Institute of Physics: Tracking the careers of UK physics students

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ACKNOWLEDGEMENTS

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Executive overview

Background
The Institute of Physics (the Institute) has recognised a gap in knowledge regarding the aspirations and future careers of UK physics graduates. Such information is vital when planning projects aimed at encouraging participation in physics from a wider, more diverse community, as well as informing potential physics students of the opportunities available to them.

In 2005, the Institute embarked on a five year longitudinal tracking project to investigate the backgrounds and aspirations of final year physics undergraduates and track the development of their careers over the coming years. The first report from this study was published in 2006, and this report presents the findings from the second year of research.

Methodology
The project as a whole is made up of two distinct phases.

In the first phase, questionnaires (both in online and paper format) were sent to university physics departments in England, Scotland, Wales and Ireland (the 2007 cohort for this study). Institutions distributed these to their final year physics undergraduates. Approximately 2,800 students were sent the questionnaires. Initially, the online survey was distributed by email to final year students studying physics modules. A paper survey was used to boost the response from some institutions that elicited a small response to the initial online distribution method.

In the second phase, an electronic database was developed for distribution to physics graduates who had previously taken part in the study (in this case, the 2006 cohort). The database was only accessible using a unique ID distributed to the cohort together with an email invitation. Within the database, respondents were able to update and amend their details accordingly, and provide further information about their current activities.
Findings from Phase one – 2007 cohort questionnaire

Sample profile
A total of 1,396 students responded to the questionnaire (391 paper and 1,005 online responses were received). There was a higher representation of males (69% n=948) and the majority was aged 22 to 25 years (56% n=757) and 21 years and under (41% n=562). 75% (n=1035) of the sample self-defined themselves as White British, leaving small proportions across the remaining ethnic groups. In terms of nationality, 84% (n=1157) were British, 5% (n=72) Irish and 6% (n=78) were from the EU (not including UK). The largest proportion of students originated from the South East (16% n=218), followed by the South West (10% n=139).

Respondents were required to state either the occupation of their parents or guardian, or in the case of mature students, the occupation of the main income earner in the household. The largest proportion were classed within major group 2 (professional occupations) (45% n=602), followed by major group 1 (senior officials and managers) (19% n=261) (For a full description of the categories see Appendix 2).

Demographic profile explored
Using cross tab analysis\(^1\) it was possible to explore in greater depth the demographic profile of the sample. Investigating how gender, ethnicity and occupational classification was spread across a range of demographic factors yields information about the types of individuals attracted to study physics, and conversely the types of individuals that are not.

Gender representation
There was found to be a greater representation of males than females across all the ethnic groups, with the exception of the Mixed White and other group (54% female, n=7). Males were also most highly represented across all the UK and overseas regions, but were particularly well represented from Yorkshire and Humberside (77% n=60), Wales (77% n=40) and the East Midlands (76% n=62). There were high female numbers coming from Northern Ireland (56% n=19).

\(^1\) A statistical technique using SPSS whereby responses from a sub section of the sample can be identified.
Exploring gender variations by occupational class found little discernible variations between genders. As with the sample as a whole, both males and females were most likely to come from the major group 2 occupational background (46% n=423; 42% n=176 respectively), followed by the major group 1 classification (17% n=156; 24% n=101 respectively).

Again, intentions after graduation did not seem to vary considerably by gender. The largest proportion of both males and females intended to go into work following graduation (37% n=351; 35% n=151 respectively), and a large proportion intended to conduct a PhD (28% n=265; 26% n=112 respectively).

**Ethnicity representation**

It is important to highlight here that low respondent numbers within all but the White British ethnic group mean that caution must be exercised when drawing conclusions from the findings. As with the sample as a whole, 22 to 25 year olds were the dominant age group across each ethnic group. Many of the low response groups were made up entirely of 22 to 25 year olds (Mixed White and Black Caribbean, Mixed White and Black African, Black or Black British African, Asian or Asian Irish – Other). Individuals of White British ethnicity dominated the samples from each institution, but there was a more noticeably diverse spread of ethnicity amongst students attending Queen Mary’s University, University College London, and Kings College London.

