

DEMOGRAPHIC VARIATIONS IN PLACEMENT CHOICE

An investigation into reasons behind placement choice
and demographic variations in those choices;
specifically with a cohort of second and final year
Sheffield Hallam University Bioscience and Chemistry
students.

Nikki Abbott

2018

Summary

This small scale study looked at the Destinations of Leavers from Higher Education survey (DLHE) outcomes (Office for Students, DLHE, 2018) of placement and non placement students to understand the potential effect of non completion of a placement year. It then went to look at year-long placement choice and barriers to that choice for a cohort of second and final year SHU Bioscience and Chemistry students. The aim was to review whether there were demographic variations in placement choice and barriers to completion of a placement year.

Results showed that DLHE outcomes of Bioscience and Chemistry students were significantly improved by doing a sandwich placement. The proportion of students progressing into highly skilled employment or postgraduate study was approximately 25% higher for those who completed a sandwich placement. Demographic variations were noted: mature students, for example, were significantly more likely to be unemployed and had the lowest proportion of students progressing into highly skilled employment or postgraduate study.

Nearly all students (95%) believed a placement year would improve their job chances and only 13.1% believed they had enough relevant work. Perhaps surprisingly, only just over half agreed that being paid was important to them- and over 70% believed experience was more important than salary. However despite all the observed benefits of a placement year, many students either chose not to participate, or were unsuccessful finding a placement: 67.5% of Bioscience and Chemistry students did not do a placement year.

Over half of students were anxious about the application process. In addition, students had various considerations relating to doing a placement. Almost 60% felt location was important. Other considerations included being close to family (almost 37.1%) and being close to friends (almost 30%). Demographic variations in potential barriers to placement choice were shown to exist. For example statistically significant issues were seen in older and BME students. Students that delayed entry to university by at least a year for example, were significantly less likely to go on placement than non-mature students. They were also statistically more likely to say that location was important to them and had higher proportions affected by childcare and other care issues. Almost 70% of mature students felt that being paid was important compared to less than 50% of non- mature students. BME students were statistically more likely to agree that they were anxious about the application process.

The study indicated that those potentially most in need of placements, and specifically local ones, were those least likely to get them. This has a combined effect. Not only do they miss out on a year's work relevant work experience but it will make it harder for those students to find graduate employers, as they have missed out on the networking opportunities they would have had if on placement. The study concluded with potential recommendations to reduce the barriers to disadvantaged groups, including use of a compulsory careers questionnaire for all year groups to analyse career and employability needs and progression; practical support such as financial assistance in the form of bursaries for unpaid placements, childcare, travel and accommodation support and internal placements (both short and yearlong), for students from widening participation backgrounds. Other potential recommendations included provision of a wide variety of employer networking activities within the curriculum and increased investment, to enable engagement with employers and expansion of the range and quantity of placements.

Background and context

Graduate employability is high on the agenda for Higher Education Institutions (HEI's). A key university priority is to better prepare students for entry into the graduate labour market (Jackson, 2015). Institutions benefit directly from providing quality placement opportunities by improving Destinations of Leavers from Higher Education survey (DLHE) outcomes (Office for Students, DLHE, 2018)(HESA, 2018a) and the National Student Survey (NSS) student satisfaction scores (National Student Survey, 2018) (National Centre for University and

Business, 2011). Universities now realise the importance of the whole 'student experience' and the need to actively seek to improve individuals' life experiences through maximising opportunities (Universities UK and NUS, 2015). Enabling students to apply their theoretical knowledge to real life, workplace based experiences has been identified as a key method to enable development of employability skills- essential for students to contribute successfully within organisations (Jackson, 2015).

From an employer's perspective, prior work experience is highly influential when deciding between candidates (Green, 2012) (Farenga, 2015). In a recent study of life science employers in the north of England, that was carried out at Sheffield Hallam University, we found that 84.3% and 75% of life science employers contacted, cited technical skills and work experience respectively as most important or second most important skills required by potential applicants, compared to only 27.7% for PhD's; 32.3% for masters and 47.8% for a degree (Abbott, 2018). Candidates with prior work experiences are more likely to have developed employability skills, such as technical skills and knowledge and more generic employability skills (National Centre for University and Business, 2011). A third of Times Top 100 employers, who took part in research for High Fliers, indicated that students with no work experience would be unlikely to be successful in their graduate recruitment processes (High Fliers Research, 2018).

Evidence strongly suggests that work experience and placements can improve academic performance; for example a 4% improvement on final year degree performance of bioscience students was identified in students taking a placement year (Driffield, 2011)(Gomez, 2018). With the link between work placements, graduate outcomes and final degree grades, not doing a placement can have serious implications for outcomes and destinations of students (Green, 2012) (Farenga, 2015). Research has indicated that participation in a placement year may alleviate barriers to graduate employment (Wilson, 2012); however research has also indicated that barriers to participation in programmes of work experience exist (Universities UK and NUS, 2015). A report by the NUS and UUK, for example, identified barriers to social action and volunteering such as money; study pressures; family commitments; paid work commitments and time constraints (National Foundation for Educational Research, 2015)(Banga, 2013).

Research background

At Sheffield Hallam University (SHU) all full-time undergraduate Bioscience and Chemistry students are initially enrolled on a sandwich degree, with the potential to carry out a placement year. Placements are not however guaranteed and students must apply for vacancies. Students are able to opt out of a placement year at the end of their second year if they decide not to do a placement, or are unsuccessful in their applications. There are a range of vacancies available to students; some are local and have been ring-fenced for SHU students. The majority of these are research- based or NHS Biomedical Science trainee positions that are unsalaried and rely on students self-funding through a Student Finance England loan available for these placement types. In addition there are other local based scientific companies that advertise their vacancies with SHU, along with highly competitive national and international paid vacancies advertised on a national and international rather than an institutional level.

Study aims

Researchers have expressed the opinion that 'science educators have the responsibility to change factors under their control' (Blickenstaff, 2005); therefore by understanding the reasons for placement choices, careers services and education providers can identify best practice to enable students to reach their full potential. As a placement can have such a major positive influence on both final degree classification and employability (Gomez, 2008), it will be insightful to see if certain demographics, specifically those under-represented and facing barriers to access and participation in higher education (Office for Students, 2018b)

are disadvantaged by factors related to placement choice. This small scale research investigates reasons behind placement choice and demographic variations in those choices; specifically with a cohort of second and final year SHU Bioscience and Chemistry students. The overall aim of this project is therefore to review whether there are demographic variations in placement choice and barriers to completion of a placement year, to gain an understanding of the best strategies that could be employed to maximise equality of opportunity for all (Adedokun, 2013)(Brown, 2003)(Drury 2011) (Dennehy, 2016).

Methods used:

SHU DLHE surveys 2012/13 to 2016/17

Results of the 2012/13 to 2016/17 DLHE (HESA, 2018) survey (a national survey of the graduate outcomes of students) of final year Bioscience and Chemistry students from SHU were analysed (sample size 489 students); looking specifically at graduate outcomes to identify variations based on demographics (gender, Polar 3 Quintile 1 (Q1) (HEFCE, 2005), disability, ethnic background and age) and participation in placement year; carrying out Pearson's Chi- squared test where needed (Plackett, 1983).

Analysis of Demographics

Demographics of the total 2014 start cohort were analysed using data from SHU's online student database (SITS Online, Curriculum View). A chi-square test for independence was used to indicate significant associations between questions and specific groups of students where appropriate where all of the expected numbers are greater than 5.

Due to the relatively low numbers of students participating in the study, only limited variables could be compared, with any potential for identifying significant associations.

- **Gender**- Male and female, students' answers were compared.
- **Disability**- For the purpose of the student only two groups were compared- those with no declared disability and those with a declared disability, which included a wide range, from dyslexia to mobility issues.
- **Age** - due to the very small number of students aged 21 at the start of their studies that answered the questionnaire, the criteria for age was expanded to include any student who delayed university for at least a year.
- **Ethnic background**- UK white and UK BME student answers were compared.
- **Polar 3 classification** (which looks at how likely young people are to participate in HE across the UK and shows how this varies by area) - Polar 3 Quintile 1 (Q1) students' answers (most disadvantaged), were compared to all other students.

Questionnaires

Questionnaires were constructed and given to final year Bioscience and Chemistry students, who had not completed a placement and second year students considering a placement for the coming academic year (Appendix 1). Completion of the questionnaire was on a voluntary basis, during a timetabled lecture slot. A paper based format was chosen as it was easier to administer during a session and, although results had to be manually inputted, it was felt that maximising student numbers were the most important consideration for the study. Students were informed of the voluntary nature of the questionnaire and were given time at the end of a careers session to fill in the form.

The questionnaire focussed placement and career choice and the factors affecting these choices. A 5 point Likert scale was used to gauge agreement/ disagreement levels with each statement and where apparent differences were noted and student numbers were high enough, a Pearson's Chi- squared test (Plackett, 1983) was carried out to look at the variables- (as discussed above).

Key Findings

Key variations in results were observed based on demographics.

- Outcomes of Bioscience and Chemistry students were significantly improved by doing a sandwich placement. The proportion of students progressing into highly skilled employment or postgraduate study was approximately 25% higher (statistically significant differences were observed) for those who completed a sandwich placement; and students earned on average £3,600 more.
- Despite all the observed benefits of a placement year, many students either chose not to participate, or were unsuccessful finding a placement: 67.2% of Bioscience and Chemistry students did not do a placement year.
- The most common cited reasons for not doing a placement were: Location (54.8%); applications were too time consuming (48.4%) and students wanted to be paid (46.8%).

Mature students

- Had the highest levels of unemployment and the lowest proportion of students progressing into highly skilled employment or postgraduate study.
- Were the least confident in their experiences, yet were significantly less likely to do a placement.
- Were statistically more likely to say that location was important to them.
- Had higher proportions affected by childcare and other care issues.
- Had higher proportions agreeing that being paid was important to them
- Higher proportions wanted to stay in the Sheffield region and want a placement close to their family.

BME students

- Higher proportions said that being paid for a placement was important to them.
- Were statistically most likely to agree that they were anxious about the application process.
- Were significantly more likely to want to progress onto medicine and allied health roles.

Female students

- Were significantly less likely to be looking forward to doing a placement year.
- Had a higher proportion of students affected by care issues.

Disabled students

- Had the lowest proportion of students looking forward to doing a placement.
- Had a greater proportion wanting to be paid for their placement.
- Had higher proportions affected by childcare and care issues.

Male students

- Had a greater proportion wanting to be paid for their placement.
- Had significantly higher levels of unemployment and a lower proportion of students progressing into highly skilled employment or postgraduate study.
- Had lower proportions progressing onto a placement year

Polar 3 Q1

- Had higher proportions affected by childcare issues.
- Felt most strongly that location was important to them and had higher proportions wanting a place close to their family.

Student demographics

Demographics of the total 2014 start cohort- based on data from SHU's online student database (SITS Online, Curriculum View)

Demographics of the total 2014 start cohort, based on data from SHU's online student database (SITS Online, Curriculum View) for those currently on placement and those who did not do a placement and were in their final year showed that only 33.5% of the 2014 start cohort completed a placement year. Overall, those that delayed university by at least a year (mature students- for the purpose of this study) were significantly less likely to go on placement than non mature students ($p= 0.02$) (Table 1). In addition a lower percentage of male students (this may be related to the types of courses chosen by the students groups) and BME students went on placement.

