Does group assessment impact BME attainment?

Natasha Hill[1], James Denholm-Price[2], Nigel Atkins[2], Luis Tojal Dourado[2], Owuraku Nimoh[1] & Nigel Page[1*]

[1]School of Life Sciences, Pharmacy and Chemistry; [2]School of Computer Science and Mathematics; Kingston University London

*Corresponding Author: n.page@kingston.ac.uk

Keywords: *group assessment; attainment; Black and Minority Ethnic*

Abstract

Assessment of student learning is fundamental in Higher Education (HE) reflecting academic standards and impacting on student satisfaction, position in league tables and graduate employment. Nonetheless, there is a BME (Black and Minority Ethnic) attainment gap, the difference in the proportion of BME and White students who attain a first class or 2.1 honours degree (even when controlled for prior attainment and entry profile), which is persistent across the HE sector. As assessment strategies play an essential role in determining degree attainment, we have reviewed the role of group assessment and whether this form of assessment specifically impacts on the BME attainment gap. Overall, this study provided evidence that assessed group work does not adversely impact BME students. In addition, the performance in BME/non-BME/mixed groups did not suggest any consistent difference, suggesting that the demographic composition of groups does not affect BME performance. Therefore, group work would appear to be an inclusive form of assessment that does not appear to lead or contribute to exacerbating the BME attainment gap.

Introduction

There is a long-standing BME (Black and Minority Ethnic) attainment gap across the HE sector, whereby the proportion of white students graduating with a first class or 2.1 honours degree is significantly higher than those from BME groups, where ethnicity remains the most significant factor in degree attainment (Broecke & Nicholls, 2007). Assessment strategies play an important role in determining degree attainment. Over the past few years, there has also been the need to take into account a significantly more diverse student body within HE. Improvement in attainment will be dependent on more and better inclusive assessment methods. However, there is a general lack of knowledge over which assessment strategies can specifically lower the BME attainment gap, with some forms of assessment potentially privileging certain groups, for example, examinations (HEFCE, 2015). There are arguments to warrant more inclusive types of assessments and ensure that students are versed in assessment expectations. Potentially, group work assessment could go some way to supporting the needs of BME students by creating a greater sense of belonging and integration and also by empowering students to succeed together.

Considering the challenges and the unacceptable BME gap we have 1) used historic and current data to investigate BME student performance in group assessment compared with other types of assessment; 2) reviewed the demographics of group selection and its impact on attainment; 3) surveyed student views of group assessment and its impact; and 4) looked to strategies to embed student led support guides and activities into our assessment approaches.

Methodology

Analysis of BME performance in-group work (historical data)

Historical data from group assessments in the School of Life Sciences, Pharmacy and Chemistry and the School of Computer Science and Mathematics (both within the Faculty of Science, Engineering and Computing at Kingston University) were obtained from module leaders, including equality data on group membership. Demographic information for the complete list of students used in the study was obtained from the Student Management Information department (Kingston University) and linked to the module data. The data was then standardised in format, pseudo-anonymised by assigning random pseudo-identities, and the marks converted to ranks to further ensure anonymity of the data for student-staff partnership shared analysis.

To examine the differences in performance between the particular BME and non-BME cohorts in other assessments, a 'control' analysis was also performed. For life science modules, this consisted of the overall student mean module grade for the relevant year in each module cohort, whereas in mathematics modules the average of two modules not containing group assessments was used. This difference merely reflects the complexity of course combinations within the life sciences and their modules. The control data was extracted from module assessment grids by downloading from the university's online student information system (OSIS) and data analysed and managed using Microsoft Excel. Students with incomplete profiles were excluded from the analysis. In total, two level 5 and one level 6 life science modules were examined, and one level 4 and one level 5 mathematics module, each over two academic years (2013/14 and 2014/15). Module cohort information is given in Table 1.

Module	Method of allocation to group	Method of assigning marks	2013/14 n	2014/15 n
LS5001	Random selection from course cohorts	Group mark plus individual component	172	191
LS5003		Single group mark	77	73
LS6002		Single group mark	80	83
LS6001	—	—	27	21
MA4100	Random within Tutor Groups	Group mark scaled by % contribution	98	86
MA5100	Student self-selection	Group mark scaled by % contribution plus individual component	33	38

Table 1 Module Information for Group Assessments

For subsequent analysis the rank was scaled to 100 for all modules so that ranking in modules of different sizes was comparable, and inverted so that a high numerical rank corresponded to high performance. Three key parameters were analysed for each module:

1) Mean rank performance in the group assessment within BME and non-BME cohorts.
2) Mean rank performance in 'control' modules and overall of BME and non-BME cohorts.
3) Mean rank of student groups consisting of only BME, only non-BME, and mixed demographic groups.