The highest proportion of respondents within each ethnic group fell within major group 2 for occupational background. Investigating intentions after graduation, go into work was a popular option amongst many groups, including White British (40% n=406), White and Asian (46% n=5), and Chinese (37% n=11) ethnic group respondents. Further study on a PhD was the most popular option for those classed as White Other (39% n=41).

**Occupational classification**

Examining how intentions after graduation vary by occupational background, the largest proportion of respondents within most occupational groups intended to enter into employment following graduation. The largest proportion of respondents in the Major 7 occupational group (50% n=14) and in the Major 8 occupational group (31% n=8) intended to conduct a PhD after graduating.
Respondents from major group 2 were the most highly represented at the majority of institutions.

**Geographical location representation**

The largest age group represented in all geographical locations except the East Midlands and the West Midlands was 22 to 25 year olds. This group was particularly prominent in the Republic of Ireland (82% n=50), North East (62% n=24), and elsewhere (64% n=69). In the East Midlands and the West Midlands, half of the students were 21 years and under (53% n=56 and 51% n=66 respectively).

It is apparent that the largest proportions of students originated from the region in which the institution is located, particularly so for those institutions based in Scotland, Wales and Northern Ireland. For example, 100% (n=16) of students attending Cork University originated from the Republic of Ireland; 100% (n=16) of those attending Glasgow University originated from Scotland; and 100% (n=5) of those attending Aberdeen University originated from Scotland. Being a distance learning provider the Open University served students from a range of geographical areas. It is also apparent that the many larger institutions attracted students from a range of locations, particularly University of Durham, Imperial College London, University of Cambridge, University of Warwick, and the University of Bristol.

Exploring how intentions after graduation vary amongst students originating from different geographical areas, it was found that there were some variations. The largest proportion of respondents from the Republic of Ireland (38% n=23) and elsewhere (outside EU) (47% n=52) intended to conduct a PhD. In all remaining areas the most likely route was employment following graduation: 51% (n=46) of respondents residing in East Anglia and 46% (n=44) from Scotland intended to go into work.

**Intentions after graduation based on disability status**

There was little notable variation in intentions after graduation between those with or without a disability. Of those stating they had a disability, fewer intended to go into employment (20% n=13), compared to 38% (n=485) of those without a disability. However, a higher proportion of those with a disability intended to conduct a PhD (31% n=20) compared to 27.1% (n=350) of those without a disability. A higher
proportion of those who stated they had a disability intended to conduct teacher/PGCE training (14% n=9) compared to those without a disability (5% n=69).

**Employment**

46.9% (n=638) had worked during term time, with most working under 10 hours per week (5.1% n=316). The most popular type of work was retail / customer service (19.9% n=278), followed by bar work (12.6% n=176). Respondents had undertaken a variety of jobs other than those listed, the most popular being teaching or tutoring of some description (n=30). The most popular reason for taking on work during term time was for money (41.7% n=582), followed by for personal development (14.8% n=206).

**Findings from Phase two – 2006 cohort database**

Respondents from the 2006 cohort were sent an invitation by email to complete an online database, giving updated information about their activities since graduation. This exercise produced responses from 39.6% of members of the original cohort (409 out 1034).

**Disability**

5.6% (n=23) of the sample self defined themselves as disabled. Respondents were able to specify their disabilities. There was a range of mental and physical disabilities given, the most common (45%, n=10) being dyslexia.

**Care responsibilities**

A small proportion of respondents reported having responsibility for dependents. 0.5% (n=2) were the main carer for a dependent child and 1.6% (n=6) were the main carer for a partner. 1.6% (n=6) shared responsibilities for caring for a dependent child; the same number shared responsibilities for a dependent parent. Five other respondents indicated that they cared for someone in some capacity.

**Education**

The most commonly mentioned institutions were Durham University (8.5%) and University of Manchester (7.3%). 43.3% (n=168) of respondents stated that they had achieved a first class degree classification and 34.5% (n=134) achieved an upper
second classification. Over half of respondents (56.7% n=229) stated that they were currently continuing in education.