Table 1: Demographics of the total 2014 start cohort- based on data from SHU's online student database (SITS Online, Curriculum View)

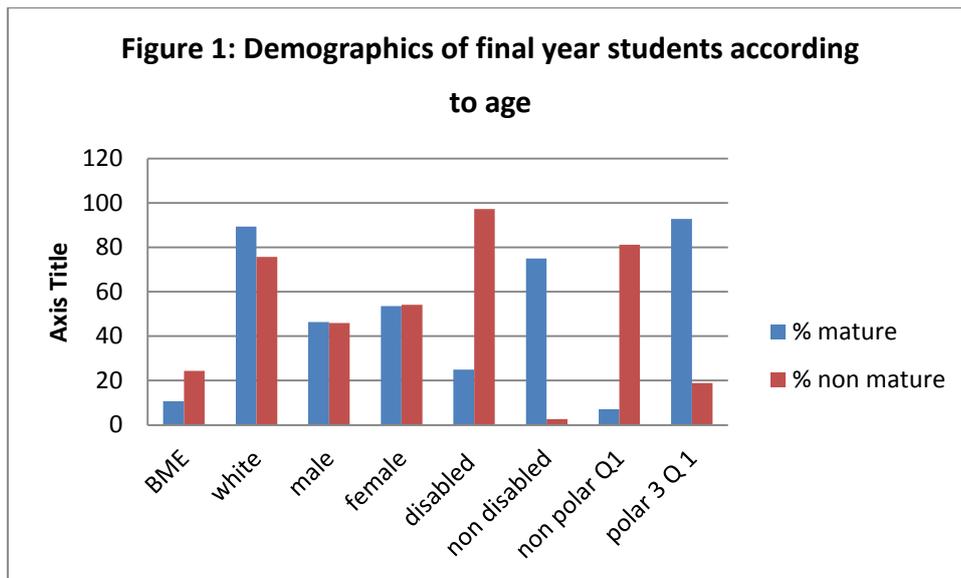
Student overall cohort (start Sept 2014)- current placement and final year students' Demographics (total student population =255)	Final Year non placement students		Current placement students	
	%	Student numbers (n = 172) (67.5% of 2014 cohort)	%	Student numbers (n=83) (32.5% of 2014 cohort)
male	52.9	91	43.4	36
female	47.1	81	56.6	47
non polar 3 Q1	80.8	139	84.3	70
polar 3 Q1	19.2	33	15.7	13
white	74.4	128	86.6	71
BME	16.3	28	13.4	11
no known disability	79.1	136	77.1	64
disabled	20.9	36	22.9	19
mature (delayed entry by at least a year)	29.1	50	14.5	12
non mature	70.9	122	85.5	71

Variations were noted in the demographics of students who filled in the questionnaires, in comparison to the overall year groups (Table 2). Due to the voluntary nature of both the careers session being delivered and the questionnaire; the students participating in the study may not have been totally indicative of the entire student population- and those more likely to engage in university as a whole may have been more likely to participate in the survey.

Table 2: Demographics of final year non- placement and second year (Y5) bioscience and chemistry students considering a placement, who completed the questionnaire.

	Final Year non placement students		Second year students	
	%	Student numbers (n=65)	%	Student numbers (n- 99)
male	47.7	31	49.5	48
female	49.2	32	50.5	50
non polar 3 Q1	83.1	54	72.7	72
polar 3 Q1	13.8	9	27.3	27
white	78.5	51	70.7	72
BME	18.5	12	29.3	29
non-disabled	86.1	56	85.9	84
disabled	10.8	7	14.1	14
mature	41.5	27	19.2	19
non mature (delayed entry by at least a year)	55.4	36	80.8	79

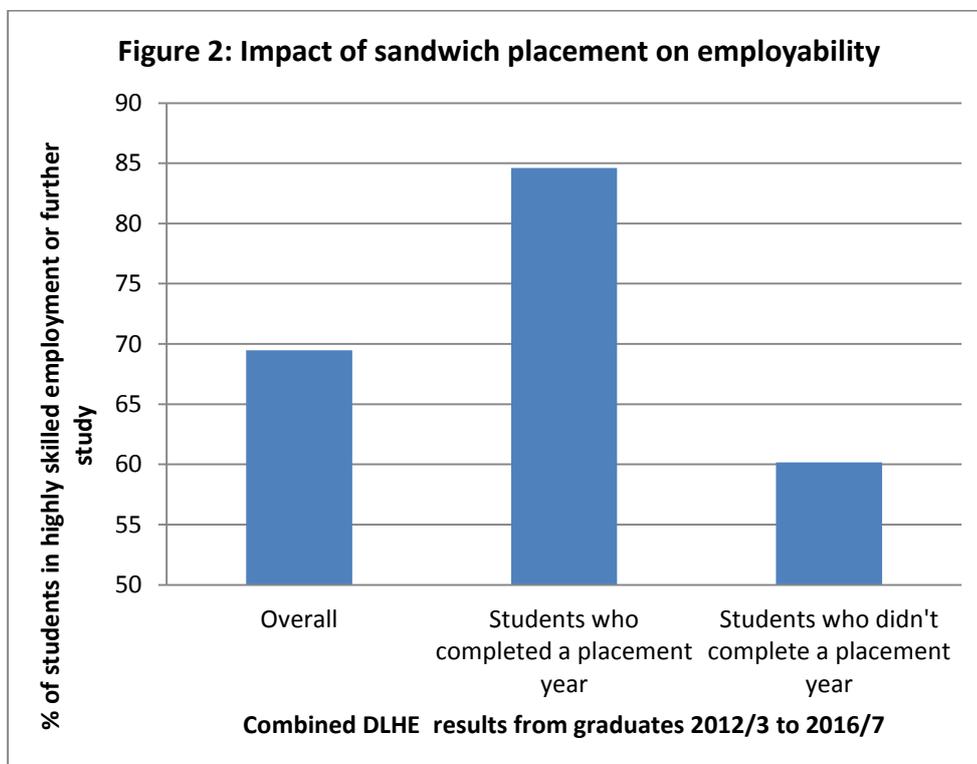
It is important to note that students had overlapping characteristics. Final year mature students for example had higher proportions of non disabled students and students from a Polar 3 Q1 neighbourhood.



SHU DLHE survey combined results of graduates from 2012/3 to 2016/17 (HESA, 2018)

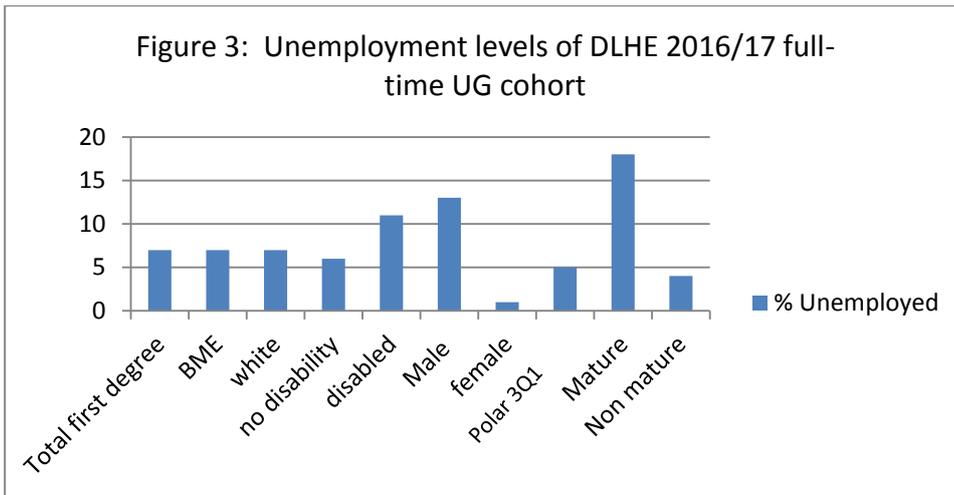
For Bioscience and Chemistry courses at SHU offering full time sandwich placements:

- The proportion of students progressing into highly skilled employment or postgraduate study was almost 25% higher for those who completed a sandwich placement (there were highly significant differences in the results, $p=0.0002$)(Figure 2); and students earned on average £3,600 more.

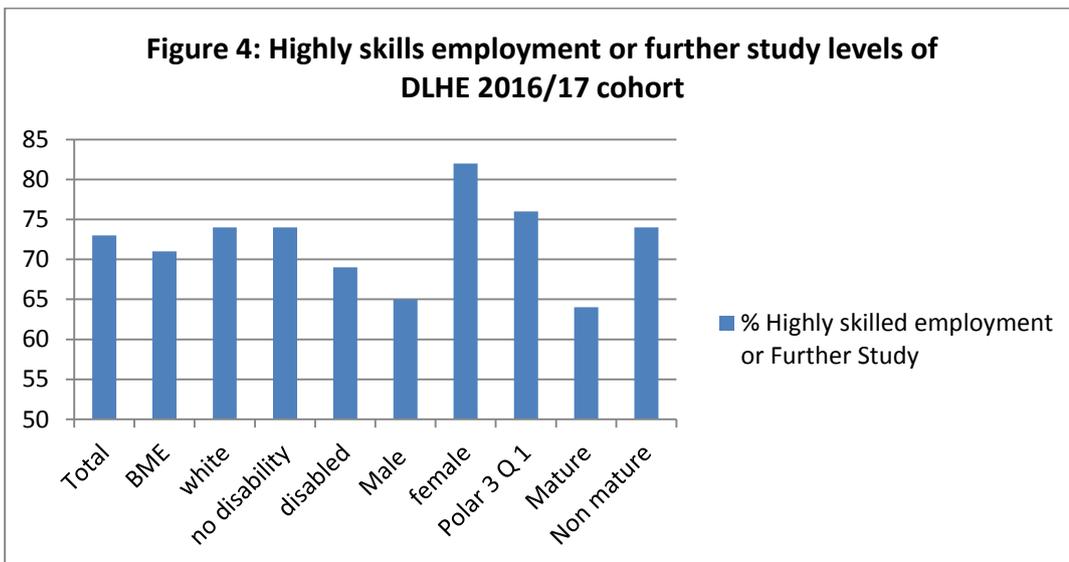


- DLHE results of graduates from 2016/17 Males (13%) and mature students (18%) had the highest proportions of unemployed graduates and were significantly more likely to be unemployed ($p= 0.007$;

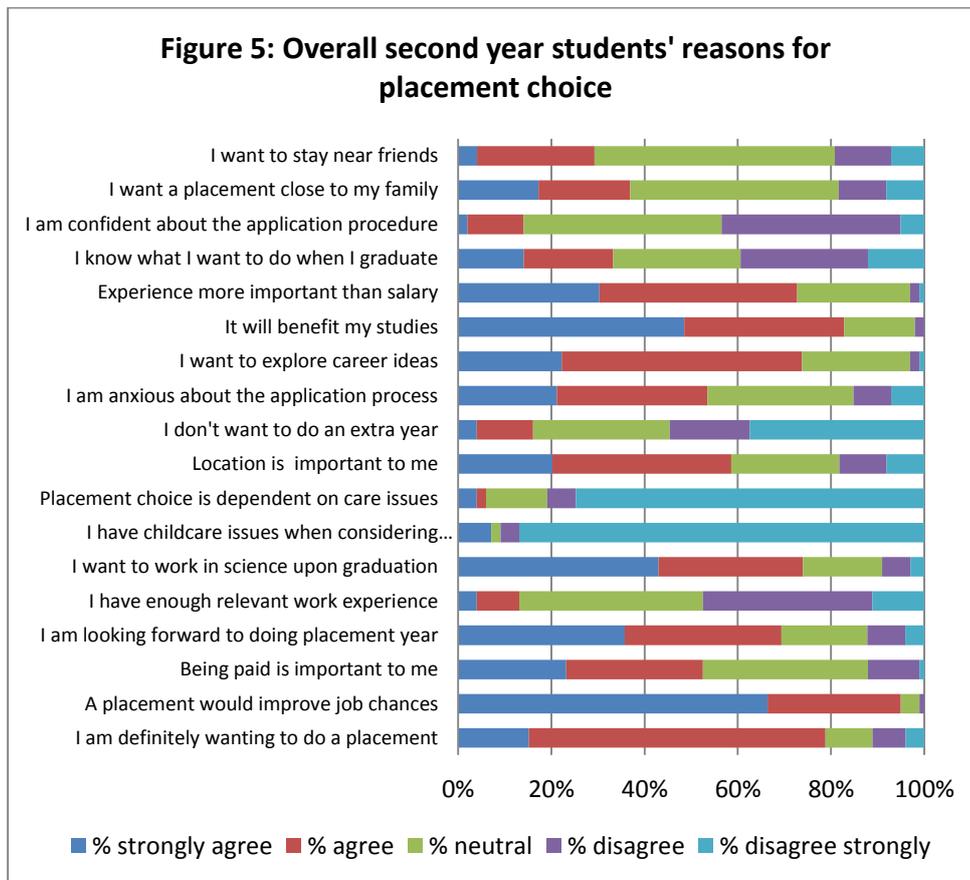
$p=0.05$ respectively)(Figure 3). They also had the lowest proportion of students progressing into highly skilled employment or postgraduate study (65% and 64% respectively).



- Males (65%) and mature students (64%) also had the lowest proportions of students progressing into highly skilled employment or postgraduate study (Figure 4).



