219

Assessment Design and Educational Gain: Understanding the Role of Assessment Formats in Shaping Attainment Gaps

Fabio Arico[1], Laura Harvey[2], Ritchie Woodard[1]

[1]University of East Anglia, Norwich, United Kingdom. [2]Loughborough University, Loughborough, United Kingdom

Research Domains

Learning, teaching and assessment (LTA)

Abstract

Assessment in UK higher education is undergoing rapid change, driven by digital innovation, academic integrity concerns linked to generative AI, and growing commitments to equality, diversity, and inclusion. Within this context, the Teaching Excellence Framework (TEF) encourages providers to define *Educational Gain* as a marker of quality. This paper examines whether specific assessment formats contribute to narrowing attainment gaps for disadvantaged and non-traditional students. Drawing on a case study from a mid-sized UK university, we define *Learning Gain* as the improvement in average marks between Year 1 and Year 3, and *Educational Gain* as the narrowing of Learning Gain disparities across key demographic groups. Our findings show that assessment diversity is linked to greater gains for mature students, while traditional timed exams disadvantage students with mental health-related disabilities. We propose a scalable, data-informed framework to align assessment design and variety with inclusive educational outcomes.

Full paper

Introduction
This paper explores the relationship between assessment design and student attainment in higher education, with a specific focus on whether assessment formats contribute to narrowing attainment gaps among students from disadvantaged and non-traditional backgrounds. Building on our previous work defining *Educational Gain* as the narrowing of attainment gaps across the student lifecycle (Aricò, Harvey & Woodard, 2024), we examine how forms of assessment may reinforce or mitigate structural inequalities in academic outcomes. Our aim is to contribute an evidence-informed framework for measuring Educational Gain that accounts for pedagogical design.

Assessment practices in UK higher education are undergoing significant transformation, shaped by competing pressures: the pedagogical innovation triggered by the Covid-19

pandemic (Watermeyer et al., 2021), the emergence of Generative Artificial Intelligence (AI) tools (Jisc, 2023; QAA, 2023), and intensified institutional commitments to equality, diversity, and inclusion (Hanesworth et al., 2019). The rapid shift to digital and technology-enhanced assessments during the pandemic enabled more inclusive and flexible practices. However, growing concerns over academic integrity, particularly plagiarism and collusion linked to generative AI, have led many institutions to revert to traditional closed-book, in-person examinations as a protective measure (Hatzipanagos et al., 2024; Tan et al., 2024).

These conflicting trends raise important questions for both pedagogy and policy. While varied assessment design has been associated with improved student engagement and deeper learning (Boud & Falchikov, 2007; Sambell, Brown & Race, 2012), its impact on attainment gaps remains underexplored. In this paper, we investigate this issue from a policy perspective, reframing attainment gaps through the concept of *Educational Gain*, one of the metrics comprising the Teaching Excellence Framework (TEF) for higher education providers in England (Office for Students, 2023). Our research addresses two questions: What is the relationship between assessment design, student attainment, and attainment gaps? How can this relationship inform a framework to measure Educational Gain?

Methodology
To address our research questions, we conduct a case study at a mid-sized university in England, utilising institutional administrative data, encompassing approximately 13,000 full-time undergraduate students across seven cohorts graduating from 2017 to 2023. We define *Learning Gain* as the difference in stage-average marks attained by each student between Year 1 and Year 3 of undergraduate study. This metric captures individual academic progression and provides a baseline for analysing group-level attainment disparities.

Building on the methodology developed in Aricò, Harvey and Woodard (2024), we define *Educational Gain* as the narrowing of Learning Gain disparities between students from structurally disadvantaged groups, such as those defined by income, ethnicity, disability status, or mature learner status, and their peers. For each student, we construct a profile of assessment formats encountered during their degree programme. These include essay-based assignments, oral assessments, closed-book exams, open-book exams, project-based tasks, and performance-based assessments. Our dataset includes extensive socio-demographic and academic variables, allowing us to control for prior attainment, gender, subject area, foundation year enrolment, bursary receipt, entry qualifications, and other relevant factors. Using multivariate regression models and subgroup analysis, we evaluate how exposure to different assessment formats correlates with Learning Gain and influences Educational Gain across EDI dimensions.

Findings and Conclusions
 Our findings indicate that students exposed to a broader range of assessment formats tend to achieve greater Learning Gains, particularly in Year 1, suggesting that assessment diversity can serve as a lever for equity. This effect is strongest among mature students.

However, the benefit of assessment variety diminishes in later stages of study and does not extend to all groups. Students with learning or mental health disabilities experience significant disadvantages when assessed through traditional timed exams. Conversely, closed- and open-book exams are associated with increased performance among female students, pointing to gendered responses to assessment stress and familiarity.

These results highlight the complex and uneven impact of assessment design. While some formats may enhance fairness and engagement, they may also reinforce disparities unless thoughtfully integrated with inclusive pedagogies and support systems. By linking Educational Gain to assessment strategy, we offer a scalable, data-driven model for institutions seeking to align their practices with TEF and EDI objectives.

We conclude with a critical reflection on the policy implications of our findings. As TEF 2023 signals a shift toward flexible, institutionally defined indicators of quality (Fung, 2024), there is a pressing need for robust, evidence-based frameworks. Our approach contributes to this agenda by offering practical insights into how assessment design can support inclusive excellence, while also highlighting the need for targeted interventions and further research on student-facing impacts.