**Employment**

Those respondents in employment were asked a series of questions about the nature of their employment. The largest proportion 30.7% (n=54) of respondents stated that they were currently employed in the industry sector. 34.7% (n=61) stated that they were working a sector that was not listed or that the questions was not applicable to them. 13.1% (n=24) of respondents stated they were currently working in the education sector, of this the majority (79.2%) were working schools and 16.7% were working in universities. 6.8% (n=11) of respondents were working in the government sector, of this 45.5% (n=5) were working in central government or civil service in a government department. 30.7% (n=54) of respondents were working in industries, and the spread of the types of industries respondents were working in was quite varied. 18.5% (n=10) were working in electronics / IT or software industries. 37% of these respondents stated they were working in an industry area that was not listed; however, the other responses provided display a wide range of industries. 14.8% (n=26) of respondents stated they were working in the services sector, 34.6% (n=9) of which were working in financial services.

Respondents were asked to indicate their level of responsibility. 40.3% (n=71) of respondents were working in positions were they had the responsibility of being a project / team member whilst 23.9% were working as trainees. Very few respondents were working in management level roles (1.7% n=3) and even fewer were working in senior management level positions (1.1%). Respondents were also asked to state the main function of their role. The most commonly mentioned functions were teaching, consultancy and development. Respondents who answered ‘other’ or ‘not applicable’ to this question were given the opportunity to elaborate on their answer and specify the main function of their role. The responses received were very broad and showed no specific trend, although four were carrying out technical support of some nature.

Respondents were asked about the type of organisation they worked for. More respondents worked in international organisations (41.7% n=70) than local or national organisations. Many respondents (47.6% n=80) were working in large firms, with more than 250 employees. Most respondents (89.1%) were earning less than £30,000 a year (figure 53). 32% of respondents stated they were earning anything up
to £19,999 (n=47) and 38.1% (n=56) stated they were earning between £20,000 and £24,999 a year. The majority (91%) of respondents stated that they were working full time.

61% (n=92) of respondents stated that their current occupation was either not at all related or not particularly related to physics. However, 78% (n=117) of respondents stated that they found their physics background either quite useful or very useful in their current occupation.

**Career breaks**
Most respondents (81.5%, n = 318) had not taken a career break. Of those who had, 50.7% (n = 35) had taken a break lasting between 7 and 12 months, and 42% (n = 29) had taken a break lasting between of up to 6 months.
1 Introduction

1.1 Background

The Institute of Physics (the Institute) is a leading international professional body and society, which promotes the advancement and dissemination of knowledge and education in physics. The Institute has recognised a gap in knowledge regarding the aspirations and future careers of physics graduates, and acknowledges the importance of such information in encouraging participation in physics from a wider, more diverse community, as well as informing potential physics students of the opportunities available to them.

The Institute has embarked on a five year longitudinal tracking project, which will investigate the backgrounds of final year physics undergraduates and track the development of their careers over the coming years. The following objectives have been specified:

- To investigate the profiles of final year physics undergraduates in terms of gender, ethnicity, disability, age and socio-economic backgrounds
- To determine the career aspirations of final year physics undergraduate students
- To determine what careers physics graduates embark upon
- To explore how these dimensions vary across specific demographics, with particular focus upon minority groups such as women, Black and Minority Ethnic (BME) groups and lower occupational groups

1.2 Methodology

The research employs a predominantly quantitative methodology in the form of a questionnaire (both online and postal) and an electronic database. The research is made up of two distinct phases, both of which will be addressed separately.

For clarity, the phases of the research across the life of the study are presented in Table 1.
Table 1: Phases of the five year study

<table>
<thead>
<tr>
<th>Year</th>
<th>Year 1*</th>
<th>Year 2†</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
<th>Year 6</th>
</tr>
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<td>Database update</td>
<td>Database update</td>
<td>Database update</td>
<td>Database update</td>
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<td>Database update</td>
<td>Database update</td>
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</tr>
</tbody>
</table>

*Report available online
†Year of this report

Phase one: Survey of final year physics undergraduates

A questionnaire was distributed to all final year physics undergraduate students (including joint honour students) in England, Scotland, Wales and Ireland. A copy of the questionnaire is included in Appendix 1. The questionnaire also acted as a means by which the students’ demographic and contact information could be compiled to create a unique electronic database that will be used to track the individual’s development over the coming years. The database will be discussed in more detail in the next sub-section.