Second Year students' overall views of a placement year (Figure 5)



Overall, for second year students questioned, over 70% wanted to work in science upon graduation and views about a placement year appeared very positive. Around 80% definitely wanted to do a placement year (Figure 5). This may have been indicative of the non- compulsory attendance at the lecture- with potentially a greater proportion of students interested in doing a placement both attending and subsequently agreeing to fill in the form.

Nearly all students (95%) believed a placement year would improve their job chances, with only 13.1% believing they had enough relevant work. Over 80% were looking forward to doing a placement year and believed it would benefit their studies. Just over half agreed that being paid was important to them- however 21.1% said it was not important to them and over 70% believed experience was more important than salary.

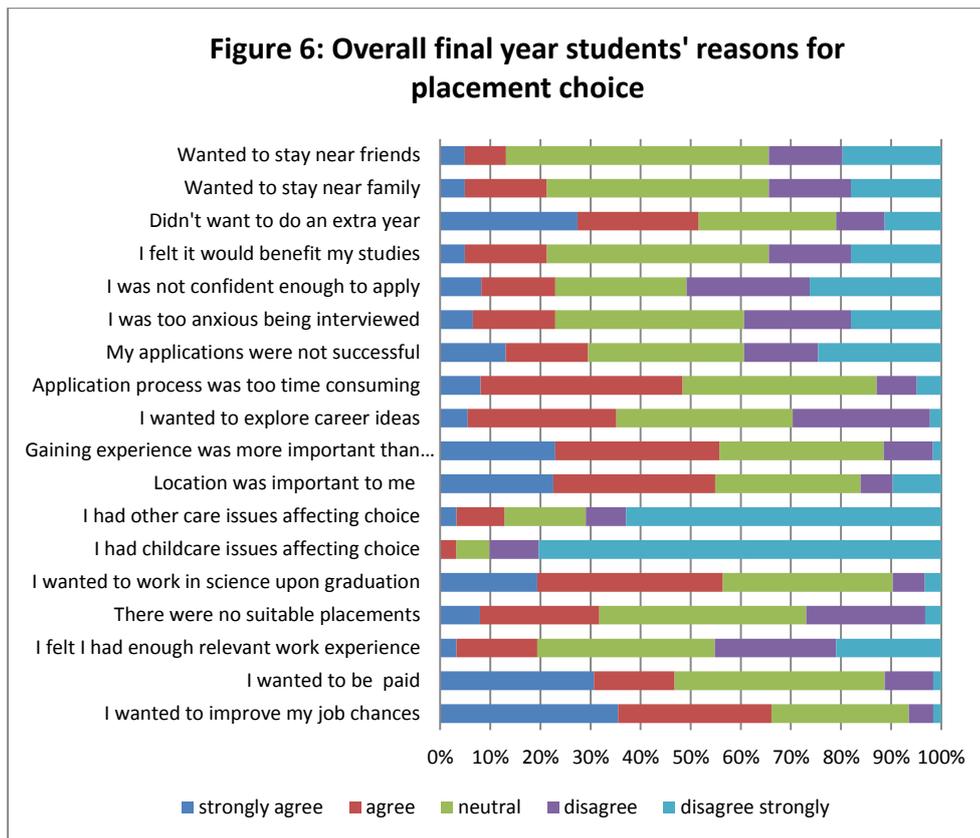
However there were a number of anxieties about a placement year. 16.1% agreed that they didn't want to do an extra year- with another 29.3% remaining neutral. Over half were anxious about the application process, while only 14.1% were confident about it. In addition students had various considerations relating to doing a placement. Almost 60% felt location was important. Other considerations included being close to family (almost 37.1%) and being close to friends (almost 30%).

Final year students' overall views of placement year (Figure 6)

Of the final year students who did not do a placement, just over half of the students stated that they did not want to do an extra year (51.6%)- lower than the results for the second year questionnaire as expected; reflecting the cohort. However over half of students (55.7%) agreed that gaining experience was more important than salary.

The percentage of students wanting to work in science was lower for this group than second years, with 56.5% wanting to work in science upon graduation, another 33.8% were neutral. Only 9.7% cited that they didn't want to work in science.

Overall the most common cited reasons for not doing a placement were location (54.8%); that applications were too time consuming (48.4%) and that students wanted to be paid (46.8%). 29.5% of students' said that their applications were unsuccessful, 3.2% had childcare issues and 12.9% had other care issues affecting choice (Figure 6).

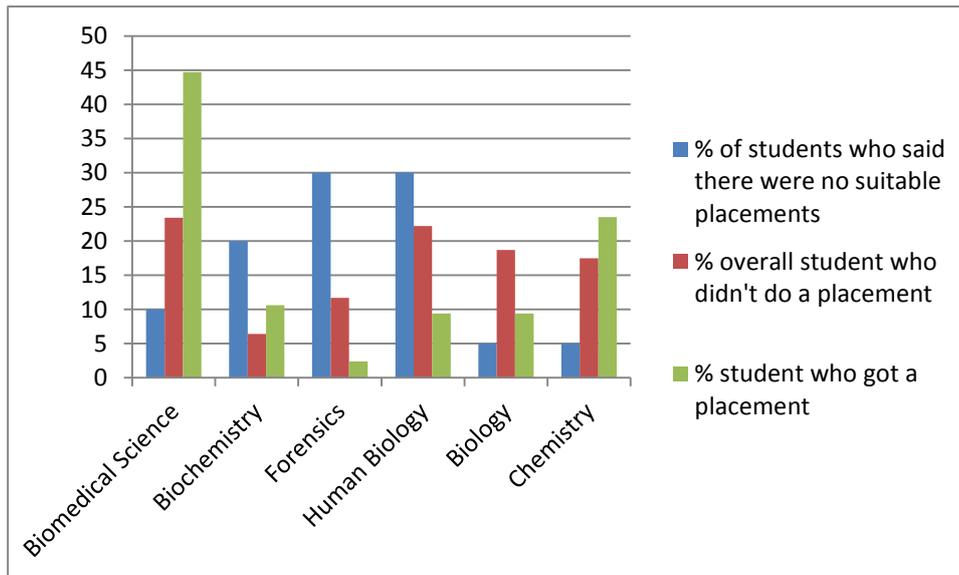


No suitable placements

There were students who just felt they couldn't find a suitable placement. Of all the final year students who filled in the questionnaire and did not do a placement year, 31.7% said there were no suitable placements.

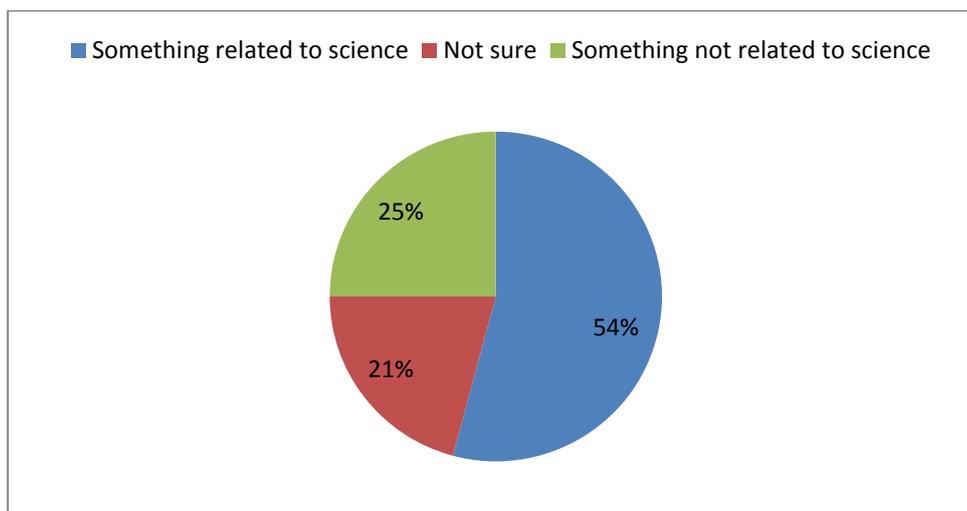
By looking at the total student population of the 2014 cohort it was possible to see the proportion of students based on course type who had either obtained a placement; said there were no suitable placements or didn't do a placement (Figure 7). Higher proportions of Biomedical Science (BMS) students were able to obtain a placement. The most probable reason being the large number of NHS BMS placements offered. Biochemistry, Forensic and Human Biology students had higher proportions of students saying there were no suitable placements, although levels of students answering this question were low and therefore not significant.

Figure 7: Proportion of students within each course who obtained a placement



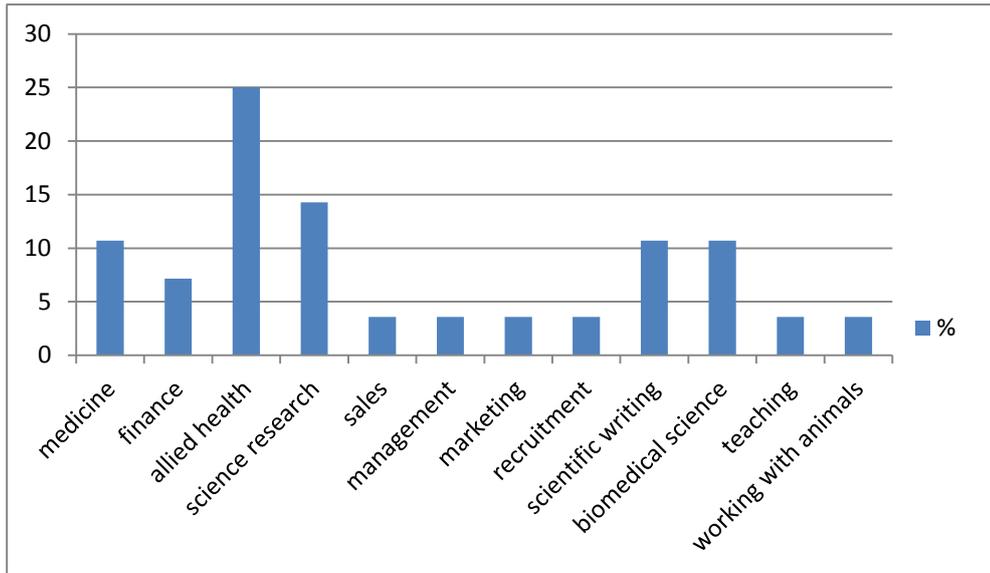
Of all the final year students who answered that there were no suitable placements, 54% of their career ideas were related to working in science upon graduating; a further 21% were unsure and 25% wanted something not related to science (Figure 8).

Figure 8: Potential career ideas of students unable to find suitable placement



Two of the most commonly cited roles for students who could not find a suitable placement were medicine and allied health roles- areas harder to find year long placements for. Others included marketing, recruitment; sales; finance; scientific writing and teaching (Figure 9). For the basis of a Bioscience and Chemistry sandwich placement, the experience must be linked to scientific or health related roles, or linked roles within those sectors, so finding these placements is hard. Teaching placements, when located were often unpaid and without access to a loan through Student Finance England.