Parameter (2) was used to standardise performance of BME and non-BME cohorts in (1).

Survey-based analysis of student perceptions of group work

A survey consisting of seven questions to investigate student perceptions of group work and to establish ethnic and gender identity were developed, and both clicker and online

surveys were carried out. The clicker survey was performed anonymously and therefore only self-reported demographic information was used. Ethical approval was gained through Kingston University's Centre for Higher Education Research & Practice Ethics Panel. Overall 273 responses to the survey were obtained, dominated by a larger life science cohort, mostly from female students with the predominant ethnic group being BME.

Results

Initial data from one mathematics module in 2014/5 showed a small trend suggesting that performance of BME students can be greater in-group assessments when compared with their non-BME counterparts (Figure 1, p=0.052). Further analysis of group assessments in life science modules suggested high variability between cohorts in the performance of BME and non-BME students in-group assessments compared with overall performance (Figure 2). In contrast, a control coursework assessment that did not involve group assessment showed no difference in BME performance when compared with overall performance (LS6001 in Figure 2). This suggests with reasonable confidence that assessed group work does not adversely impact BME students and that further analysis of the group assessment data is warranted. The performance in BME/non-BME/mixed groups did not indicate any consistent difference, suggesting that the demographic composition of groups does not affect BME performance (Figure 3).

When we analysed student opinions to the benefits of group assessments (Figure 4), 'improved time management' and 'increased ability to work with others' were the most frequently chosen selections, chosen by overall 55% and 45% of students, respectively. Other high frequency responses were 'simulates the work place experience', 'improved employability' and 'opportunity to develop management skills'.

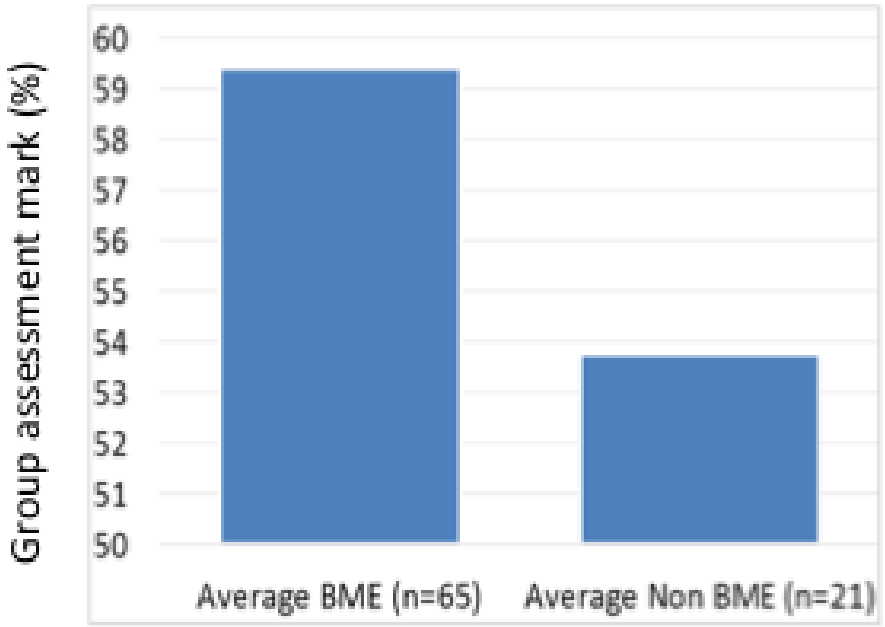

Figure 1 Initial analysis of BME and non-BME student performance in a level 4 group assessment in Maths (MA4100).