With agreement from all the heads of department the questionnaires were distributed to the 47 university physics departments across England, Scotland, Wales and Ireland, targeting approximately 2,800 final year undergraduate physics students. Prior contact was made with individual academics within each department, who assisted with the distribution of the questionnaires to their final year students. They were also sent a number of posters advertising and promoting the study, prior to the sending of the questionnaires. In the first instance, an online survey was distributed by email to final year students studying physics modules. Some physics departments undertook this distribution themselves; others provided contact details to the research team for distribution of the survey. The online survey was then followed by a paper survey in order to boost the response from some institutions that elicited a small response to the initial online distribution method.

To encourage the optimum response rate, various techniques were employed. The questionnaire was made as easy as possible to complete online using routing, which helped ease of completion. The paper questionnaire was kept to a maximum of four sides. Cash prize draws were offered to respondents. For the paper questionnaires, the Institute strongly recommended that the questionnaires were distributed, completed and returned during lectures or seminars. A covering letter was sent with the questionnaires explaining the nature of the survey and offering advice on the best way to distribute and return the questionnaires, which were supplied with a pre-paid envelope. Follow-up emails and calls were also made to the departmental contacts to offer encouragement and advice in obtaining high levels of participation.

After the initial distribution of the online questionnaires, 28 institutions were identified as eliciting a particularly low response rate. Department contacts of these institutions were asked to help distribute the paper version of the questionnaire to final year physics undergraduate students. It is important to note here that measures were taken to ensure there were no duplications in responses from both the online and paper methods, and any duplicates received were removed from the final dataset.

In parallel to tracking the previous cohorts, all final year university physics undergraduates will be contacted each year during the period of the project to enroll a new cohort of students into the research study.

**Phase two: Database tracking of the physics graduates**

Upon receipt of the completed questionnaires from the 2006 cohort, each respondent was allocated a unique ID number. An electronic database was developed to display each respondent’s individual details, which were only accessible using the unique ID. The respondents were contacted approximately one year after responding to the original questionnaire, and prompted to access their page using the unique identifier. Within this page they were able to update and amend their details accordingly, as well as provide additional information about their current activities.

Respondents will be prompted to re-access and update the database each year until the completion of the project, thus tracking the development of their careers over time.
As a means of encouraging and maintaining the interest of physics graduates in completing the database, a number of techniques were used. ‘Pre-emptive’ postcards with an image from the Institute on the front were sent to all of the 2006 cohort, thanking them for taking part in the study, providing a URL to the results from the 2006 report, and encouraging them to continue to take part in the study when they were contacted by email later in the year. The postcards also provided a contact email should respondents wish to receive more information, or inform the research team that their email contact detail had changed. The email distributed to the 2006 cohort providing the URL to the database provided further encouragement to continue participating in the study, as well as a cash prize draw.

1.3 Caveat

The following caveats must be noted regarding the results:

- Due to the nature of longitudinal surveys there would be an expected amount of ‘natural wastage’ in the volume of responses from one year to the next, due to individual changes in circumstances, contact details, and time constraints of those in full time work. However, the strong response rate to the follow-up database for the 2006 cohort is very encouraging, and it is hoped that this strong response rate can be continued over the life of the project.

- As has been discussed, the Institute and QUAD research encouraged the proactive support of the university physics departments, and asked the contacts to distribute the follow-up paper questionnaires during lectures or seminars. It is possible that alternative methods of distribution were being used, such as placing the questionnaires in student pigeon holes or leaving the questionnaires in the department common room for collection. These less proactive methods could may have had a detrimental impact on the response rate from some departments.

1.4 Reporting

This report will present the findings from the second year of the project, which comprises:

Phase one – 2007 cohort questionnaire
Phase two – 2006 cohort database update
The context of the current report is provided in Table 1 above.

When considering the results, it is important to remember that in both phases of the research, not all respondents answered all the questions, and a number of questions were routed\(^3\) depending on individual responses. Therefore, the results included throughout this report are presented as percentages of those that answered the question, not as a percentage of the sample as a whole. The number of individuals that responded to a particular question is included as \(n=x\).

Wherever possible, graphical and tabular illustrations will be used to present the findings.

