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Title Individual perceptions of advantage and disadvantage in accessing, undertaking and progressing in Science, Technology, Engineering and Mathematics (STEM)
Postgraduate Taught study

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150 word abstract

Research looking at students' perceptions of advantage and disadvantage in higher education (HE) has focused on two main areas; student learning and perceptions of the academic environment and large scale statistics looking at participation, progression and attainment through the lens of certain demographic groups at undergraduate level. However, there is no research exploring whether the individual within a demographic group or those with a range of characteristics (e.g. socio-economic, generational, disability) consciously or unconsciously perceive those characteristics as advantageous or disadvantageous. This paper reports the findings from a small-scale research project carried out at three UK universities in geographically different areas across STEM disciplines exploring this.

1000 word blind paper

Setting the scene

Research looking at students' perceptions of advantage and disadvantage in higher education (HE) has focused on two main areas. Firstly, student learning and perceptions of the academic environment including evaluation and assessment (e.g. Struyven et al., 2005), perceptions of face-to-face and online discussions (e.g. Meyer, 2007) and variations in students' perceptions of the academic environment and in their study behaviour (Ramsden, 1979; Sun et al., 2016). The National Student Survey and Postgraduate Taught (Masters level) Survey managed by the Higher Education Academy are the largest sources of data in the UK that amass the attitudes, opinions and perceptions of students of their study experiences but these surveys do not collect demographic data permitting insight into any characteristics that may impact on the perceptions of that experience.

Secondly, in the drive to widen participation and increase social mobility through HE, the use of the terms advantage and disadvantage commonly revolve around large scale statistics looking at participation, progression and attainment through the lens of certain demographic groups at undergraduate level. For example, national statistics highlight that young white males are disadvantaged as they are less likely to participate in HE compared to other demographic groups, and Black, Asian and Minority Ethnic groups are disadvantaged in higher education as their degree attainment levels are lower than their white counterparts (e.g. HEFCE, 2016; Neves and Hillman, 2017). In terms of advantage, those from the top two social classes are

considered to be more advantaged than those from the lower social class, as access to economic, social and cultural resources result in them being more likely to attend the top universities and succeed post-university (e.g. Bourdieu, 1977; 1984; HEFCE, 2016; Neves and Hillman, 2017).

In the past few years, research exploring participation at postgraduate taught (PGT) level has highlighted that demographic groups are also advantaged and disadvantaged in terms of participation, attainment and progression (e.g. Wakeling and Hampden-Thompson, 2013; Morgan and Direito, 2016). For example, individuals from the top two social classes are more likely to participate in PG level study, study full-time and receive financial support from parents/family. Those in the lower social classes are more likely to study part-time, live locally and fund their studies through savings and salary. Hygiene factors such as cost, location of the institution and flexibility of study are critical in the decision making process (e.g. Stuart et al., 2008; Morgan, 2013; Mellors-Bourne et al., 2014; Morgan and Direito, 2016).

However, the research undertaken does not examine whether the individual within a demographic group or those with a range of characteristics (e.g. socio-economic, generational, disability) consciously or unconsciously perceive those characteristics as advantageous or disadvantageous. Understanding this is important in managing student expectations and their experience in, through and out of study. This paper reports the findings from a small scale research project undertaken across three universities in geographically different areas of the UK to explore this. It comprised PGT Science, Technology, Engineering and Mathematics students (STEM).

Methodology

After eight months into study, respondents were asked to complete a short survey that consisted of three open and 17 demographic questions. The questions contained generic prompts to reduce bias and covered three key transition stages in the study lifecycle:

- When you applied for your master's course, did you feel advantaged or disadvantaged in anyway? (e.g. personal, financial, social, cultural, study, support or work related). Please state why.
- When you started your master's course, did you feel advantaged or disadvantaged in anyway? (e.g. personal, financial, social, cultural, study, support or work related). Please state why.
- Do you feel advantaged or disadvantaged in anyway? (e.g. personal, financial, social, cultural, study, support or work related). Please state why.

The quantitative data was analysed according to the different demographic characteristics of the participants. In addition, the qualitative data were examined to establish whether the comments related to the demographic characteristics of the participants.

Key findings

The sample size of 124 PGT students comprised 59.7% females and 40.3% males; 68.5% UK domiciled, 7.3% EU and 24.2% OS (spell out?). The entry route into study was predominantly from work 50.4% , 39.2% from other study and 10.4% other. Of the sample, 60.8% were undertaking full-time PGT study, 33.6% part-time and 5.6% were distance learners. Only 8.8% of the participants had received a HEFCE £10,000 grant in 2015/16 and 9.7% stated that they had a disability. Examination of the nominal data highlighted a number of key findings.

- Males in all ethnic groups felt more advantaged than females across all stages.
- Male feelings of advantage and disadvantage stay relatively consistent through all stages.
- Female perception of advantage decreases noticeably from application to 8 months into study.
- Black females felt more disadvantaged through all stages than White and Asian females.
- The perception of disadvantage of males and females who have children increases through the application and starting stages. However, female numbers are proportionally almost double that of males. At the 8 month stage, female sense of disadvantage reduces and reverts to the same level at application whilst males increases to double that at the application stage.
- Fulltime females felt more disadvantaged than full-time males by approximately 20% in each stage. However, both part-time female and males felt similarly disadvantaged in all stages and were approximately double the figures of full-time males.
- The perception of being disadvantaged by female and male distance learners in the last transition stage question was double that of how they felt in the first question during the application process.
- There were no significant domiciled differences.

Analysis of the qualitative data by participants' demographic characteristics revealed that financial issues (i.e. travel costs, debt, cost of living; study (i.e. English not first language, timetable issues, struggling with the different level of study), study mode, age, (e.g. being a mature student in a young class and work related issues such as balancing paid work with study) were related to perceptions of disadvantage. In terms of English not being a respondent's first language, there was no clear domiciled relationship. A substantive percentage of the UK domiciled respondents stated that this was the case. Of the nine per cent of participants who cited a disability, only two of the eleven stated that they perceived this characteristic as causing disadvantage in one stage of more.

Implications and impact

In this paper, we present the preliminary findings of small scale research with PGT STEM students and their perceptions of advantage and disadvantage. However, what this small scale research suggests is that at postgraduate level certain demographic characteristics do appear to be related to disadvantage. However, PGT students themselves did not appear to have a sense of advantage or disadvantage relating to those characteristics. Instead, these disadvantages are perceived through

the lens of general practical issues relating to PGT study. Further quantitative and qualitative research is required on a larger scale to investigate this further.

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