

Strategies for making geoscience PhD recruitment more equitable

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Summary

Doctoral study is a crucial part of the academic pipeline, but discriminatory admissions procedures disproportionately impact students from ethnic minority backgrounds. We examine how doctoral recruitment policies contribute to inequity in the geosciences and propose improvements for change.

Introduction

Geoscience is one of the least diverse science disciplines in the Global North in terms of ethnic minority representation¹⁻³. Efforts to improve access and participation have been expanding in recent years - with funding bodies recognizing the need to invest in this work⁴ – but representation at senior levels within academia and industry remains poor⁵. This lack of diversity contributes to inequity and hostile environments within the discipline, impacting the effectiveness of research teams and their partnerships with the communities they serve⁶.

A key barrier to progress is the disproportionately low number of students from ethnic minority backgrounds transitioning to postgraduate (PG) research^{6,7}. Efforts to address this disparity must account for its causes, which involve a complex interplay of structural and cultural factors⁹⁻¹¹.

While ongoing, long-term, and properly funded structural change is needed across the academic life cycle, one immediately easily leveraged area is reform of graduate recruitment and admissions processes. Admission to doctoral programs is highly competitive, and recruitment procedures can introduce bias and structural inequity. These issues are typically hidden, because the students most impacted are poorly represented in postgraduate research cohorts and often do not continue in academia⁸.

The Equator project¹² set out to improve equity in postgraduate research within the geosciences. This included a mentoring program (ten participants and twenty mentors), a research school¹³ (thirty participants), and a doctoral training working group focussed on analysing and improving admissions practices (involving seven UK doctoral training organisations).

The working group involved formulating a series of transferrable recommendations that aimed to improve ethnic minority representation in postgraduate geoscience research - with a specific focus on doctoral recruitment. Recommendations were based on existing best practice and stakeholder workshopping (under Chatham House rules), as well as the (limited) literature available on the topic.

Recommendations

Our recommendations, outlined below, are divided into three themes: student-facing, evaluative, and procedural. Fig. 1 provides a graphical representation of identified barriers, suggested interventions, and intended outcomes. The full Equator report¹³ includes a comprehensive discussion of possible performance indicators and suggested timeframes.

Student-Facing Improvements

1. **Advertising:** qualitative/anecdotal evidence from demographic networks (e.g. Black in Geoscience) and the Equator research school participants indicate that one of the main barriers to diversification of PG cohorts is a lack of visibility amongst the relevant communities, leading to a lack of applications. Whilst increased 'traditional' means of advertising such as online PhD databases and mailing lists are clearly part of the solution, expanded use of demographic networks is likely to be more effective. This could be combined with the development and use of specific resources designed to engage students from minoritised backgrounds earlier in the process.

2. **Resources:** any resources that are developed to encourage applications should specifically address the concerns raised by applicants, rather than just generally promoting the geosciences or PhD study. This may include expanding upon the financial support available, potential application fee waivers, and offering information about stable career paths post-PhD. Paying current students and undergraduates from minority backgrounds to check and guide this content could ensure it is engaging, effective, and accessible.

3. **Pre-application ring-fenced support:** students from minority ethnic backgrounds often report a lack of confidence or familiarity with research careers, leading to reduced probability of applying to doctoral study. Pre-application support, including workshops, online Q&A sessions, office hours, networking events and mentoring may address concerns in a less intimidating environment than an open day. The Equator Mentoring Network and Research School demonstrated that this can lead to an improved sense of belonging in participants; with one reporting, "I didn't have any confidence.. mainly because I am from a minority group and never in my university career met someone doing a PhD who was just like me. This research school gave me so much confidence that I am worth it and can have a career in GEES [Geography, Environmental, and Earth Sciences] research".

4. **Expanded use of paid research placements:** the Natural Environment Research Council (NERC) funds several dozen paid placements each year, and identifies them as key routes to recruitment. Some doctoral organisations already use these to diversify their incoming cohorts by encouraging students to undertake placements in departments other than their own. Work undertaken in the United States suggests that expansion of schemes such as this would serve to increase knowledge of doctoral research amongst minoritised applicants, whilst also helping to develop transferable skills¹⁵. Schemes such as the University of Oxford's UNIQ+ program, which combines research internships with application skills workshops, are another option to be explored¹⁶.

5. **Standardised expressions of interest:** writing initial expressions of interest to potential supervisors can be a daunting prospect. Standardised expression of interest forms are likely to give candidates a clearer idea of what information they should convey, and how. This may be extended to the use of standardised CV templates (e.g. currently offered by the Oxford NERC Doctoral Training Partnership); or clearer guidelines for referees and formats for reference letters to make them more easily cross-comparable, without requiring candidates to be ranked within their cohorts.

Evaluation Reform

1. **The 'known' factor:** the complexities of PhD recruitment and selection are such that an initial relationship with a potential supervisor can be advantageous to applicants¹⁷, although research on how these conscious (and indeed unconscious) biases manifest is

limited¹⁸. To improve equity, recruitment committees may wish to reduce the emphasis on supervisor nominations when longlisting or require declarations of potential conflicts of interest; or allow supervisors to nominate an additional candidate from a minority background.

2. Reforming our definition of ‘excellence’: traditional assessment criteria for ‘excellence’ are often rigid and fail to account for structural inequalities, such as awarding gaps between white and non-white students at undergraduate level¹⁹ and reduced admission of ethnic minority students to ‘high-tariff’ universities²⁰ or competitive masters’ programs²¹. These criteria thus discriminate against students from minority backgrounds and should be replaced by more holistic tools judging potential rather than simply access to opportunity. Such an evaluation scheme could include downweighting grade point averages or number of prizes won and upweighting evidence of untapped potential in interviews, reference letters, and personal statements.

