Harnessing Emerging Technologies: Innovation *To Assess, To Teach, To Learn*

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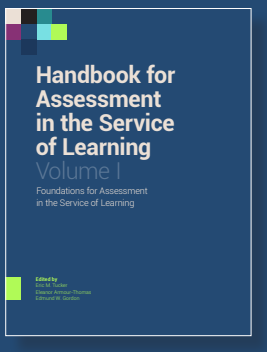

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Recent advances in artificial intelligence (AI) and other technologies are transforming educational assessment—creating opportunities and risks (Ercikan, 2025). Product developers increasingly leverage AI to create interactive tasks and deliver real-time feedback at scale (Ercikan, 2025; Foster & Piacentini, 2025), while generative AI supports content development and automated scoring (Burstein, LaFlair, Yancey, von Davier, & Dotan, 2025). These technologies can make assessment more adaptive, accessible, and formative (Pellegrino, 2025). Yet these innovations also raise questions about whether AI will merely boost efficiency or truly catalyze assessment approaches that serve and enhance learning, consistent with Gordon's (2025) vision. Developers increasingly have rich learner data and methods to detect meaningful patterns (Ercikan, 2025). The challenge is to ensure innovation is guided by values and evidence to advance a learner-centered system (Pellegrino, 2014).

Efficacy, Validity, and Fairness Considerations in AI-Driven Assessments

Ercikan (2025) examines how the integration of AI in educational assessment and measurement offers potential advantages while also raising questions about efficacy, validity, and fairness. She shows how recent advances enable new forms of assessment, from capturing complex competencies to adaptive testing and automated content and scoring. Ercikan concludes by offering guiding questions for researchers and practitioners to critically examine AI's impacts on assessment quality, underscoring that innovation must be paired with careful validation.

Responsible AI for Test Equity and Quality: The Duolingo English Test as a Case Study

Burstein, LaFlair, Yancey, von Davier, & Dotan (2025) argue that specifying and adopting Responsible AI practices is crucial to upholding test quality and test equity in AI-driven assessments (AERA, APA, & NCME, 2014). As a case study, the authors present the Duolingo English Test—an AI-powered, high-stakes language proficiency exam—to illustrate how Responsible AI principles can be translated into practice (ITC & ATP, 2025).

It's Time for a Paradigm Shift in Educational Measurement

Cantor and Felsen (2025) argue that prevailing assessment models rest on flawed assumptions inconsistent with the learning sciences. Developmental science reveals brains remain plastic throughout life, context and experience (via epigenetics) shape learning outcomes, human ability is variable yet widely expandable, and talent is widespread if nurtured under the right conditions (Bransford, Brown, & Cocking, 2000). They advocate realigning measurement with the complex, context-dependent nature of human learning development, they argue, education can better support each student's success.

Toward Personalized, Educative, and Human-Centered Assessment

Taken together, these chapters show how integrating emerging technologies into assessment is part of a larger transformation in how we understand and foster learning (Pellegrino, 2014). Assessment can be made more effective, personalized, and educative—if we intentionally design and deploy AI in alignment with fairness, validity, and human development. These chapters entice our field to prepare us to navigate the opportunities and responsibilities that AI brings to education, so that assessment becomes, in Gordon's words, a means for educating, not just evaluating. The authors invite us to envision a future in which emerging technologies are harnessed through principled innovation to advance practices that are human-centered, just, and cultivate human potential (Gordon, 2020).

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