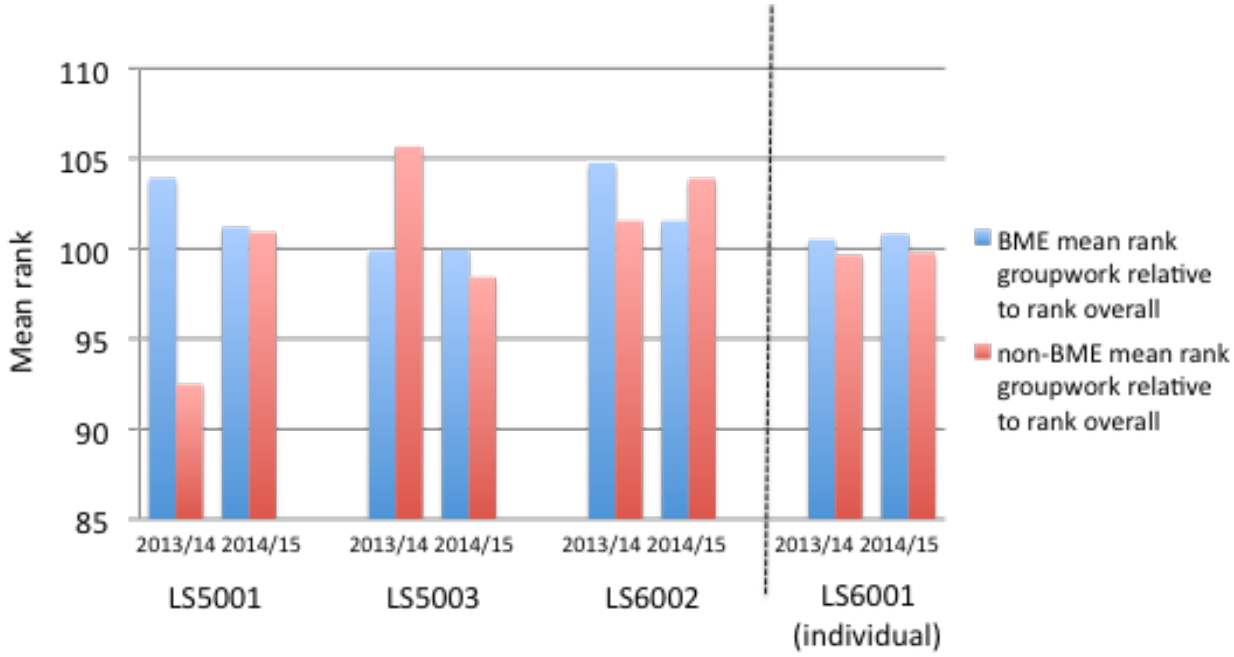

Figure 2 Performance of BME and non-BME students in group assessments compared to overall performance (Life Sciences). Mean rank of BME and non-BME cohorts was standardised to mean rank for all modules within that cohort. Group assessments in two level 5 and one level 6 module were analysed over two academic years, and in addition an individually assessed piece of coursework on LS6001 was analysed as a control.

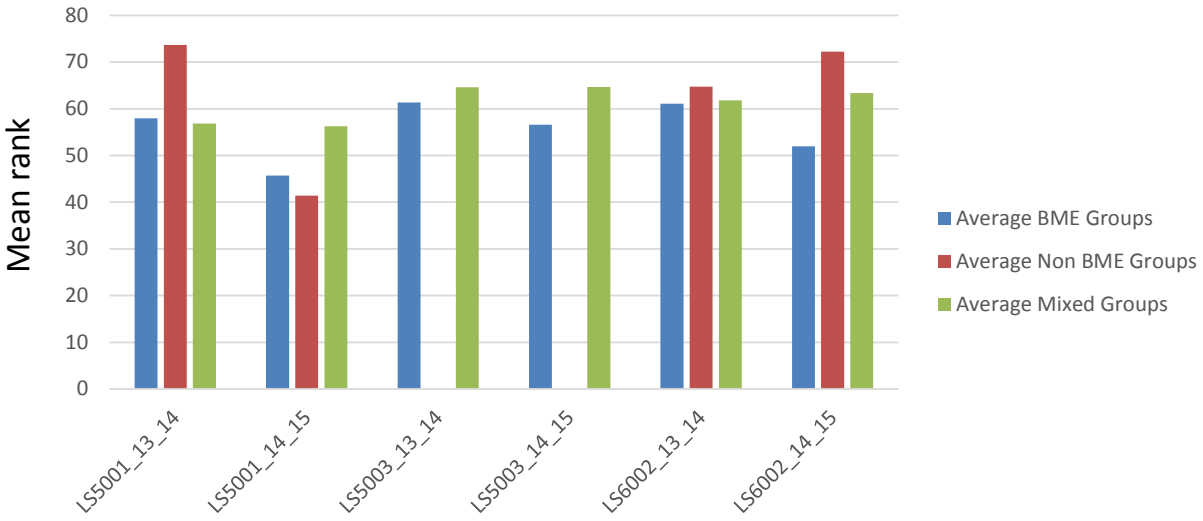

Figure 3 Analysis of performance in BME, non-BME and mixed demographic groups.