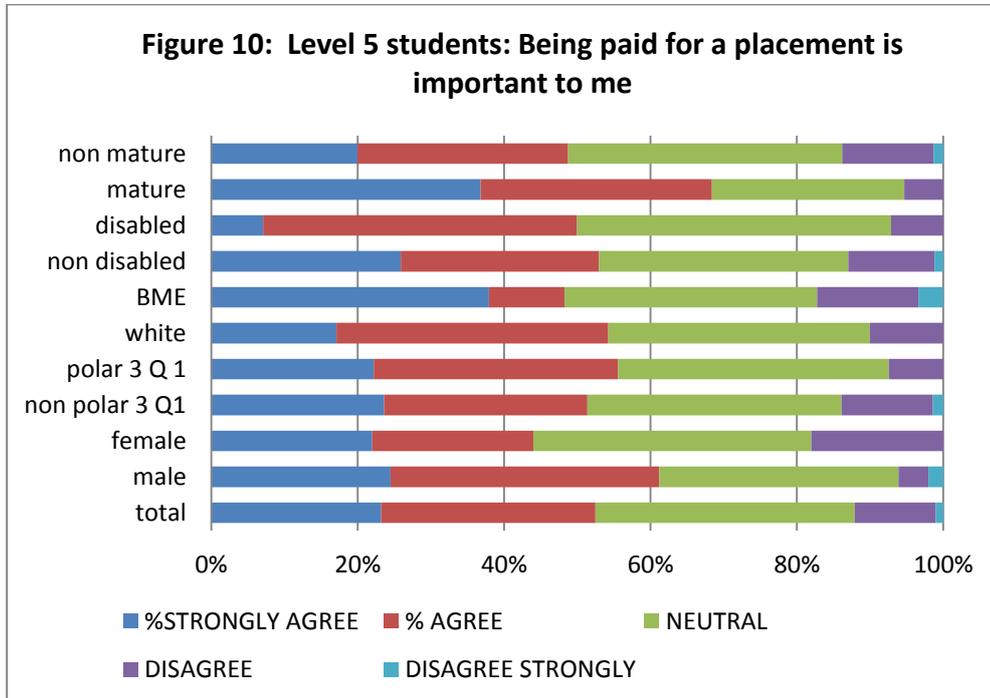
Figure 9: Career ideas of final year students who couldn't find a suitable placement



Being paid for a placement is important for me

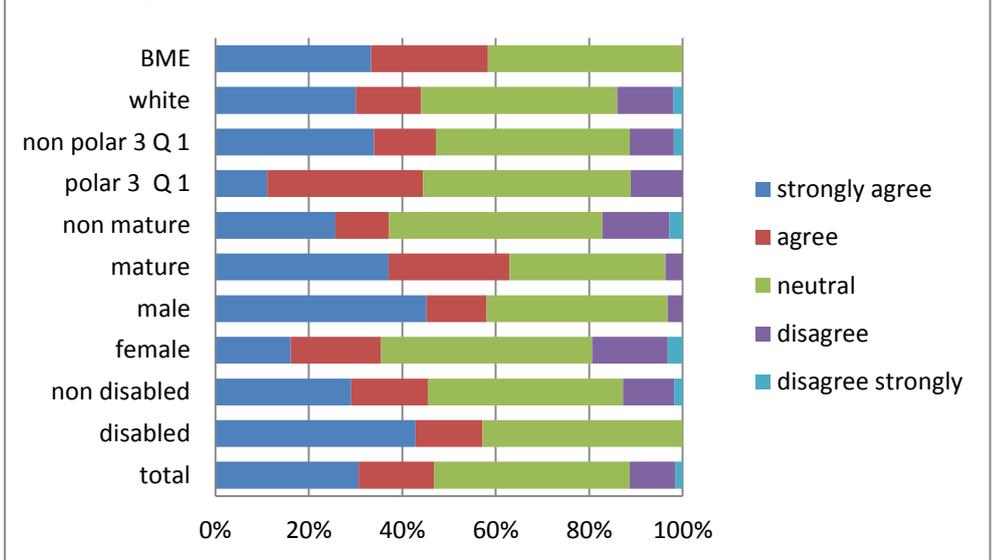
For second year students considering doing a placement: Mature students felt most strongly that being paid for a placement year was important to them; with almost 70% of mature students feeling being paid was important compared to less than 50% of non- mature students. Of those, 37% of mature students felt it was strongly important to them, compared to 20% of non- mature. BME students had the highest proportion strongly agreeing that being paid for a placement was important (37.9%), compared to 17.1 % of white students (Figure 10).

Figure 10: Level 5 students: Being paid for a placement is important to me



For final year students who didn't do a placement mature students (63% mature compared 37.1% non-mature) and BME students (58.3% BME compared to 44% white) had high proportion of students agreeing that they wanted to be paid. A greater proportion of male students and disabled students wanted to be paid (Figure 11).

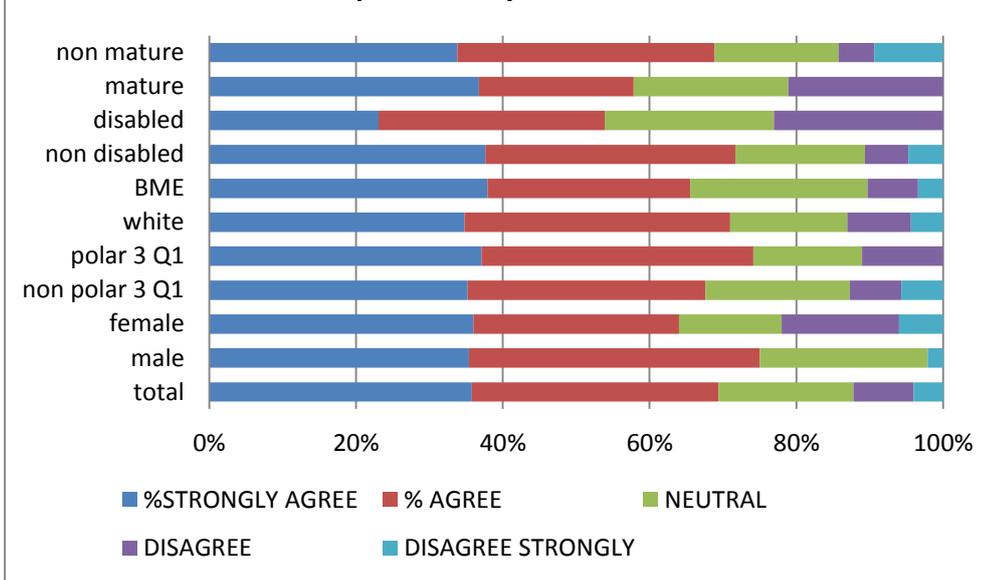
Figure 11: Final year students: I wanted to be paid



I am looking forward to doing a placement year

For second year students considering a placement, female students were significantly more likely to disagree to the statement than their male counterparts ($p= 0.005$). Disabled students had the lowest proportion of students looking forward to doing a placement (Figure 12).

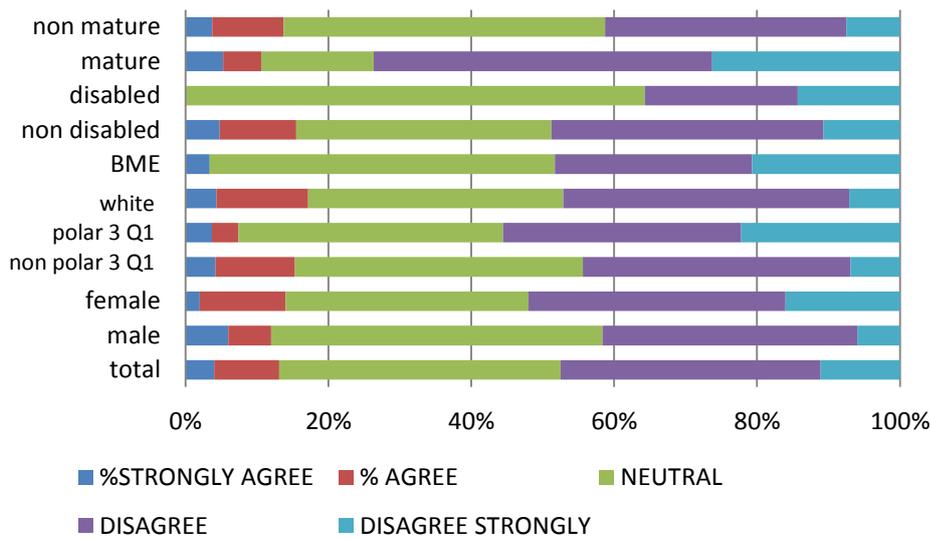
Figure 12. Second year: I am looking forward to doing a placement year



I have enough relevant work experience

For second year students considering a placement, mature students were the least confident in their experiences, with 73.7% disagreeing with the statement that they had enough relevant work experiences compared to 41.8% of non-mature students. BME, Polar 3 Q1 and disabled students were least likely to agree that they had relevant experiences, no member of the cohort of disabled students; only 3.4% of BME students and 7.4% of Polar 3 Q1 students believing they had enough relevant experiences compared to 15.5 % of non-disabled students, 16.7% of white students; and 15.3% of non-Polar 3 Q1 students. (Figure13)

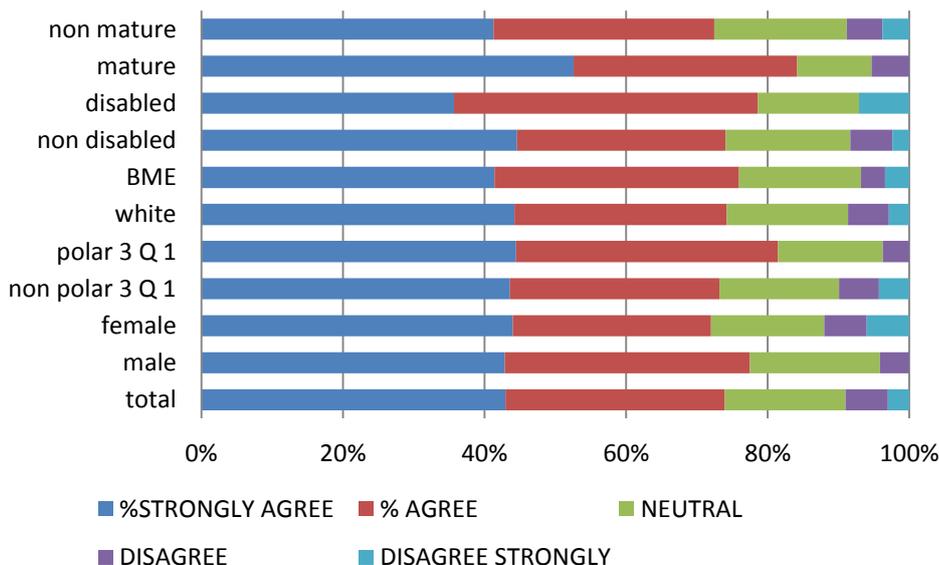
Figure 13: Second year: I have enough relevant work experience



I want to work in science upon graduation

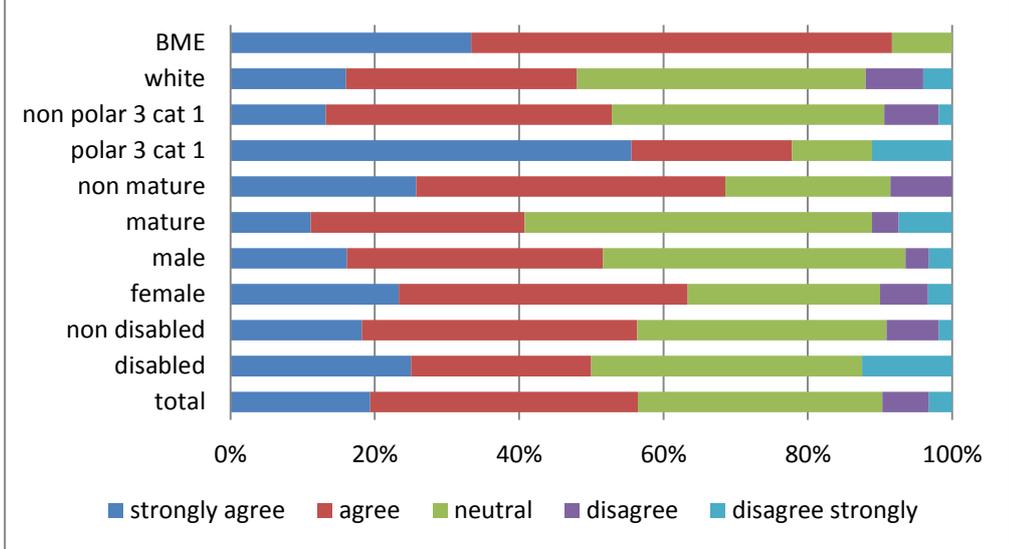
For second year students considering a placement, mature students and Polar 3 Q1 students had the greatest proportion of their cohorts wanting to work in science upon graduation, with 84.2% and 81.4% respectively agreeing to the statement (Figure 13). These results are not perhaps surprising as, by delaying entrance to science, mature students may be more certain of their choice of course. A higher proportions of males (79.2%) than females (72%) wanted to work in science upon graduation and a greater proportion of female students (12%) were more likely to disagree to the statement that they wanted to work in science upon graduation than male students (4.2%).

Figure 14: Second year students: I want to work in science upon graduation



For the cohort of final year students a much higher proportion of BME students (over 90%) wanted to work in science upon graduation and, as with Level 5 students, mature students and Polar 3 Q1 students were the most likely to want to work in science upon graduation (Figure 15).

