

## Educational Gain Through Inclusion: The Role of Demographic Representation in Student Outcomes

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### Research Domains

Student Access and Experience (SAE)

### Abstract

This paper examines how demographic representation within academic cohorts influences educational attainment in higher education through peer effects. Using administrative data from approximately 13,000 undergraduate students at a mid-sized English university (2017–2023), we assess whether the proportion of students sharing a demographic background—across gender, ethnicity, disability, and socio-economic status—affects individual academic performance. We operationalise *Learning Gain* as the change in average marks from Year 1 to Year 3 and *Educational Gain* as the narrowing of attainment gaps across equality, diversity, and inclusion (EDI) dimensions. Findings reveal significant positive peer effects for Asian and disabled students, while female students, despite outperforming peers overall, exhibit lower Learning Gains in cohorts with higher female representation—supporting theories of peer normalisation or status flattening. These results highlight the context-dependence of social identity salience and suggest that representation should be considered in course planning and recruitment to enhance equity in student outcomes.

### Full paper

### Introduction

This paper examines the extent to which demographic representation within academic cohorts influences educational outcomes through peer effects in higher education. In addressing this issue, we focus on dimensions of equality, diversity, and inclusion (EDI) to explore strategies that may enhance the academic attainment of students from disadvantaged and underrepresented backgrounds.

Previous research on the role of demographic representation and peer influence in higher education highlights significant effects on student attainment. Studies show that peer

diversity can shape academic outcomes and course selection (Chevalier et al., 2020); that initial class composition affects both grades and major choice (Griffith & Main, 2019); and that gender differences mediate the strength of peer effects (Han & Li, 2009). While peer effects are consistently found to be meaningful, the specific mechanisms through which they operate remain context-dependent and are still being explored (Sacerdote, 2011).

Our contribution aims to inform higher education policy by supporting the operationalisation of Educational Gain, a metric that institutions can define in alignment with their mission and values, as outlined in the Teaching Excellence Framework (TEF) guidelines in England (Office for Students, 2023). We define Educational Gain as the reduction of attainment gaps across key EDI dimensions—gender, ethnicity, disability, and socio-economic background—and investigate whether the representation of one's own demographic group in a course cohort influences academic performance. This study is guided by two research questions: (1) Does demographic representation within academic cohorts affect individual academic attainment? and (2) To what extent can this effect inform institutional efforts to deliver Educational Gain?

## **Methodology**

We conducted a longitudinal case study at a mid-sized English university, analysing administrative records for approximately 13,000 full-time undergraduate students who graduated between 2017 and 2023. The dataset spans multiple subject areas, enabling cross-disciplinary comparisons. We define Learning Gain as the difference in a student's average stage marks between Year 3 and Year 1, providing a measure of academic progress across the degree programme.

To operationalise Educational Gain, we assess changes in Learning Gain gaps across EDI categories and analyse how these correlate with cohort-level representation. Specifically, we test whether students achieve higher gains when a greater proportion of their demographic group is present in their programme cohort. Representation is captured by the share of students within a given course-cohort who belong to the same demographic category as the focal student.

The dataset includes detailed socio-demographic variables—gender, ethnicity, disability status, mature student status, and Index of Multiple Deprivation (IMD) quintiles—alongside academic variables such as subject, foundation year enrolment, and prior attainment. We employ multivariate regression models with interactions to estimate the effects of representation on Learning Gain, controlling for potential confounders.

## **Findings and Conclusions**

Our analysis finds evidence of representation-based peer effects, although the nature and strength of these effects vary across demographic groups. For Asian students, higher ethnic representation within cohorts is associated with significantly greater Learning Gains, suggesting that peer diversity can enhance a sense of belonging and academic identity.

Similarly, students with declared disabilities benefit from greater disability representation, with statistically significant improvements in academic performance.

In contrast, the gender attainment gap shows a divergent pattern. Female students generally outperform their male peers. However, greater female representation in cohorts is associated with lower Learning Gains among female students, suggesting that increased representation may reduce, rather than amplify, relative performance—consistent with the theory of peer normalisation or status flattening (Berger et al., 1972). For other EDI categories, including Black and low-income students, representation effects on Learning Gain were not statistically significant.

Given the TEF 2023's encouragement of institutionally defined and context-sensitive quality indicators (Fung, 2023), our findings support the integration of peer representation into frameworks for monitoring Educational Gain. Institutions committed to addressing systemic attainment disparities should consider demographic representation in course design and student recruitment. Further research is needed to examine the mediating mechanisms—such as role modelling, collaborative learning, and identity safety—that underpin these representation effects.