# Submissions Abstract Book - All Papers (Included Submissions)

**0283**

Undergraduate Research and Equality of Opportunity: Obstacles To Success in Research Projects

Jonathan Parker[1]

[1]*Keele University, Keele, United Kingdom*

**Research Domain:** Learning, teaching and assessment (LTA)

**Abstract:** This paper assesses obstacles faced by students undertaking final-year undergraduate research projects, particularly for historically disadvantaged groups. Undergraduate research projects are usually compulsory, double-weighted modules that significantly influence final degree outcomes. Understanding different disciplinary approaches to these projects and how students perceive the biggest obstacles to success can guide interventions to address achievement gaps among students.

Key staff and a sample of students from six programmes across the Natural Sciences, Humanities and Social Sciences were interviewed to investigate three questions. First, what are the challenges for completing a research project from the students' perspective. Second, do these obstacles have particular impacts for underrepresented groups? Finally, how do different disciplinary cultures and structures affect how students are able to complete their projects.

The results suggest that students face more general problems with preparation for undertaking these projects as well as inconsistencies in the amount of supervision by instructors.

**Paper:** This paper analyses obstacles to student achievement in undergraduate research projects. Undergraduate research comprises 25% of most students' final-year credits, on average, and has a large impact on degree outcomes. Identifying where and how students struggle will help guide potential interventions to improve outcomes. Identifying how each programme develops and prepares students for research may reveal strengths or gaps in how students are taught and supported and whether there are issues related to specific disciplines.

At University level, there is a significant variation in student attainment with 'good degrees' across different groups (Singh 2011). At the university where the study took place, BME students were less likely to achieve a 'good degree' than their white counterparts, with an average 16% gap, which is comprised of an average 21% gap in the humanities and social sciences and an average 12% gap in the natural sciences (Hulme et al. 2017).

Undergraduate research is described as a 'high impact' practice that particularly benefits student engagement and leads to higher levels of achievement (Kuh, 2008; Laursen et al., 2010; Lopatto, 2009). Not only do scholars largely agree that this pedagogical approach achieves good outcomes, but there is also evidence that it particularly benefits students that are most at risk of underachieving

(Egan et al., 2013).

Research from the UK suggests that the attainment gap is increased for Asian, disabled, male, and social science students. However, it was insignificant for Black students and those from WP backgrounds and, most importantly, reduced the gap for students with lower prior attainment. These results demonstrate that the picture is complex and varies across groups and disciplines (Parker 2018).

Research on obstacles to undergraduate research identifies issues such as 'threshold concepts' as an impediment to developing research skills (Meyer and Land 2016). Others note the importance of developing skills throughout the degree to prepare students (Fung 2017; Hughes 2011, 2014, 2017). Most recently, Hughes (2019) compared student experiences across five programmes, including the disciplines of engineering, anthropology, education, and natural sciences.

Three particular challenges emerged across all programmes. First, students showed confusion over conceptualising key generic and disciplinary research skills. Programme leaders expressed a similar problem in identifying threshold concepts. Second, there was inconsistent recording and assessment of how research skills developed. Finally, there was confusing or inconsistent support provision for students in developing research skills and undertaking projects (Hughes 2019).

This paper investigates obstacles to completing undergraduate research across programmes and particularly for underrepresented and disadvantaged groups. Programme leads are interviewed from six degree subjects, two each from the natural sciences, social sciences, and humanities. Six students in each programme were also interviewed, using purposive sampling to focus particularly on groups that show an attainment gap.

The interviews were subjected to a thematic analysis in several stages (Terry et al. 2017). The results and conclusions of the project seek common themes around what obstacles prove most problematic to students in pursing their research projects. In particular, it analyses whether groups showing an attainment gap have particular problems and how support mechanisms cope with them. These insights will provide information to academics, support staff, and administrators on what issues students face and how the university might better address them in its curriculum and support structures.

The results confirmed Hughes (2018) finding of inconsistency in the development of research skills. Not all programmes teach the major components of research projects, including literature reviews, developing research questions, and research methods. Many students report little understanding of research design when undertaking their projects. There was no strong consistency in any obstacles particular to disadvantaged groups. However, there was also inconsistency in the provision of supervision.

In conclusion, the major obstacles to undergraduate research appear based in programme design and teaching. The development of research skills by practicing and assessing them seems obvious for a high stakes final year assessment, but appears inconsistent across programmes. Further, the very individual nature of research supervision, mostly consisting of one-to-one relationships between students and staff, appears susceptible to inconsistency if expectations are not made clear. Staff interviews confirmed these arrangements were largely programme decisions that varied widely

across subjects.  These difficulties would be faced by all students, regardless of their background, though they might impact more upon vulnerable groups. Potential solutions lie in the normal provision and assurance of good course design and teaching, where improvements would benefit all students.  The importance of these single pieces of assessment suggest that this might be a likely priority for improving student outcomes and reducing achievement gaps.

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