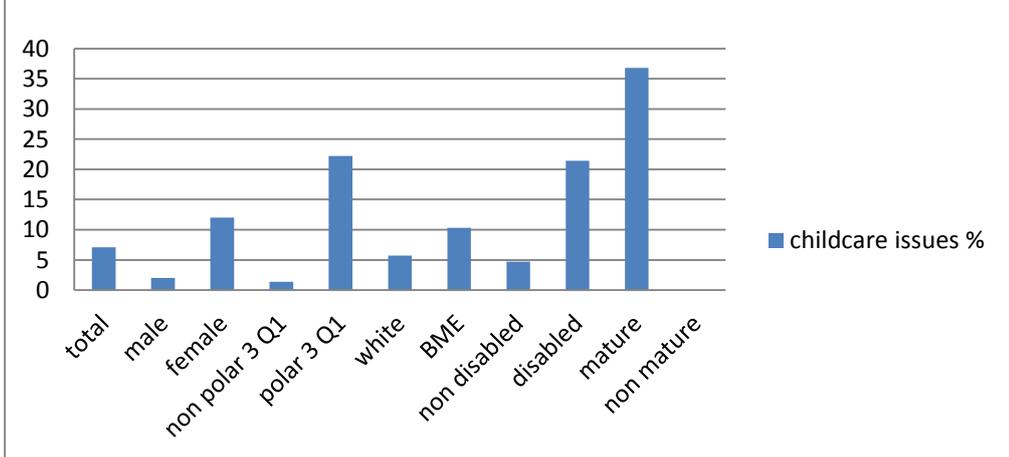
Figure 15: Level 6: I wanted to work in science



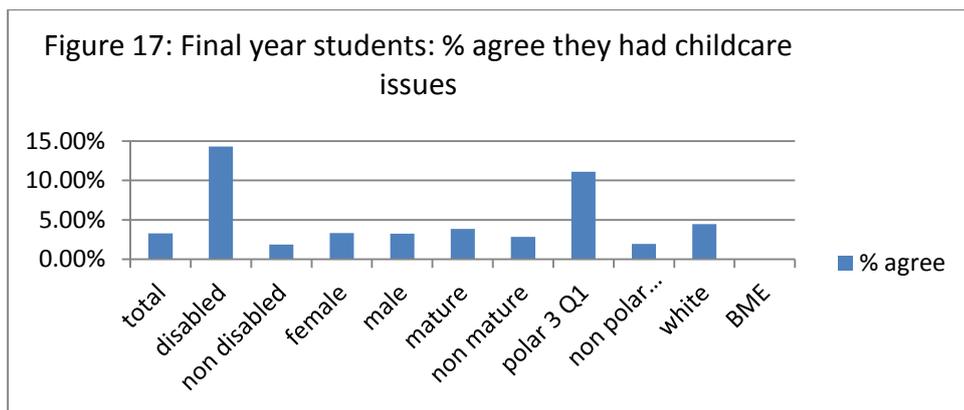
I have childcare issues when considering placements

For second year students considering a placement, perhaps not surprisingly a greater proportion of mature students had childcare issues- 36.8% of students having to consider childcare. In fact only mature students were affected (no non-mature students had childcare issues). 22.2% of Polar 3 Q1 students and 21.4% of disabled students were affected by childcare issues; however due to low student numbers in the study it was not possible to indicate significant associations (Figure 16).

Figure 16: Year 5 students: I have childcare issues when considering placements

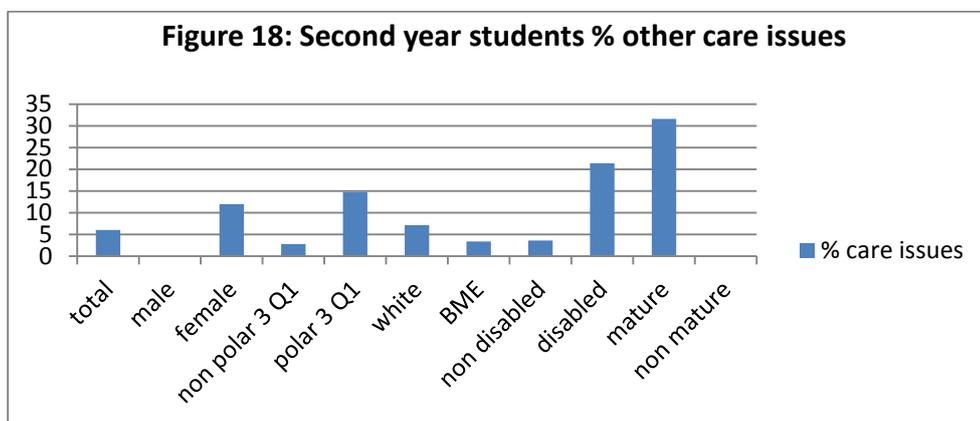


Results differed for final year students- indicative of year on year changes in demographics- depending on the student cohort (Figure 17).

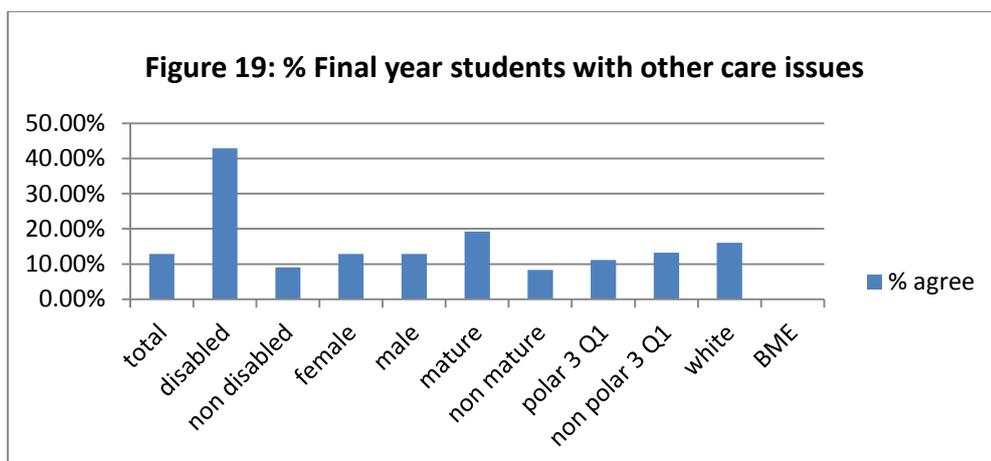


Placement is dependent on care issues

For second year students considering a placement, other care issues again affected more mature students (31.6%); Polar 3 Q1 (14.8%); disabled (21.4%) and female (12%) students (Figure 18).

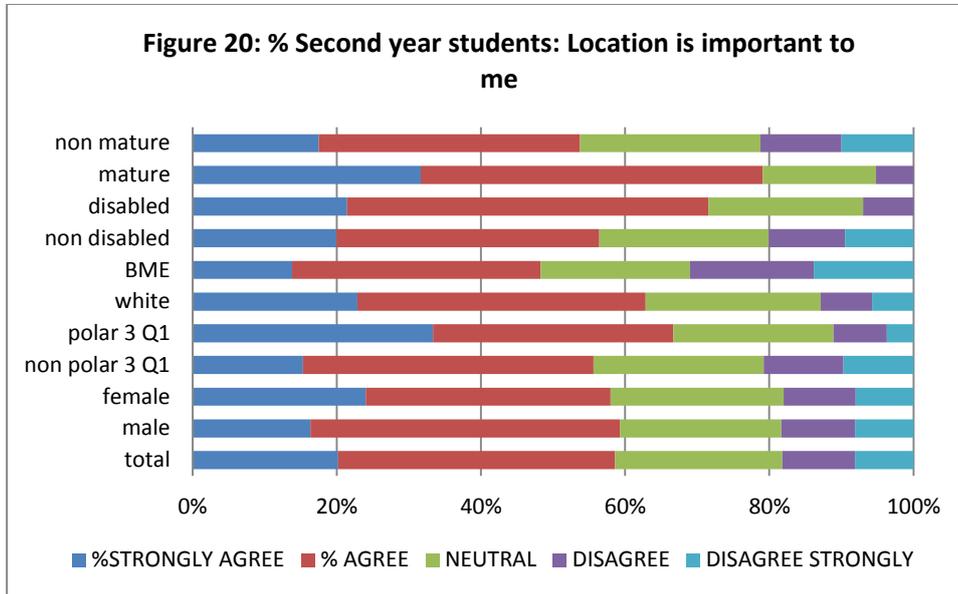


For final year students who completed the questionnaire, higher proportions of disabled students had care issues affecting their choice of placement (Figure 19).



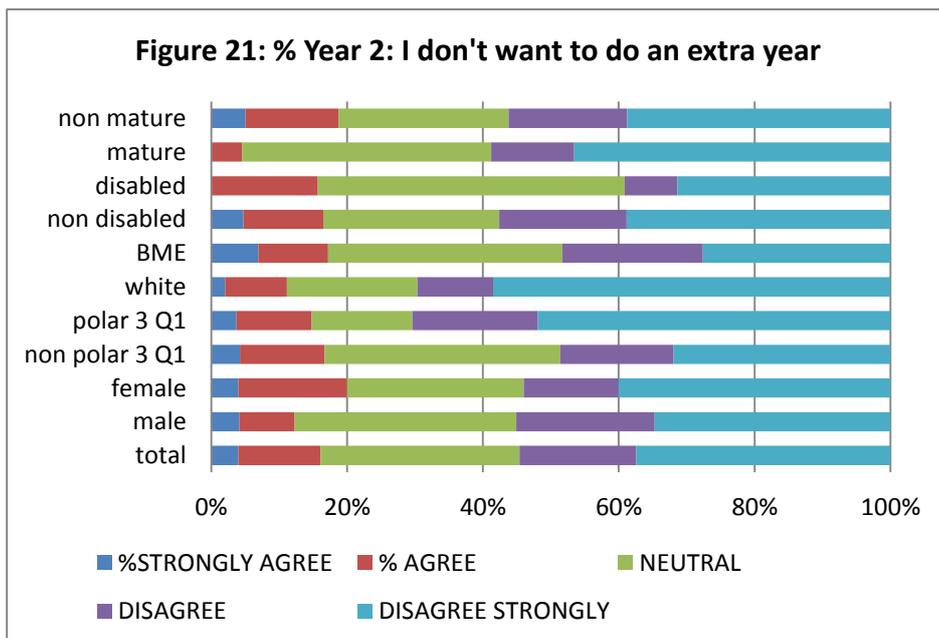
Location is important to me

For second year students considering a placement, higher percentages of Polar 3 Q1 students felt most strongly that location was important to them (33.3%). Location was most important overall for mature students and for mature students as a whole, taking data from both second and final year students, location was statistically significant ($p= 0.04$). Location was least important for BME students with only 47.8% agreeing that it was important, this variation was statistically significant ($p= 0.04$) (Figure 20).



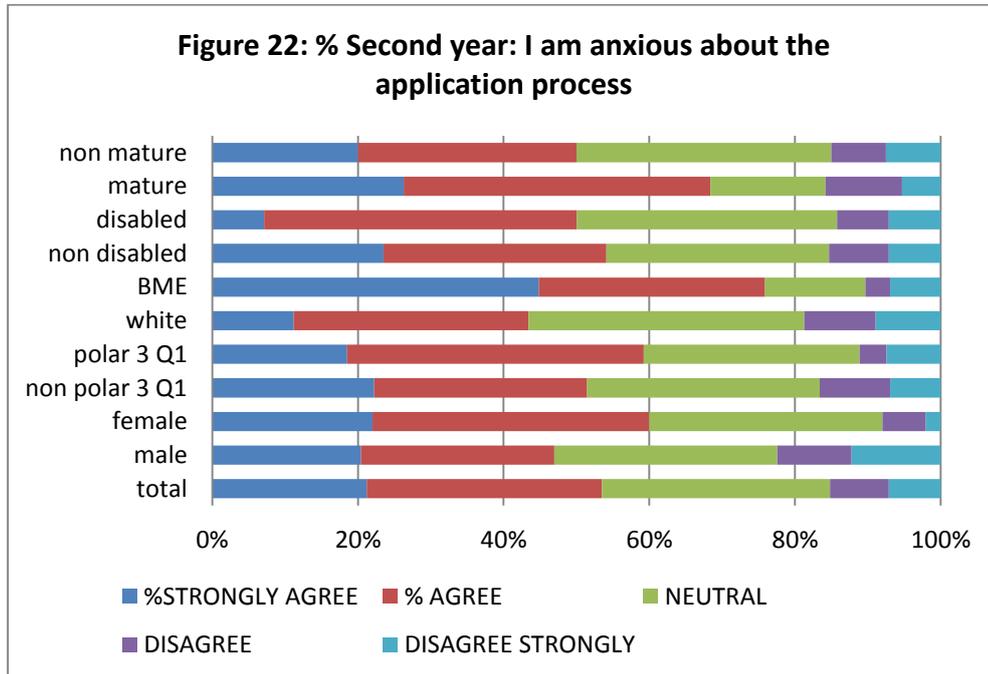
I don't want to do an extra year

For second year students, a larger percentage of female students (20%) said that they didn't want to do a placement year than males (12.5%). Non- mature students (19%) were more likely to agree that they didn't want to do an extra year than mature students (5.9%). A greater proportion of non- disabled students wanted to do a placement year (58.3%) in comparison to disabled students (35.7%). White students and Polar 3 Q1 students were most likely to disagree with the statement that they didn't want to do a placement year (Figure 21).