\(^3\) Routing is the technique whereby individuals are directed to certain questions based on their particular response to an earlier question. As such, there may be questions not applicable to the respondent.
2 Phase one results: 2007 cohort questionnaire

2.1 Demographic profile of respondents

A total of 1,396 students responded to the questionnaire; this comprised 391 paper questionnaires and 1,005 completions using the online version. This section will present the top line demographic profile of the sample.

The sample constituted a larger proportion of male respondents (69% n=948) (see Figure 1), and the large majority classified themselves as White British (75% n=1035) (see Figure 2). As such, there were noticeably small proportions of ethnic minorities within the sample. The largest age group was 22 to 25 year olds (56% n=757), followed by those aged 21 year olds and under (41% n=562) (see Figure 3). In terms of nationality, 84% (n=1157) were coded as British, 5% (n=72) Irish, 6% (n=80) elsewhere in Europe (not UK or Ireland), and 2% (n=33) from Asia (see Figure 4). Exploring the area from which they originated (based on home address) the largest proportion were from the South East (16% n=218), followed by the South West (10% n=139) and the West Midlands (10% n=130) (see Figure 5).

As a means of identifying socio-economic background the respondents were asked to state their parent or guardian’s occupation, or in the case of mature students the occupation of the main income holder in the household, be it themselves or a partner. Using the Office for National Statistics Standard Occupational Classification (2000) it was then possible to categorise these occupations into one of nine occupational classifications. Figure 6 presents the proportion of the sample classified within each classification, from major group 1 (managers and senior officials) through to major group 9 (elementary occupations). The largest proportion of respondents was classed within major group 2 (45% n=602), followed by major group 1 (19% n=261). For a full description of each category see Appendix 2.

A small proportion of respondents had responsibility for dependents. 1.3% (n=18) were either the main carer or shared the caring responsibility for a dependent child and 1% (n=17) had either sole or shared responsibility for a parent (see Figure 7). 5% (n=64) of the sample self defined themselves as disabled (see Figure 8), 57%
(n=36) of which were categorised as dyslexic and 7.9% (n=5) were categorised as having a mental health disability (see Table 2).

Appendix 3 lists the response rate by institution. The University of Nottingham elicited the largest number of responses (n=92), followed by Durham University (n=91). However, as the population of final year students varied across the departments, a more accurate measure was to explore the proportion of responses per institution. There was found to be a response rate of between 9.8% (Royal Holloway, University of London) and 92.1% (University of Leicester). Of those institutions with over 100 final year students the University of Nottingham again elicited the highest response rate.
Figure 1: The gender distribution amongst the sample

![Gender Distribution Graph]

n = 1,377

68.8% Male
31.2% Female

Figure 2: The spread of ethnicity amongst the sample

![Ethnicity Spread Graph]

n = 1,377

- White - British: 75.2%
- Asian or Asian British - any other Asian background: 0.1%
- Black or Black British - African: 0.1%
- Black or Black British - Caribbean: 0.1%
- Mixed - White and Black African: 0.1%
- Mixed - White and Black Caribbean: 0.2%
- Asian or Asian British - Bangladeshi: 0.4%
- Asian or Asian British - Pakistani: 0.7%
- Mixed - White and other: 0.9%
- Mixed - White and Asian: 0.9%
- Asian or Asian British - other: 1.0%
- Other: 1.8%
- Chinese: 2.2%
- Asian or Asian British - Indian: 3.1%
- White - Irish: 5.7%
- White - other: 7.6%
- White - British: 75.2%

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4 No responses were received from respondents of ‘Black or Black British – Other Black Background’. In other figures throughout the report, this ethnic group has been removed, as it would report as 0%.
Figure 3: The spread of age ranges amongst the sample

![Age Distribution Chart]

21 yrs and under: 41.3%
22-25 yrs: 55.6%
26-30 yrs: 1.7%
31-35 yrs: 0.2%
36-40 yrs: 0.8%
41+ yrs: 0.4%

n = 1,362

Figure 4: The spread of nationalities amongst the sample

![Nationality Distribution Chart]