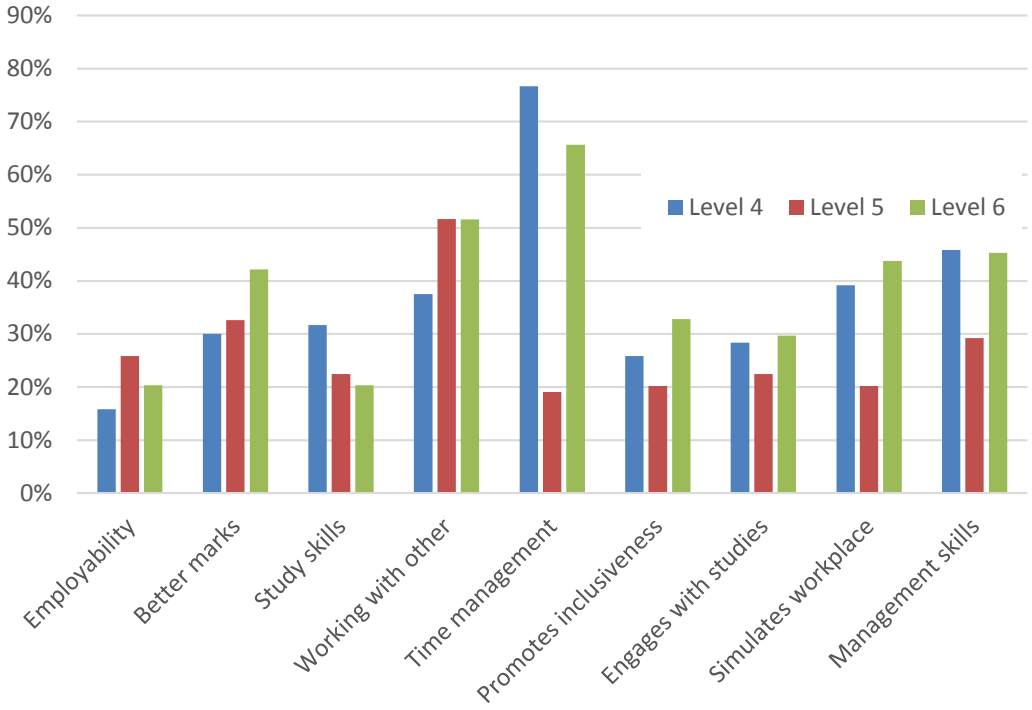

Figure 4 Survey responses to 'what do you feel have been the benefits to you of assessed group work?' Students were able to select all options that they thought applied.

There was a greater perceived fairness of assessed group work by students at level 5 (Figure 5). This suggested that students' experience of group work was a positive experience. In contrast, perceived fairness at level 6 dropped quite dramatically, sending a clear message that students do not want group assessments at level 6, where it contributes a larger proportion of marks to the final degree classification. However, students did recognise the value of group work (Figure 4) and the experience of group work seems to have a positive effect on perceptions of fairness in-group work in level 5 students.