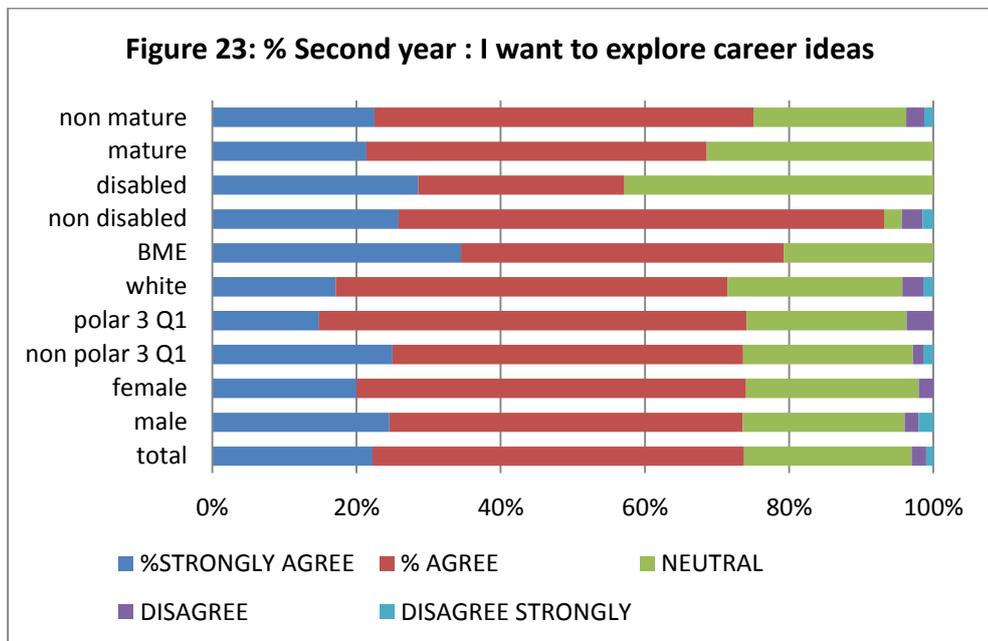
I am anxious about the application process

Second year BME students (75.8%) were statistically ($p = 0.05$) most likely to agree that they were anxious about the application process. Higher proportions of females, mature students and Polar 3 Q1 students were anxious (Figure 22).



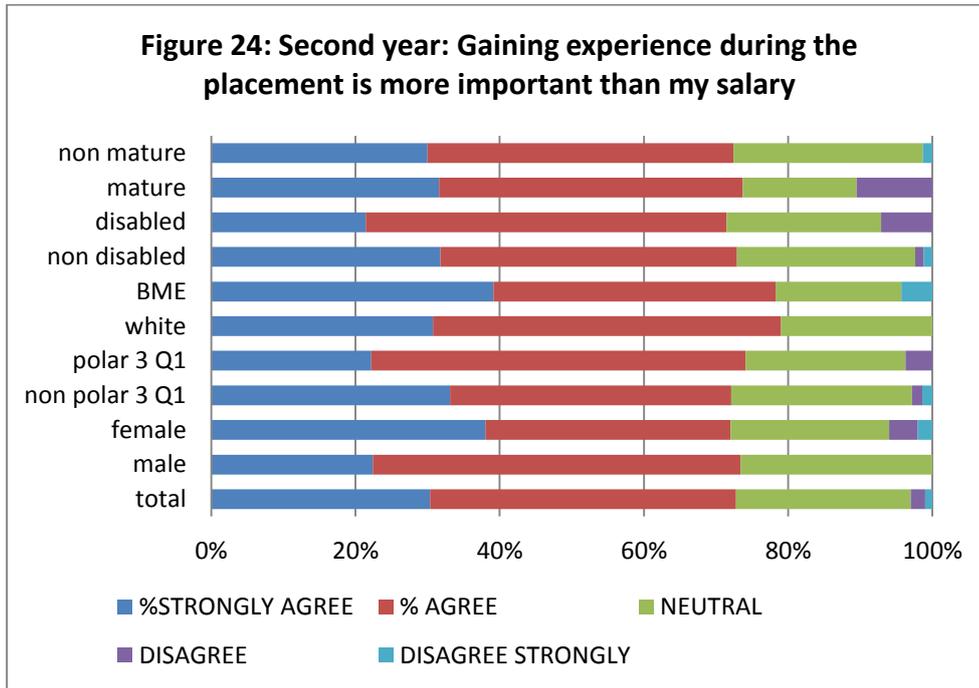
I want to explore career ideas

Second year students with disabilities were less likely than other groups to want to explore career ideas. Only 57.2% agreeing compared to 84.7% of non-disabled students. Mature students were also less likely to want to explore career ideas than non-mature students (68.9% compared to 75%) (Figure 23)



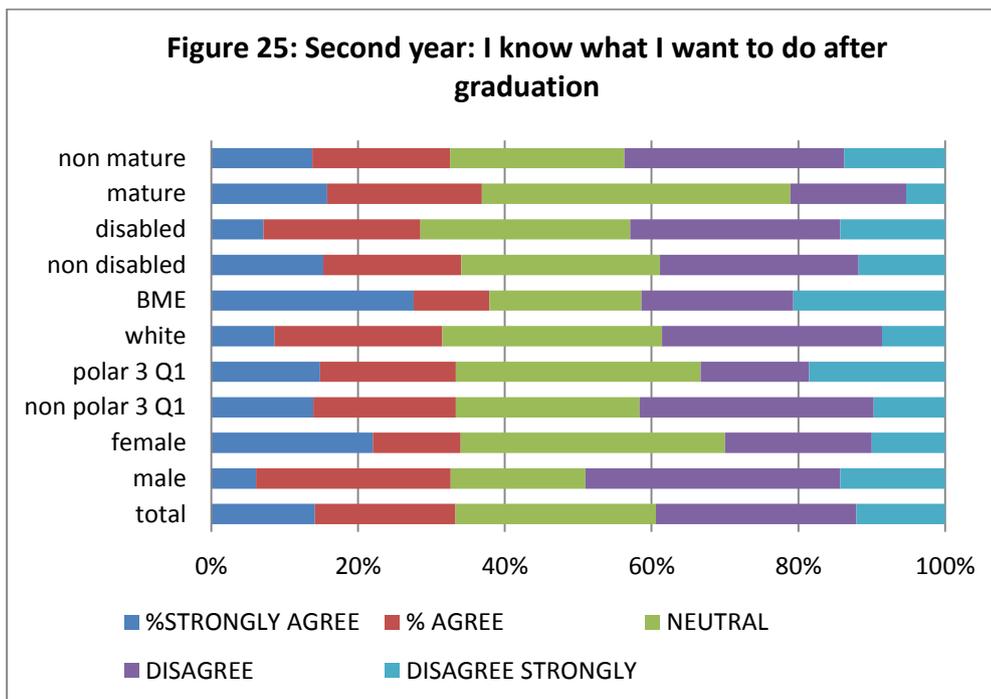
Gaining experience during the placement is more important than my salary

Mature (10.5%) and disabled (7.1%) students had higher proportions of students disagreeing that gaining experience was more important than a salary- compared to 1.3% of non- mature and 2.4% of non-disabled students, however numbers of students were too small for significant associations to be identified (Figure 24).



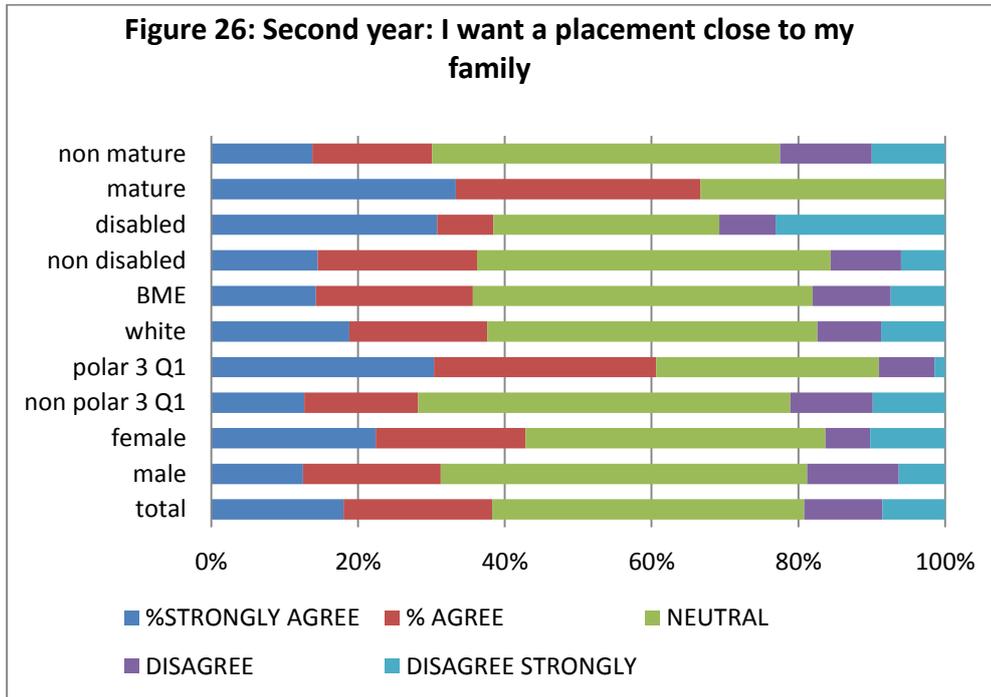
I know what I want to do after graduation

Only 21.1% of mature students didn't know what they wanted to do upon graduation compared to 43.8% of non- mature (Figure 25). 37.9% of BME, 36.9% of mature and 34.1% of non disabled students agreed they knew what they want to do after graduation compared to 31.5% of white students, 32.6% non-mature and 28.5% of disabled students.

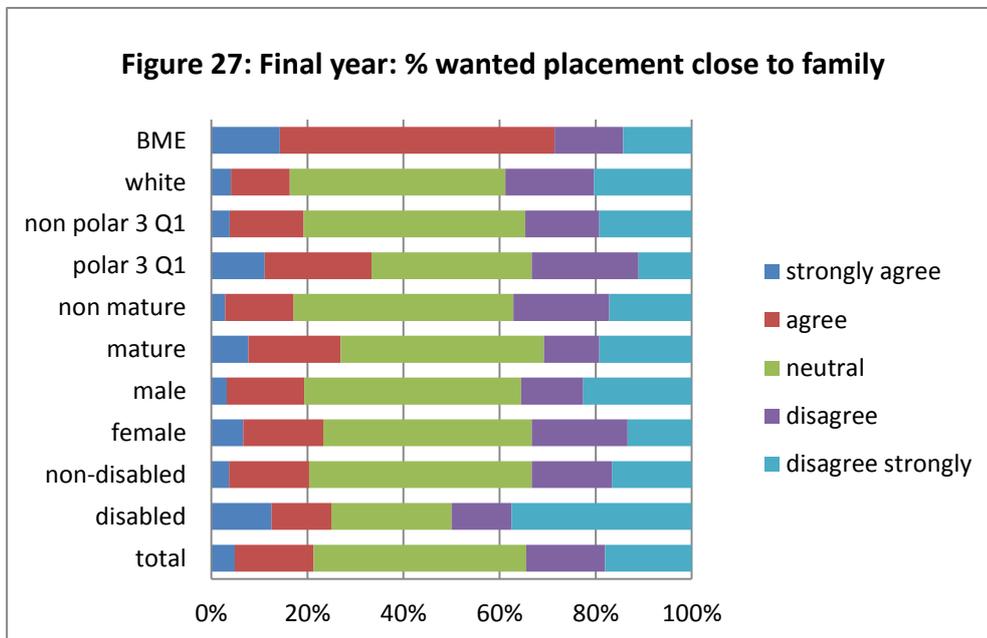


I want a placement close to my family

Second year mature students (66.66%) and Polar 3 Q1 (59.2%) were statistically more likely to want a placement close to their family than non mature (30.1%) ($p= 0.02$) and non- polar 3 Q1 students (27.8%) ($p= 0.02$). A greater proportion of females (42.8%) wanted a place closer to home than males (31.3%) (Figure 26).

