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COMMENTARIES

Discussant Remarks on The Pillars of Measurement Wisdom

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Strive for an explanation that your mom would understand (provided that your mom is not a psychometrician, statistician, or mathematician)!

Thank you for the opportunity to comment on Professor Engelhard's (2022) paper, "The Pillars of Measurement Wisdom" (and to nudge me to read Professor Stigler's book, *The Seven Pillars of Statistical Wisdom*). How I wish that I had access to these resources early in my measurement training when I was first learning about these key concepts back in the 1980s! Many students come to the measurement field with minimal background in mathematics and statistics but with a sincere desire to learn about measurement so that they can design, administer, score, and report results from high-quality assessments in their own fields. I was one of those students. Over the years I came to realize that the ability to explain arcane statistical and mathematical concepts in accessible language is truly a gift—one that students like me deeply appreciated. It takes time, effort, and immense patience to craft such explanations, but it is essential if we are to learn to communicate effectively both within and outside our profession, as Professors Engelhard and Stigler have aptly shown us.

While a verse from the Old Testament (Proverbs 9:1—"Wisdom hath built her house, she hath hewn out her seven pillars") inspired Professor Stigler (2016) to identify seven pillars of statistical wisdom, I would argue that the house of modern measurement wisdom is, of necessity, supported by more than seven pillars. When I began reading the last chapter of Stigler's book, I was surprised to see him question whether, for the modern age, seven pillars were sufficient for communicating "the central intellectual core of statistical reasoning" (p. 3). In that chapter, he suggested that there might be a need for, at the very least, an additional eighth support pillar, given the advent of "high dimensional data" and "ever larger data sets" that may be challenging for "well-structured parametric models" to analyze (p. 199). It seems prudent to ask, then, do the pillars that Professor Engelhard has identified

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provide a sufficient foundation for supporting the house of modern measurement wisdom, or are more pillars needed?

The first seven pillars that Professor Engelhard discussed are all key concepts for the measurement field, but rather than defining power as an eighth supporting pillar with validity as "the umbrella term that encompasses other types of evidence including reliability and fairness" as he is suggesting, I would argue that validity, reliability, and fairness deserve to stand on their own as separate pillars. What initially drew me to the measurement field was a deep-rooted concern about the fairness of some assessments employed in the arts and humanities. For me, fairness has always been, and will always be, a key foundational pillar of measurement. I suspect that there are others who were drawn to the formal study of measurement out of concerns about the fairness of some of the assessments employed in their fields, as well.

The authors of the *Standards for Educational and Psychological Testing* (American Educational Research Association [AERA] et al., 2014) refer to validity, reliability, and fairness as the three "foundations" of measurement and specify a set of standards related to each, noting that these function not just as the foundations of *educational* measurement, but also as the foundations of measurement carried out in other contexts including psychological testing, employment testing, and credentialing. The *Standards* are of paramount importance to the measurement field and have been for many years, with the first document designed to guide the creation and use of psychological tests published in 1954 by the American Psychological Association, followed by a set of technical recommendations for achievement testing published in 1955 by the National Education Association. The first edition of the more formalized document, *Standards for Educational and Psychological Testing*, came out in 1966, with succeeding editions appearing in 1974, 1985, 1999, and 2014, and a new sixth edition is now in progress. The *Standards* have been "repeatedly recognized by regulatory authorities and courts as setting forth the generally accepted professional standards that developers and users of tests and other selection procedures follow" (AERA et al., 2014, p. 2). Therefore, given how influential the *Standards* are both in the U.S. and abroad, it seems quite reasonable, I would argue, to consider validity, reliability, and fairness separately as additional pillars supporting the house of modern measurement wisdom and to describe in some detail the unique contributions that Rasch measurement theory makes to our understanding of each of these pillars.

I applaud Professor Engelhard's efforts to begin to lay out the foundational pillars of modern measurement wisdom through the lens of Rasch measurement theory and look forward to a continuing dialogue on this intriguing topic.

References

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