British: 84.2%
Other EU: 5.7%
Irish: 5.2%
African: 0.2%
North American: 0.4%
Dual nationality: 1.6%
Asian: 2.4%
Australasian: 0.1%
Other: 0.1%
European (non-EU): 0.1%

n = 1,374
Figure 5: The proportion of respondents originating from each region of the UK / world

n = 1,347

- Northern Ireland: 2.5%
- North East: 2.9%
- Wales: 3.9%
- Republic of Ireland: 4.5%
- EU (not UK): 5.7%
- Yorkshire and Humberside: 5.8%
- East Anglia: 6.8%
- London: 6.8%
- Scotland: 7.1%
- North West: 7.4%
- East Midlands: 8.0%
- Elsewhere: 8.2%
- West Midlands: 9.7%
- South West: 10.3%
- South East: 16.2%

Figure 6: The proportion of respondents coming from each occupational background*

n = 1,346

- Major 1: 19.4%
- Major 2: 44.7%
- Major 3: 10.3%
- Major 4: 7.9%
- Major 5: 3.6%
- Major 6: 2.1%
- Major 7: 2.1%
- Major 8: 1.9%
- Major 9: 0.9%
- Other: 7.1%

* See Appendix 2 for description of major groups
Figure 7: The proportion of respondents with responsibilities for a child, parent or partner

![Bar chart showing the proportion of respondents with responsibilities for a child, parent, or partner.](chart1.png)

<table>
<thead>
<tr>
<th>Responsibility</th>
<th>Main carer</th>
<th>Shared responsibility</th>
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</thead>
<tbody>
<tr>
<td>Dependent child</td>
<td>0.6%</td>
<td>0.7%</td>
</tr>
<tr>
<td>Parent</td>
<td>0.3%</td>
<td>0.9%</td>
</tr>
<tr>
<td>Partner</td>
<td>0.1%</td>
<td>0.5%</td>
</tr>
</tbody>
</table>

Figure 8: The proportion of respondents with a disability

![Bar chart showing the proportion of respondents with a disability.](chart2.png)

<table>
<thead>
<tr>
<th>Disability</th>
<th>Frequency (n=63)</th>
<th>Proportion (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dyslexia</td>
<td>36</td>
<td>57.1%</td>
</tr>
<tr>
<td>Other disability</td>
<td>10</td>
<td>15.9%</td>
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<tr>
<td>Multiple disability</td>
<td>5</td>
<td>7.9%</td>
</tr>
<tr>
<td>Mental health disability</td>
<td>5</td>
<td>7.9%</td>
</tr>
<tr>
<td>Unseen disability</td>
<td>4</td>
<td>6.3%</td>
</tr>
<tr>
<td>Blind / partially sighted</td>
<td>2</td>
<td>3.2%</td>
</tr>
<tr>
<td>Deaf / hearing impaired</td>
<td>1</td>
<td>1.6%</td>
</tr>
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### 2.2 Further Exploration of the demographic profiles

Within this section the demographic profile of the sample will be explored in greater detail.

Figure 9 presents the breakdown of the respondents by gender and ethnicity. It is important to note here that with exception to the White British category the response rates were very low across the remaining ethnic groups; therefore caution must be exercised when drawing conclusions.