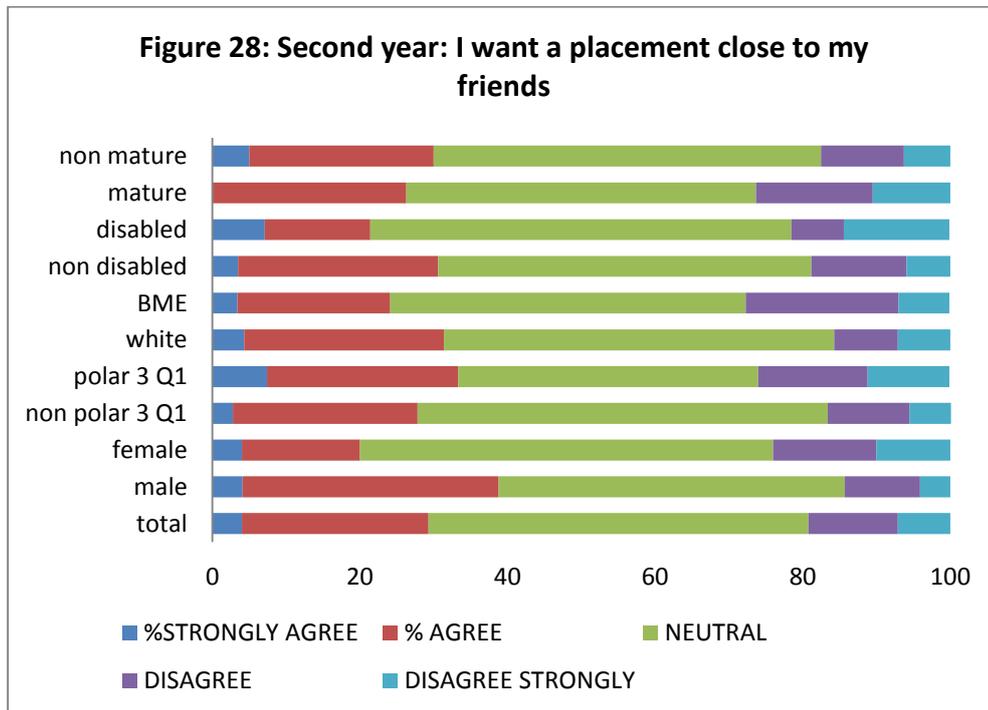


A higher percentage of final year BME students wanted a placement close to their family, however with low numbers of students in the sample the results were not significant (Figure 27).



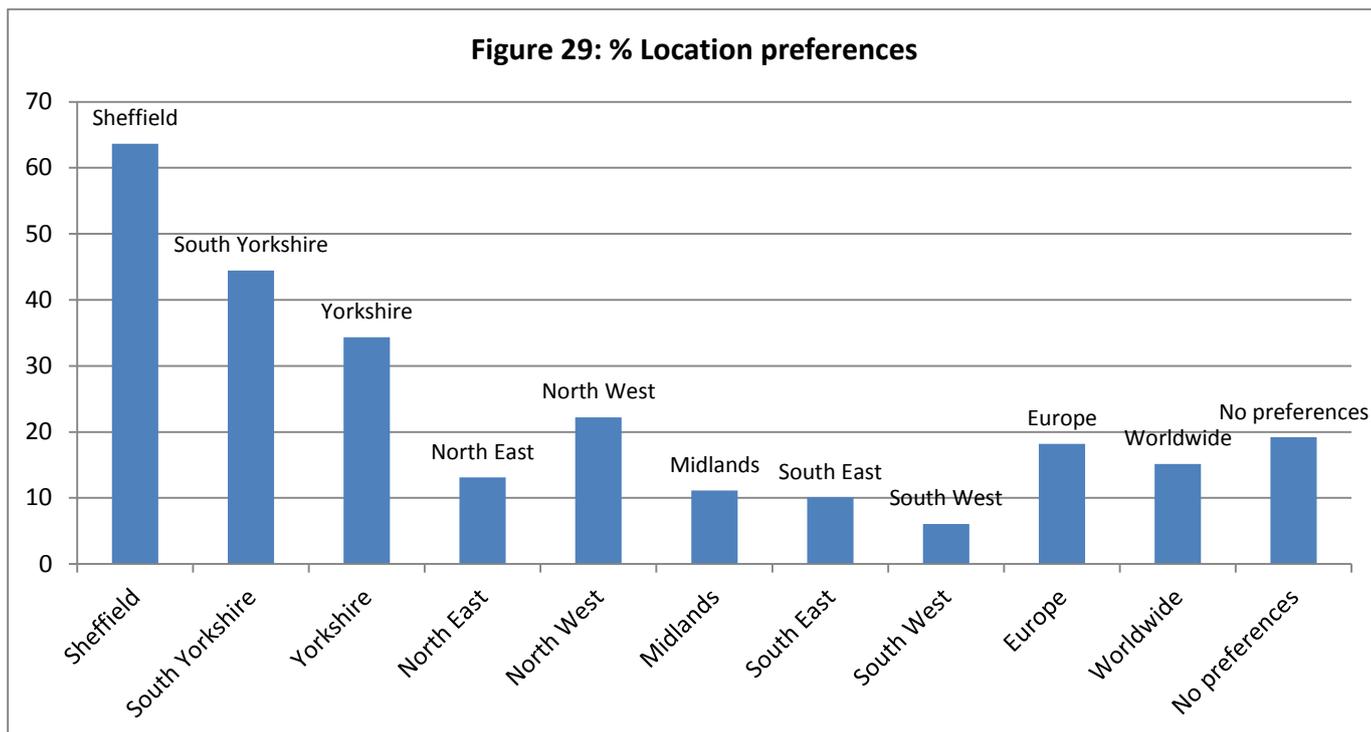
I want a placement close to my friends

A greater proportion of Year 2 males wanted a placement close to their friends: 38.8% of males compared to 20% females. A higher proportions of Polar 3 Q1 students than their non-polar 3 Q1 counterpart wanted a placement close to friends (7.4% strongly agreeing compared to only 2.8%) (Figure 28).



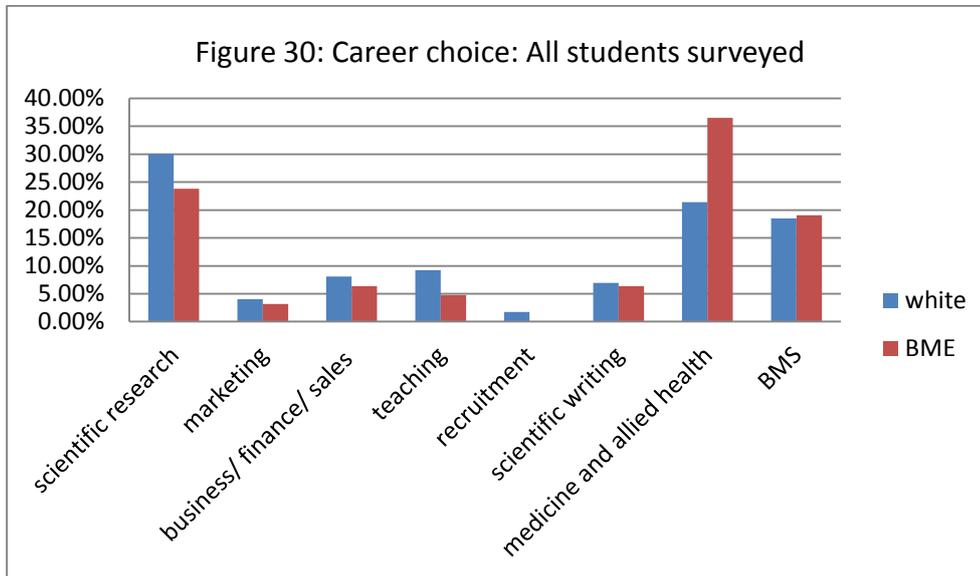
Location of placement

Students were asked for their preferred locations; they could choose multiple options. Over 60% of students' preferred choice was Sheffield, and when the area was stretched out to the South Yorkshire region this figure dropped by around 30%. However around 15-20% of students had either no preference or wanted to consider placements abroad. Mature students had the highest proportion wanting to remain in Sheffield (73.7% compared to 61.3% of non-mature students) (Figure 29).

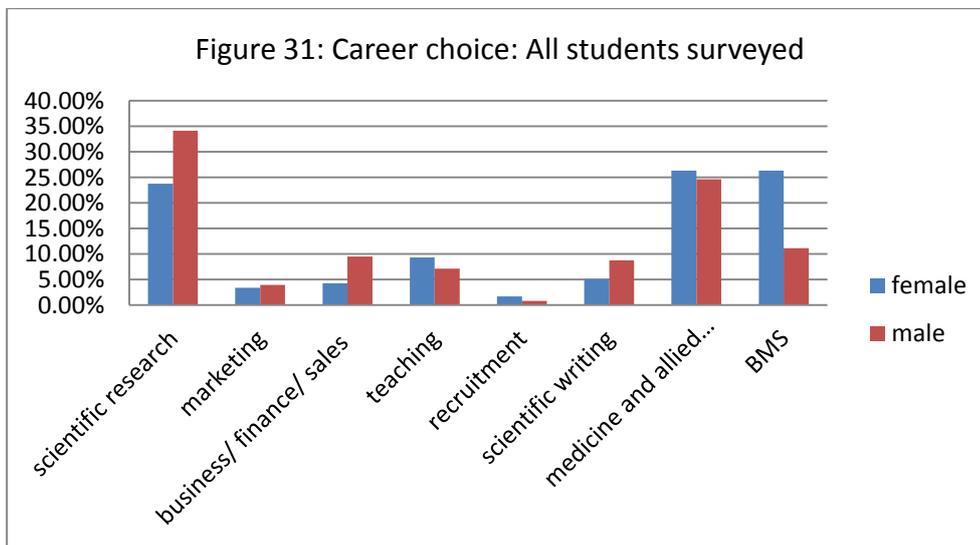


Career choice

Career choices- varied from scientific to roles such as marketing and teaching. Results varied according to demographics. A higher percentage of BME students wanted to progress in science than the rest of the cohort and of these, BME students were significantly more likely to want to progress onto medicine and allied health roles ($p= 0.038$) (Figure30).



A greater proportion of females wanted to work as Biomedical Scientists. Higher numbers of male students wanted to progress into scientific research (34.13% of males compared to 23.73% of females) (Figure 31).



For final year students who didn't pursue a placement, around 20% were interested in non- science based roles, with approximately 4% citing an interest in marketing; 7% in business/ finance/ sales roles; 8% teaching and 1% recruitment. A further 20% were unsure of whether they wanted to work in science or not.

Summary of results

This study indicated that overall, students were very positive about placements, wanted to explore career ideas and realised the potential benefits of doing a placement.

However, the study also showed that there were barriers to obtaining a placement. For some students factors were highly significant, whilst for others they had no affect. Whilst just over half of second year students agreed that being paid was important to them, 21.1% said it was not important to them and over 70% believed experience was more important than salary. Demographic variations were shown to affect students' decisions regarding placement choice and a larger scale study could analyse these variations further. However the study did highlight that students have individual requirements and issues that can affect their participation. Although students are very positive about the potential benefits of a placement year, to successfully support students it is important to look at the challenges faced by the student population.

Barriers

Despite all the observed benefits of a placement year, many students either chose not to participate or were unsuccessful in finding a placement. 67.5% of Bioscience and Chemistry students did not do a placement year. Reasons cited by approximately half final of year students for not progressing onto a placement included anxiety about the application process, care responsibilities, location, the time required for applications and finance. Second year students were able, if they wanted, to expand on factors affecting placement choice: Factors discussed were childcare; location; finance and worries about disabilities. These were often multifactorial. 5 of the 15 comments for example reflected childcare concerns often linked to location and finance. Comments included:

Childcare and Location

'I have children and wish to do a placement closer to home for childcare and travelling issues'

'lone parent/ no afterschool or sitters, with mortgage and bills. have to be home for 4 for children's' transport'

'I will have to have a paid placement and I will be doing a masters and will have to do pays fees and childcare'

'If it is close to Sheffield it would be great because I have childcare issues and I will have accommodation issues'

'I have my own home with my partner so the placement needs to be in commuting distance'

Anxiety/ Disability

'Worried about how my dyslexia might affect letters and how I'll cope with testing'

Funding

'No funding left for student finance so placement must be paid and within commuting distance'

'Student finance- need funding or I can't afford to do an unpaid placement'

'Cannot afford to do a placement, student finance do not give enough and teaching placements are unpaid'

As detailed in this research, priority groups such as BME students; disabled students; those from a Polar 3Q1 area; students with delayed entry into university and parents were more likely to have barriers that prevented them from participating in a placement year- even though they believed a placement year would positively help their progression. Research has indicated that for example mature students, students with lower UCAS

scores and students whose parents had not been to university were more likely to want to progress their career within their locality (Department for Business Innovation and Skills, 2014).