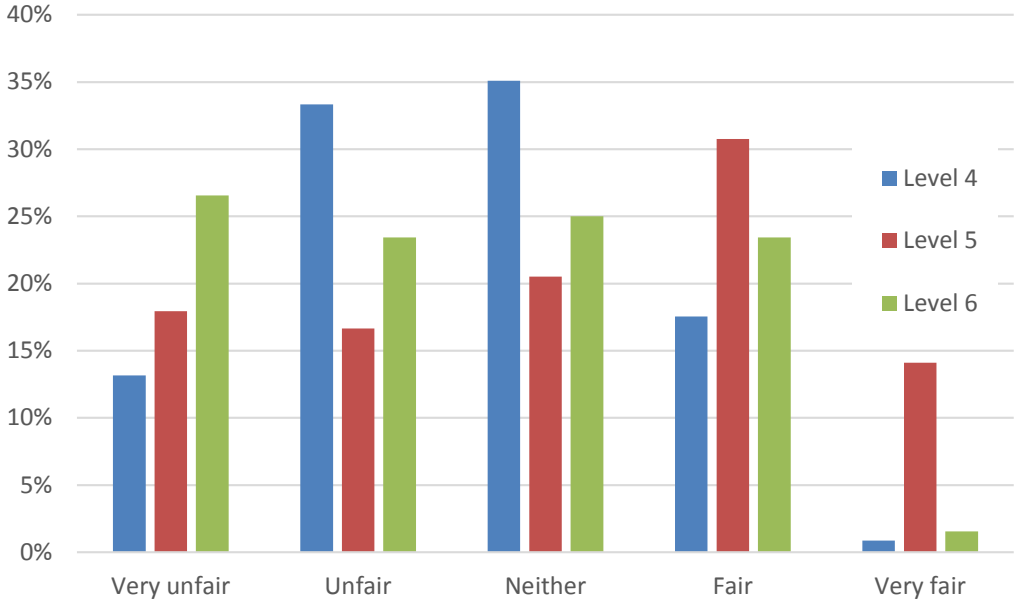

Figure 5 Survey responses to 'overall, how fair is group work in your opinion?' The majority of level 4 students surveyed had not experienced group work before at university, whereas all of the level 5 and level 6 students had.

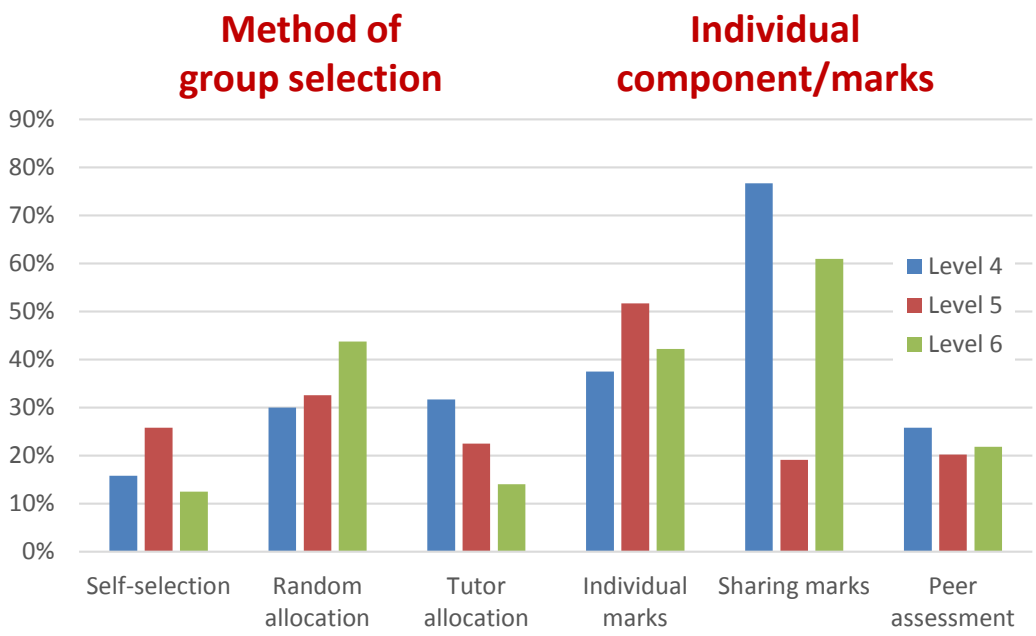

Figure 6 Survey responses to 'which of the following do you think increases the fairness of assessed group work?' Students were able to select all options that they thought applied to them.

Students who have experienced peer-assessment of contributions at level 5 were more positive about an individual component than level 4 and 6 students, whilst a method for 'spreading marks' is popular with naïve students (level 4) and those close to graduation (level 6).

Self-selection of groups is perceived to be comparatively less fair than random selection (except for level 5 non-BME life science students but this was a relatively small group: n=19) and there was a consistent trend with experience of group work for increased satisfaction with random selection and decreased satisfaction with tutor selection. Breaking down this trend suggests that it is non-BME students whose opinions change the most: the proportion of BME students favouring random selection increases from 34% to 44% from level 4 to 6 whilst non-BME increases from 23% to 46%. However these are relatively small numbers: n=257 overall but the largest increase of 46% was in the smallest group where n=13.

