

## Peer Review Report

# Review Report on Towards more fluid inclusion: making geoscience undergraduate degrees a place of belonging for all

Original Research, Earth Sci. Syst. Soc.

Reviewer: Erika Marin-Spiotta

Submitted on: 26 Jun 2024

Article DOI: 10.3389/esss.2024.10115

### EVALUATION

#### **Q 1** Please summarize the main findings of the study.

This study presents reported barriers to feeling a sense of belonging by undergraduate students from underrepresented groups in UK geography and geoscience programs and student recommendations for overcoming some of these barriers and improving current degree programs.

#### **Q 2** Please highlight the limitations and strengths.

One of the strengths of the study is that it provides a vehicle for undergraduate student experiences and recommendations to reach the broader community. The authors, which include undergraduate students who also served as facilitators for the workshops with students, share direct recommendations from students with relevant lived experiences and contextualize them in the literature. The manuscript is very well written, with careful language and critical analysis of assumptions in the literature. The authors present a thoughtful discussion of concepts around student belonging and politics and power dynamics of belonging. The study used a broad definition of underrepresented in the geosciences, geography and earth science, including based on racial and ethnic identity, LGBTQIA+, disability, first generation, low-income status, and other typically less common categories, such as in care or caretakers, nontraditional and international students. This approach allows for the capture of the role of intersectionality. One drawback of presenting the findings for such a broad group is that it hides intergroup differences, which can shape individual experiences and interactions.

Overall, the use of theoretical frameworks to contextualize the study and findings was effective. The language of diaspora and indigene space was less useful for thinking about the experiences of underrepresented students, and especially such a broad range of identities, and was more difficult to reconcile with recognition of Indigeneity and settler colonialism. This framework distracted from the rest of the more useful theoretical presentation.

#### **Q 3** Please comment on the methods, results and data interpretation. If there are any objective errors, or if the conclusions are not supported, you should detail your concerns.

The methods section could provide more information on what and who compose GAIA, as the organization or program leading the workshops described in the manuscript. What is their relation to the students- are they from the same institutions? in addition to the two student co-facilitators, what were the power dynamics between the facilitation and research team and the student participants?

In addition, more details on what type of data was collected from the participants and how (focus groups? interviews? surveys?) and how the data was analyzed would be helpful to provide context for how the results were selected. In particular, the types of questions asked of the participants to elicit responses about feelings of belonging would be useful.

The manuscript results are organized around themes but there is no discussion in the methods on how the themes were identified over others? Was any systemic approach for thematic analysis conducted?

Are there any ethical considerations to listing the names of the student participants, especially given that they may represent a vulnerable group, given their status as undergraduates and their identities as underrepresented? In addition to having undergraduate students act as co-facilitators, how were power dynamics in the workshops attended to, as well as on the research team?

---

**Q 4** Check List

Is the English language of sufficient quality?

Yes.

Is the quality of the figures and tables satisfactory?

Yes.

Does the reference list cover the relevant literature adequately and in an unbiased manner?

Yes.

Are the statistical methods valid and correctly applied? (e.g. sample size, choice of test)

Not Applicable.

If relevant, are the methods sufficiently documented to allow replication studies?

No answer given.

Are the data underlying the study available in either the article, supplement, or deposited in a repository? (Sequence/expression data, protein/molecule characterizations, annotations, and taxonomy data are required to be deposited in public repositories prior to publication)

No.

Does the study adhere to ethical standards including ethics committee approval and consent procedure?

No answer given.

If relevant, have standard biosecurity and institutional safety procedures been adhered to?

No answer given.

---

**Q 5** Please provide your detailed review report to the editor and authors (including any comments on the Q4 Check List):

(l. 186–189) “Students were influenced in their subject choice by expectations of interest or enjoyment, and by their perception of the usefulness of the subject for careers or further study. While parents were the main source of advice on subject choice for A level students, this was not the most useful advice according to these students” -- It is unclear where this data comes from.

For an international audience, please spell out years as 2015–16, 2021–22, rather than 15/16, 21/22

These lines are redundant:

l. 250–251: “In addition, our team included two co-facilitators who themselves were current or recent geoscience undergraduates from under-represented groups”  
and

l. 261–263: “Each workshop had a co-facilitator who was a current or recent geoscience undergraduate from an under-represented group”

I. 278–285: The first paragraph of the results section briefly describes data collection and would be more appropriate in the Methods section.

I. 302: In the results section, in the lack of representation, how did participants address lack of representation of invisible identities?

I. 595: The discussion on fieldwork as a means for fostering belonging could include references on how to address safety risks associated with identity-based discrimination and harassment (e.g., racism, ableism, homophobia, transphobia, sexism). See Anadu et al. 2020, Pickrell 2020).

#### QUALITY ASSESSMENT

<b>Q 6</b>	Originality	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<b>Q 7</b>	Rigor	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Q 8</b>	Significance to the field	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<b>Q 9</b>	Interest to a general audience	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<b>Q 10</b>	Quality of the writing	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<b>Q 11</b>	Overall quality of the study	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>