171).

Practical thinking calls for assiduously integrating theory and practice, examining real-world implications of findings, inviting interpretations and applications from nonresearchers (e.g., community members, program staff, and participants) who can and will apply to the data what ordinary people refer to as "common sense"; and applying real-world criteria to interpreting the findings, criteria like understandability, meaningfulness, cost implications, and implications in addressing societal issues and problems.

What's at Stake?

My words fly up, my thoughts remain below:

Words without thoughts, never to heaven go.

—William Shakespeare (1564–1616)
The king in *Hamlet*

As I noted in Chapter 4, and is worth repeating here, philosopher Hannah Arendt (1968) concluded that to resist efforts by the powerful to deceive and control thinking, people need to practice thinking: "Experience

in thinking . . . can be won, like all experience in doing something, only through practice, through exercises" (p. 4).

Regardless of what one thinks of the U.S. invasion of Iraq to depose Saddam Hussein in 2003, both those who supported the war and those who opposed it ultimately agreed that the intelligence used to justify the invasion was deeply flawed and systematically distorted (U.S. Senate Select Committee on Intelligence, 2004). Under intense political pressure to show sufficient grounds for military action, those charged with analyzing and evaluating intelligence data began doing what is sometimes called cherry-picking or stove-piping—selecting and passing on only those data that support preconceived positions and ignoring or repressing all contrary evidence (Hersh, 2003; Tan, 2014; Zelik et al., 2007). The failure of the intelligence community to appropriately and accurately assess whether Iraq had weapons of mass destruction was not a function of poor data but of weak analysis, political manipulation of the analysis process, and a fundamental failure to think critically, creatively, evaluatively, and practically. The generation of the Rigor Attribute Model to support more rigorous intelligence analysis and restore credibility to the intelligence community focuses on *rigorous thinking* (Zelik et al., 2007; see Exhibit 9.5).

Despite the etymological implication that to be rigorous is to "be stiff," expert information analysis processes often are not rigid in their application of a standard process, but rather, flexible and adaptive to highly dynamic environments. In information analysis, judgment of rigor reflects a relationship in the appropriateness of fit between analytic processes and contextual requirements. Thus, as supported by this and other research, rigor is more meaningfully viewed as an assessment of degree of sufficiency, rather

than degree of adherence to an established analytic procedure. (Zelik, Patterson, & Woods, 2007, p. 1)

The phrase "degree of sufficiency" as a criterion for assessing rigor refers to an evaluation of the extent to which a multidimensional, multiperspectival, and critical thinking process was followed determinedly to yield conclusions that best fit the data, and therefore findings that are credible to and inspire confidence among those who must use the findings.

Bottom-Line Conclusion

Methods do not ensure rigor. A research design does not ensure rigor. Analytical techniques and procedures do not ensure rigor. Rigor resides in, depends on, and is manifest in *rigorous thinking*—about everything, including methods and analysis.

The thread that runs through this rumination is the importance of intellectual rigor. There are no simple formulas or clear-cut rules about how to do a credible, high-quality analysis. The task is to do one's best to make sense of things. A qualitative analyst returns to the data over and over again to see if the constructs, categories, interpretations, and explanations make sense—if they sufficiently reflect the nature of the phenomena studied. Creativity, intellectual rigor, perseverance, insight—these are the intangibles that go beyond the routine application of scientific procedures. It is worth quoting again Nobel prize-winning physicist Percy Bridgman: "There is no scientific method as such, but the vital feature of a scientist's procedure has been merely to do his utmost with his mind, *no holds barred*" (quoted in Waller, 2004, p. 106).

Varieties of and Concerns About Reactivity: How What We See and Do Affects What Is Seen and Done

Nasrudin denied that he was a fisherman. From a passing tourist he had heard of something called philanthropy and, feeling transformed by what he had learned, he instantly adopted the moniker for himself. He explained to his fellow villagers: "When we see a problem that needs solving, it is wrong to just stand by and observe as scholars are wont to do. We must react. It is wrong to remain passive and detached in the face of need and noble to render help."

"I am a philanthropist. Each day I strive to help fish that are drowning in the lake. I save them. I throw out

my net and the fish rush in. I quickly put the many fish I've rescued on the dry ground, where they dance about in joy. But the dancing soon exhausts them and before long they cease to move. Alas, they dance themselves to death."

"It is sad, but it is also wrong not to honor their struggle. So I take the dead fish to market where people contribute money to my effort to save more fish in exchange for my gifts to them of those fish who have lost the struggle. With the financial tokens of appreciation I receive for my charitable work, I purchase more nets so I can rescue more fish."

—From Halcolm's *Chronicles of Lessons Learned: Teach a Man to Fish*