**Figure 9: The proportion of genders across ethnic groups**

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<th>Ethnicity</th>
<th>Male (%)</th>
<th>Female (%)</th>
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<td>White - British (n=1029)</td>
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</tr>
<tr>
<td>Black or Black British - African (n=2)</td>
<td>100%</td>
<td>0%</td>
</tr>
<tr>
<td>Chinese (n=30)</td>
<td>23%</td>
<td>77%</td>
</tr>
<tr>
<td>Asian or Asian Irish - other (n=1)</td>
<td>100%</td>
<td>0%</td>
</tr>
<tr>
<td>Other (n=24)</td>
<td>25.0%</td>
<td>75.0%</td>
</tr>
</tbody>
</table>
```

![Figure 9: The proportion of genders across ethnic groups](image-url)
Figure 10 illustrates the breakdown of the respondents by age and ethnicity. As with the previous figure, the proportion of responses within all but the White British ethnic group were low, as was the proportion within all age groups with exception of the 21 years and under and 22 to 25 year groups.

Figure 10: The spread of ethnicity amongst the age groups
The following graph (Figure 11) details the spread of age groups within the sample across a range of geographical regions (based on their home address). No respondents were from the group ‘EU (not UK)’. The largest age group represented in all geographical locations except the East Midlands and the West Midlands was 22 to 25 year olds. This group was particularly prominent in the Republic of Ireland (82% n=50), North East (62% n=24), and elsewhere (64% n=69). In the East Midlands and the West Midlands, half of the students were 21 years and under (53% n=56 and 51% n=66 respectively).
Figure 11: The spread of age groups within each geographical area

<table>
<thead>
<tr>
<th>Region</th>
<th>21 yrs and under</th>
<th>22-25</th>
<th>26-30</th>
<th>31-35</th>
<th>36-40</th>
<th>41+</th>
</tr>
</thead>
<tbody>
<tr>
<td>North East (n=39)</td>
<td>62%</td>
<td>43%</td>
<td>55%</td>
<td>59%</td>
<td>58%</td>
<td>55%</td>
</tr>
<tr>
<td>North West (n=100)</td>
<td>62%</td>
<td>44%</td>
<td>41%</td>
<td>47%</td>
<td>56%</td>
<td>51%</td>
</tr>
<tr>
<td>Yorkshire and Humberside (n=79)</td>
<td>62%</td>
<td>43%</td>
<td>55%</td>
<td>59%</td>
<td>58%</td>
<td>55%</td>
</tr>
<tr>
<td>East Midlands (n=123)</td>
<td>29%</td>
<td>30%</td>
<td>38%</td>
<td>38%</td>
<td>38%</td>
<td>38%</td>
</tr>
<tr>
<td>West Midlands (n=123)</td>
<td>28%</td>
<td>31%</td>
<td>41%</td>
<td>47%</td>
<td>47%</td>
<td>47%</td>
</tr>
<tr>
<td>East Anglia (n=89)</td>
<td>33%</td>
<td>41%</td>
<td>47%</td>
<td>51%</td>
<td>56%</td>
<td>56%</td>
</tr>
<tr>
<td>London (n=89)</td>
<td>55%</td>
<td>55%</td>
<td>55%</td>
<td>55%</td>
<td>55%</td>
<td>55%</td>
</tr>
<tr>
<td>South East (n=215)</td>
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<td>31%</td>
<td>31%</td>
<td>31%</td>
<td>31%</td>
<td>31%</td>
</tr>
<tr>
<td>South West (n=135)</td>
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<td>39%</td>
<td>39%</td>
<td>39%</td>
<td>39%</td>
</tr>
<tr>
<td>Wales (n=52)</td>
<td>55%</td>
<td>55%</td>
<td>55%</td>
<td>55%</td>
<td>55%</td>
<td>55%</td>
</tr>
<tr>
<td>Scotland (n=96)</td>
<td>59%</td>
<td>59%</td>
<td>59%</td>
<td>59%</td>
<td>59%</td>
<td>59%</td>
</tr>
<tr>
<td>Northern Ireland (n=34)</td>
<td>38%</td>
<td>38%</td>
<td>38%</td>
<td>38%</td>
<td>38%</td>
<td>38%</td>
</tr>
<tr>
<td>Elsewhere (n=108)</td>
<td>23%</td>
<td>23%</td>
<td>23%</td>
<td>23%</td>
<td>23%</td>
<td>23%</td>
</tr>
<tr>
<td>Republic of Ireland (n=61)</td>
<td>82%</td>
<td>82%</td>
<td>82%</td>
<td>82%</td>
<td>82%</td>
<td>82%</td>
</tr>
</tbody>
</table>
Figure 12 reveals the spread of ethnicity by geographical locations (based on home address). As before, be cautionary when considering the data due to small numbers within many of the ethnicity categories. Of the White British, the largest proportion originated from the South East (18% n=184), followed by the South West (13% n=128) and the West Midlands (11% n=112). 60% (n=62) of those classified as White other originated from ‘elsewhere’.

Figure 12: The spread of respondents from each geographical area from each ethnic group
Figure 13 displays the breakdown of gender by geographical area. No responses were received from ‘EU (not UK)’. It is noticeable that Yorkshire and Humberside, and Wales had the largest proportion of male respondents (77% n=60 and 77% n=40 respectively). Other areas with notably large proportions of male respondents were the East Midlands (76% n=823) and East Anglia (75% n=68). Those areas with the smallest male representation were Northern Ireland (44% n=15), the South West (66% n=91) and London (66% n=60).

