Foundational Issues of Assessment in the Service of Learning

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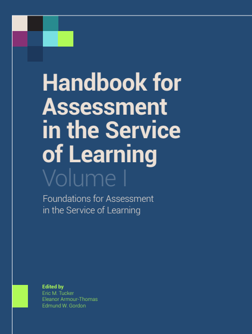

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Foundational Issues of Assessment in the Service of Learning

Eric M. Tucker and Eleanor Armour-Thomas

In his introduction to this Handbook for Assessment in the Service of Learning series, Professor Edmund W. Gordon challenges us to reimagine educational assessment as a pedagogical act rather than a mere measurement exercise (Gordon, 2025). Traditional testing—long focused on ranking students and certifying "what is"—must give way to new approaches that illuminate how learning and development happen and how those processes can be improved (Armour-Thomas & Gordon, 2025; Armour-Thomas, 2025; Gordon, 2020, 2025; Gordon Commission on the Future of Assessment in Education, 2013). Volume I outlines design principles and technologies for assessment systems that both measure and foster learning, attentive to learner identities and contexts (Gordon, 2025).

Why Foundations, Why Now?

Volume I, *Foundations for Assessment in the Service of Learning*, makes the case for rethinking assessment design. First, assessment should generate insights on what matters most rather than merely what is easy to measure. This means broadening the constructs we assess to include the complex cognitive, affective, and behavioral skills needed for success in the 21st-century (Huff, 2025; National Research Council, 2001). Second, to assess these outcomes and processes, we need new design approaches that leverage learning sciences and frontier technologies. The affordances of emerging technology—from interactive simulations to generative artificial intelligence and data analytics—allow us to create assessments that provide more authentic tasks and timely feedback, blurring assessment and instruction (Foster & Piacentini, 2025). Third, innovation in assessment in the service of learning must center on the "value proposition"; the usefulness and usability of insights and interpretation generated for learners, educators, and families (Pellegrino, 2025). We must ensure that new assessments yield valid, trustworthy evidence of student learning and do so fairly across a wide range of learners. We must expand *what* we assess (in terms of affective, behavioral, and cognitive skills), *how* we generate evidence, while also upholding quality with regard to *how well* assessment provides value through high-quality insights for learners and educators (Haertel, 2013; Messick, 1989; Moss, Girard, & Haniford, 2006). Educators and policymakers recognize that assessment *for* and *as* learning must complement assessment *of* learning; the paradigm of one-size-fits-all testing is simply inadequate for guiding improvement or promoting deeper understanding.

Contributors to Volume I recognize that assessment has historically been a double-edged sword: while it can empower learners and improve teaching, it also has been used to sort, gatekeep, or harm marginalized students (Gordon, 1996; Penuel & Watkins, 2019). Centering the needs and assets of students who have been least well served by traditional tests. A learner-centered approach also calls for involving the primary *users* of assessment in their development: teachers, learners, and families should help decide what is assessed and how results are used, so that assessment becomes collaborative and democratic (Chatterji, 2025). Baker and colleagues identify core principles to inform the building of assessments in the service of learning—including clarity of purpose, transparency, equity, amplifying learning, and quality assurance—so that assessment, in any subject, is deliberately crafted to support learning for every student (Baker, Everson, Tucker, & Gordon, 2025). In sum, Volume I is built on three foundational issues about assessment in the service of learning; (1) Design principles and frameworks for assessment in the service of learning; (2) Theoretical and empirical ideas regarding how people learn and what it means for assessment; and (3) Technological innovations reshaping educational assessment.

Section I–Design Principles and Frameworks for Assessment as Learning

Section I introduces foundational design principles and frameworks for reimagining assessment as an integral part of teaching and learning, and addresses how assessment systems can be designed to effectively support learner variation and improve learning. Additionally, the chapters call for transformative changes at the system level, advocating responsive, relevant, human-centered designs (Badrinarayan, 2025; Lovelace, Murray, & Hamilton, 2025). It emphasizes the need to leverage emerging technologies, maintain principled design methodologies, and align approaches for scalable innovation (Hattie, Sireci, & Baker, 2025).

Section II–Research Foundations: How People Learn and What It Means for Assessment

Section II establishes a research-driven foundation for transforming assessment, anchored in contemporary understandings of how people learn and develop across contexts (Lerner & Cantor, 2025; Pea, Lee, Nasir, & McKinney DeRoyston, 2025). It underscores the need for assessments aligned with the complex, situated nature of learning. A primary theme is aligning assessment practices with the complexity of human learning, recognizing that learners develop through interactions with families, communities, and schools. Effective assessment must capture this dynamic interplay, reflecting not only learners' immediate knowledge but also the conditions and supports influencing their ongoing development (Armour-Thomas, Darvin, & Hughes, 2025). Section II underscores the need for culturally responsive assessments, proposing tasks and methods to honor learners' cultural assets and ways of knowing while maintaining rigor (Badrinarayan, Bennett, & Darling-Hammond, 2025).

Section III–Emerging Innovations and New Possibilities

Section III explores emerging innovations and technologies, particularly artificial intelligence (AI) and advancing digital and data tool affordances, to reshape educational assessment. This section emphasizes how these technologies might enable a deeper, more nuanced understanding of student learning through simulations, adaptive tasks, and rich learner data. This section examines essential challenges posed by these advancements, including ensuring validity, reliability, fairness, and ethical integrity of AI-enabled assessment practices (Ercikan, 2025; Burstein, LaFlair, Yancey, von Davier, & Dotan, 2025). The chapters underscore that meaningful integration of innovation requires thoughtful alignment of technological capabilities with a steadfast ethical commitment, ensuring assessment remains human-centered, equitable, and supportive of deeper learning.

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