The data on contribution of group work to final degree mark is clouded by students' apparent mixed interpretation of the question and is therefore not detailed here; many students interpreted the question in relation to module weight despite 'degree mark' in the question. The majority suggested 'no more than 20%' with significant numbers for <40% and <50%, whilst the current contribution of group work to a degree classification is around 5% in the life sciences and in mathematics.

Discussion

Kingston University has a majority of UK domiciled BME (Black and Minority Ethnic) students, which it wants to ensure all realise their full potential. Nonetheless, there is a BME attainment gap in existence that varies considerably across subjects and institutions, where all ethnic categories identified as BME have poorer final degree classifications compared with White students. The reasons for the gap are unclear (Richardson, 2015) and many theories have adopted a student-deficit model. More recent research directed at understanding the gap has focused on institutional practice, including assessment practices, which have received relatively limited scrutiny in regard to the attainment gap debate. There is evidence that assessment practices in universities have not kept up with the expectations of students or external stakeholders in developing knowledge, life-long skills and meeting the needs of employers (Ball *et al*. 2012). Assessment practices need

to take into account a significantly more diverse student body and improvement will be dependent on more and better inclusive assessment methods. Group work would appear to be an inclusive assessment form that would help develop graduate employability and life-long learning. Therefore, it was important to determine whether this form of assessment either biased or privileged certain groups of students. Overall, this study provided evidence that assessed group work does not adversely impact BME students. In addition, the performance in BME/non-BME/mixed groups did not suggest any consistent difference, suggesting that the demographic composition of groups does not affect BME performance. Therefore, group work would appear to be an inclusive form of assessment that does not lead or contribute to exacerbating the BME attainment gap. Thereby, not having a significant affect on impacting on the BME attainment gap.

However, the manner in which group work is presented can be perceived in different ways particularly in regard to fairness. Recent requirements for Royal Society of Biology accreditation of some life science subjects has necessitated enhancing the methods of the grading of team working in order to assess students' individual achievement of the learning outcomes. Consequently, it is important to recognise individual achievement. Nonetheless, it can be difficult for the tutor to assess individual contribution and achievement, as, for many of the preparative steps, they may not have access to the processes. Therefore, ways to look at measuring contributions by peers have been suggested. This can be through traditional methods, for example reflective writing accounting. However, today, technology enhanced learning methods provide novel opportunities through online tools to provide peer feedback, level of involvement and measured contribution. The *Teammates* software (teammatesv4.appspot.com) is one such tool that we intend to trial to determine its potential in better assigning and recognising individual contribution.

Furthermore, our studies indicate that random selection of group members over tutor selection is recommended, even more than self-selection in students' minds, for increasing the fairness of group work. In fact, tips for inclusive teaching of group work from Oxford Brookes University recommend allocation of students to groups, rather than allowing them to self-select on all occasions, in order to provide a more diverse learning environment (Oxford Brookes University, Guide to Inclusive Learning, https://www.**brookes**.ac.uk/Documents/OCSLD/**Inclusive**-teaching/). A further recommendation to fairness is to structure group work sessions in which everyone has a turn at the task. For example, we do this, by having an oral group presentation where the expectation is that everyone will take part in speaking equally and respond to the questions. As this was a student project, for ethical reasons raw marks were not used in the cohort analyse and the use of ranks may have clouded the data analysis. Indeed, a separate final year project analysis based on marks rounded to 5% as a different anonymisation procedure, showed similar but statistically-stronger results. Thus further work on the trade-off between ethical requirements for anonymity *vs.* power of analytical methods is needed, especially involving projects where there is a student-staff partnership.

References

Ball et al. (2012) *A Marked Improvement: Transforming assessment in higher education.* Higher Education Academy. www.heacademy.ac.uk/resource/marked-improvement

Broecke, S. & Nicholls, T. (2007) *Ethnicity and degree attainment. Department for Education and Skills* (Research Report RW92) http://webarchive.nationalarchives.gov.uk/20130401151715/http://www.education.gov.uk/publications/eOrderingDownload/RW92.pdf

HEFCE (2015) *Causes of differences in student outcomes*, Report to HEFCE by King's College London, ARC Network and The University of Manchester.

Richardson, J. (2015) *The under-attainment of ethnic minority students in UK higher education: what we know and what we don't,* Journal of Further and Higher Education, Vol. 39, No. 2 278-291.