As programmes of work experience have become an integral part of employers' recruitment practices (High Fliers Research, 2018), students who cannot afford to do a placement year have a reduced chance of gaining a graduate role with these local employers. This is a key issue at SHU where we have developed close relationships with local employers. If students are unable to obtain one of these placements they are, in turn less likely to gain a graduate role with these employers. Students who have delayed entry to university for at least a year, have been shown in this study to be statistically less likely to go on placement. This in turn creates barriers to graduate employment. DHLE results discussed in this study have shown that Bioscience mature students (18%) had the highest proportion of unemployed graduates and were significantly more likely to be unemployed upon graduation. They also had the lowest proportion of students progressing into highly skilled employment or postgraduate study. By targeting resources to student groups most affected (for example providing help with childcare, travel costs; expenses; internal scientific placements for widening participation groups and provision of bursaries), we can reduce barriers to opportunities.

In a study of HEIs providing year-long sandwich placements, two of the key issues faced were motivating students and better preparing them for applying (National Foundation for Educational Research, 2015). For the 20% of students not looking forward to a placement year (the greatest proportion being disabled and female students), or for those unsure of the benefits of a placement, work needs to be done to motivate them. For the 48.4% who felt that that the application process was too time consuming, additional support could be provided to help students through the process. Work also needs to be done both to help male students progress and to understand their needs and barriers, as they have significantly higher levels of unemployment and a lower proportion of students progressing into highly skilled employment or postgraduate study, along with lower proportions progressing onto a placement year. Integration of sessions within the curriculum and making use of returning placement students and employers as ambassadors and mentors are an excellent way to support potential applicants, enabling them to have access to role models to expand and develop career ideas. This is something already done at SHU which could be expanded further.

Anxiety with the application process was highlighted by students during this study- especially for BME students. To help alleviate anxieties at SHU we have developed sessions to support students that are integrated within the curriculum, but could expand on these with placement preparation workshops- covering all aspects of the recruitment procedure from finances, disability rights and applications to sourcing accommodation: again with former placement student involvement as mentors and employers and specialists from those areas available to support students (E4E, 2011).

Careers registration

Universities have been moving towards systems of Careers Registration- often compulsory questionnaires to students in all year groups to analyse their career and employability needs and progression throughout their time at university (The Careers London Group, 2016). This will enable HEIs to understand the demographics of courses, the career ideas and experience requirements of students and any barriers students face. This will enable HEI's, if resources are put in place, to provide a package of employability development activities in place to support students (The Careers London Group, 2017).

Additional forms of experience

Utilisation of only one form of experience will not suit the needs of a vastly divergent student population. With the increase in tuition and placement year fees and limited availability of paid placements, research has indicated a decline in the number of sandwich placement students (Banga, 2013). Universities need to create opportunities for engagement in activities, and actively support student who cannot participate in a

placement year or activities outside the timetable (Universities UK and NUS, 2015). Opportunities available need to be diverse and should include curriculum based experiences such as short and long term work placements; mentor support; enterprise; tasters of postgraduate progression courses; work shadowing; volunteering; field work; employer visits; employer led projects and employer based simulations (Universities UK and NUS, 2015)(von Treuer, 2010)(SecEd, 2015). Many of these are already accessible at SHU, both within the Bioscience and Chemistry Department and the Careers and Employability Service, including schemes such as Career Impact: a series of workshops run in conjunction with employers (Career Impact, 2018); Venture Matrix: a programme to enable students to work alongside organisations on real life activities (Venture Matrix, 2018) and our Career Mentoring programme (Career Mentoring, 2018).

As indicated in this study, it is important to understand that not all students wish to progress in science. A centralised package of work experience could be developed that students could access within their curriculum. Students could then gain experiences in their areas of interest or in career progression routes that are available to them irrespective of their degree type (for example teaching, marketing, law, finance, recruitment, IT, health related careers and business). This could, for example within the Bioscience and Chemistry cohort, enable students wanting to progress into areas such as medicine and allied health (a key progression route for BME students) or teaching to gain the experiences required. SHU has started this already through its student internship program (The Hallam Internship Scheme, 2018), which targets widening participation students and enables mainly final year students to gain paid work experiences within a wide range of career areas. By making these activities within the curriculum and a compulsory part of non-placement students' timetable, students will have reduced barriers to participation.

Employers

The ability to persuade employers to offer placements is a major issue (Department for Education, 2017) Following Government initiatives to increase the skills of the UK labour market- including the development of the new T- level qualifications and the introduction of one to three month work placement for all students on these courses; the Learning and Work Institute published a report, commissioned by the Department for Education. This report found 'work placement fatigue' amongst employers due to the number of placement requests received (Burke, 2018). As universities compete to improve the DLHE scores of their students, the need for increased work placement provision may increase this employer fatigue. This is especially the case for short term placements in science and health where practical considerations such as the need for Disclosure and Barring Service checks and the training of students in health and safety requirements to enable them to work effectively within often potentially hazardous environments may complicate issues for employers (Department for Education, 2017).

It is important to develop partnerships between universities and industries to increase high quality experiences; produce graduates with the required skills for the labour market; to support employers to develop their business productivity and to provide low cost skilled employees to enable regional development (Abeysekera, 2016). To increase the depth of placement opportunities it is important to have a concerted effort to speak to employers to highlight the benefits of placements (and other opportunities such as work shadowing; final year projects and volunteering) for them and to identify best fits for the employer, university and students.

Location of placement opportunities was a key issue for many SHU students, so building relationships with local and regional companies is central to achieving this (National Foundation for Educational Research, 2015). This in turn could lead to income generation and activities such as KTPs, consultancy work and apprenticeships- pivotal activities to support regional development and economic growth (Abeysekera, 2016). Only by further investment will it be possible to engage employers, increase capacity and expand the range and quantity of placements (Burke, 2018) . This in turn should lead to increased DLHE outcomes (Office for

Students, DLHE, 2018)(HESA, 2018a) and NSS student satisfaction scores (National Student Survey, 2018) (National Centre for University and Business, 2011) and subsequently improved League Table results.

Recommendations

- Introduce a compulsory careers questionnaire for all year groups to analyse career and employability needs and progression.
- Provide practical support such as financial assistance in the form of bursaries for unpaid placements, childcare, travel and accommodation support to students identified as having the greatest barriers to progression.
- Provide internal SHU Bioscience and Chemistry placements (both short and year long), for students from widening participation backgrounds.
- Provide a wide variety of activities within the curriculum: including short and long term work placements; enterprise, work shadowing; volunteering; sandwich placements; field work; employer visits; employer led projects and employer based simulations to support students who have barriers to a placement year.
- Create centralised experiences that can be accessed within the curriculum to enable students to expand career ideas and knowledge of progression routes available to them irrespective of their degree type; targeting those with barriers to taking a placement year/ those from a widening participation background.
- Develop partnerships between universities and industries, specifically with local and regional companies, to produce graduates with the required skills for the labour market.
- Increase investment, to enable engagement with employers, increase capacity and expand the range and quantity of placements (for example university funding for placements with SMEs (such as The Hallam Internship Scheme, 2018).
- Develop placement preparation workshops within the curriculum- covering all aspects of the recruitment procedure from finances, disability rights and applications to sourcing accommodation: again with former placement student involvement as mentors and employers and specialists from those areas available to support students

Second Year Bioscience and Chemistry : Placement Choice

The Careers Service is carrying out research to identify Sheffield Hallam Bioscience and Chemistry students' attitudes and hopes regarding placements with the aim of supporting as many students as possible into placements, both now and in coming years. We would really appreciate it if you could spare 5 minutes to complete this quick form.

Name

Course Title

Student Number

Are you happy to for the information in this form to be shared with your department to enable a targeted placement search? Please tick the appropriate box.

Yes

No

1. With regard to a **PLACEMENT YEAR**, please select the number on the scale below that best represents how you feel about each statement

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1. I want to do a placement	1	2	3	4	5
2. A placement would improve my job chances	1	2	3	4	5
3. Being paid for a placement is important to me	1	2	3	4	5
4. I am looking forward to doing a placement year	1	2	3	4	5
5. I already have significant relevant work experience	1	2	3	4	5
6. I want to work in science upon graduation	1	2	3	4	5
7. I have childcare issues affecting choice	1	2	3	4	5
8. I have other care issues affecting choice	1	2	3	4	5
9. Location is important to me	1	2	3	4	5
10. Gaining experience during the placement is more important than the salary	1	2	3	4	5
11. I want to complete my IBMS portfolio	1	2	3	4	5
12. I know what I want to do after graduation	1	2	3	4	5
13. I am confident about the application procedure	1	2	3	4	5
14. I want a placement close to my family	1	2	3	4	5
15. I want to stay close to my friends	1	2	3	4	5

2. If you feel you would like to expand on any additional factors that may affect your ability to do a placement year please add details in the box below

--

3. Where would you like your placement to be? (tick all that apply)

	Sheffield
	South Yorkshire
	Yorkshire
	Northern England
	Southern England
	Midlands
	Wales
	Europe

4. What career ideas have you had (tick all that apply)

	I am unsure what I want to do
	Scientific Research
	Marketing
	Research
	Teaching
	Recruitment
	Scientific writing
	Medicine
	Allied health (such as Physicians associate, radiographer, occupational therapist)
	Sales
	Management
	Compliance
	Biomedical Scientist
	Other.... Please expand in this box

Thank you for taking the time to complete this form. If you would like to book an appointment with an adviser to discuss any aspect of placement/ career choice please tick the box

Final Year Bioscience and Chemistry : Placement Choice

The Careers Service is carrying out research to identify Sheffield Hallam Bioscience and Chemistry students' attitudes and hopes regarding placements with the aim of supporting as many students as possible into placements, both now and in coming years. We would really appreciate it if you could spare 5 minutes to complete this quick form.

Name

Course Title

Student Number

1. Did you complete a placement year (Tick the relevant box).

Yes No

2. With regard to your choice (or not) of a PLACEMENT YEAR, please select the number below that best represents how you felt about each statement

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1. I wanted to improve my job chances	1	2	3	4	5
2. I wanted to be paid	1	2	3	4	5
3. I felt I had enough relevant work experience	1	2	3	4	5
4. There were no suitable placements	1	2	3	4	5
5. I wanted to work in science upon graduation	1	2	3	4	5
6. I had childcare issues affecting choice	1	2	3	4	5
7. I had other care issues affecting choice	1	2	3	4	5
8. Location was important to me	1	2	3	4	5
9. Gaining experience during the placement was more important than the salary	1	2	3	4	5
10. I wanted to complete my IBMS portfolio	1	2	3	4	5
11. I wanted to explore career ideas	1	2	3	4	5
12. The process was too time consuming	1	2	3	4	5
13. My applications were not successful	1	2	3	4	5
14. I was too anxious being interviewed	1	2	3	4	5
15. I was not confident enough to apply	1	2	3	4	5
16. It felt it would benefit my studies	1	2	3	4	5
17. I didn't want to do an extra year	1	2	3	4	5
18. I wanted a placement close to my family	1	2	3	4	5
19. I wanted to stay close to my friends	1	2	3	4	5

2. Were there any additional factors that affected your ability to do a placement year? Please add details in the box below

3. What career ideas have you had (tick all that apply)

	I am unsure what I want to do
	Something related to science
	Something not related to science
	Scientific Research
	Marketing
	Finance
	Teaching
	Recruitment
	Scientific writing
	Medicine
	Allied health (such as Physicians associate, radiographer, occupational therapist)
	Sales
	Management
	Biomedical Scientist
	Other... Please expand here

Thank you for taking the time to complete this form. If you would like to book an appointment with an adviser to discuss any aspect of career choice please tick the box

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