3. More holistic interview questions: following approaches of organisations like the UK’s Civil Service, a narrative approach to interview questions that prompts candidates to present the transferable skills and qualities they feel make them suitable for research positions is likely to improve diversity by alleviating biases in evaluation. Interviews might include a mix of seen and unseen questions. These interviews should also be scored using standardised frameworks, which ideally would be uniform across an institution or funding body.

Procedural Change

1. Demographic data collection: at present, information collected at the point of application is not standardised between different doctoral programs. Whilst a set of legal ‘minimums’ for personal data collection exists for publicly funded bodies in the UK, this excludes a number of significant factors (e.g. undergraduate institution). Funder-mandated frameworks for collection of such data would enable interventions to be more easily designed, evaluated, and shared.

2. Equitable use of contextual data: At an undergraduate level, frameworks for the use of contextual information exist in the UK and are shown to improve diversity²². The legal basis for the equivalent at PG level remains to be developed, but will be crucial to sustained widening participation activities.

3. Ring-fenced offers and opportunities: Guaranteed interviews may be offered to candidates from minority backgrounds who meet minimum requirements. Doctoral training programs should consider use of ‘conditional offers’ that acknowledge awarding gaps, where candidates with lower academic scores but high potential are offered places dependent on the completion of paid pre-sessional training or masters’ degrees. Improvements in this area are emerging; the Leverhulme Trust is now offering ring-fenced combined masters/PhD funding to increase access for under-represented students²³, alongside other programs in the UK offering ring-fenced PhD studentships²⁴.

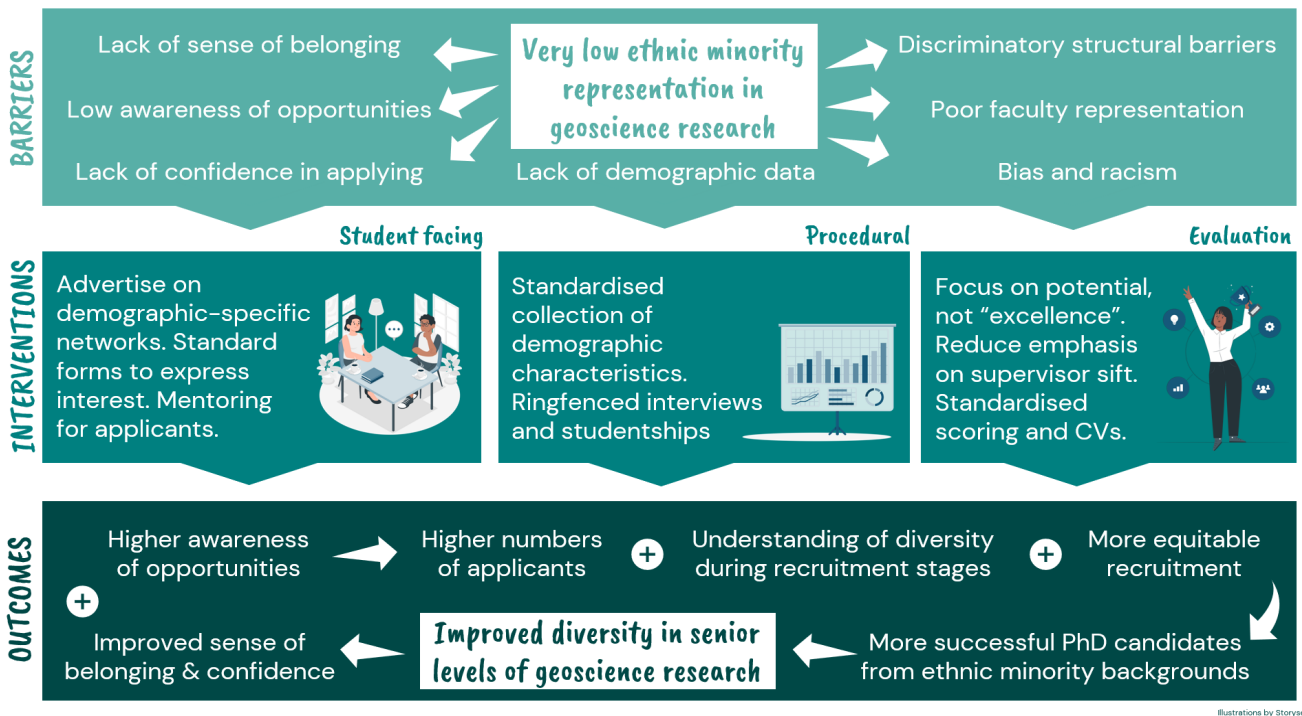


Fig. 1: our identified barriers to increased representation of ethnic minority individuals in postgraduate geoscience, our suggested interventions (grouped into three themes: student-facing, procedural, and evaluative), and cycle of intended outcomes.

Looking forward

These recommendations are designed as a potential framework within which efforts to improve the diversity of postgraduate researchers in geosciences can be formulated. While the response to this work has been positive thus far, meaningful and successful implementation is likely to require sustained and critical self-reflection, and investment of both time and finance, from doctoral organisations, funders and academic institutions.

Our list is not exhaustive. Future work should consider cohort-based, multi-year investigations that can evaluate the effectiveness of different interventions in admissions practices, and make a greater consideration of intersectionality. Tailored support, to ensure representation and retention of PhD students throughout geosciences programs, will be equally vital to making the community more equitable, diverse, and inclusive.

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