Figure 13: The proportion of genders in the sample from each geographical area
The previous two charts investigated the breakdown in demographic profile by region of the UK and region of the world. Figure 14 looks more broadly at the breakdown of gender by nationality. It is important to consider the low numbers of respondents within many of the nationality categories, especially Australasia (n=2), European (non-EU) (n=2), North America (n=5) and Africa (n=3). There was a higher representation of males across all the nationalities and there was a particularly high representation of males of a dual nationality (91% n=20) and of males with an Asian nationality (67% n=21) and an Irish nationality (67% n=48).
Figure 14: The spread of genders in the sample from each nationality

<table>
<thead>
<tr>
<th>Nationality</th>
<th>Female (n=422)</th>
<th>Male (n=944)</th>
</tr>
</thead>
<tbody>
<tr>
<td>British (n=1,150)</td>
<td>30.1%</td>
<td>69.9%</td>
</tr>
<tr>
<td>Irish (n=72)</td>
<td>33.3%</td>
<td>66.7%</td>
</tr>
<tr>
<td>Other EU (n=77)</td>
<td>44.2%</td>
<td>55.8%</td>
</tr>
<tr>
<td>Asian (n=33)</td>
<td>33.3%</td>
<td>66.7%</td>
</tr>
<tr>
<td>African (n=3)</td>
<td>100%</td>
<td>0%</td>
</tr>
<tr>
<td>North American (n=5)</td>
<td>40.0%</td>
<td>60.0%</td>
</tr>
<tr>
<td>Australasian (n=2)</td>
<td>50.0%</td>
<td>50.0%</td>
</tr>
<tr>
<td>Dual (n=22)</td>
<td>9.1%</td>
<td>90.9%</td>
</tr>
<tr>
<td>European (n=2)</td>
<td>50.0%</td>
<td>50.0%</td>
</tr>
</tbody>
</table>

Total sample size: n = 1,366
Figure 15 explores the age ranges by nationality. As before, caution must be exercised when considering the low numbers in many of the nationality categories.

Figure 15: The spread of age groups based on nationality
Figure 16 shows the relationship between occupational class and ethnicity. As before, be mindful of the small respondent numbers within many of the ethnic groups. It is apparent that there was a large representation of those from the major group 2 classification within the majority of ethnic groups.
The following chart (Figure 17) shows the breakdown of occupational background by gender. There was little or no variation in occupational class between the genders.

Figure 17: The spread of occupational backgrounds amongst the genders

![Chart showing occupational backgrounds by gender](chart.png)
Figure 18 shows the correlations between occupational background and geographical location (area). The regions with the highest representation of major group 1 (senior officials and management) respondents was East Anglia (26% n=24) and the South East (24% n=50). Major group 2 respondents were highly represented across all regions, but the largest proportion was from the North East (55% n=21).

Figure 18: The spread of occupational background by geographic area
Figure 19 illustrates the level of care responsibilities for a child by gender. It is immediately noticeable that there were very few instances whereby respondents indicated such a responsibility. As such, care must be exercised when considering the data below.

Figure 19: The proportion of males and females with main or shared care responsibilities for a child
2.3 Institution demographics

This section explores the breakdown in the sample demographics from each individual institution. Because of the amount of institutions surveyed, tables have been split into table(a) and table(b) in order to best present results.
Figures 20a and 20b reveal the proportion gender split across the institutions. All but four of the institutions returned a higher proportion of male responses.

Figure 20a: The gender spread amongst the sample from each institution

[Bar chart showing the gender distribution across various institutions, with percentages for males and females.]
Figure 20b: The spread of genders amongst the sample from each institution (cont.)
Figures 21a and 21b illustrate the spread of age groups within the sample from each institution. Galway University and the Open University were the only institutions not to return responses from students in the 21yrs and under category. The 21yrs and under and 22 to 25 year age groups dominated throughout. 25 of the 54 institutions returned responses only from those in the two younger age groups.

Figure 21a: The spread of age ranges amongst the sample from each institution
Figure 21b: The spread of age groups amongst the sample from each institution (cont.)

n=1358

<table>
<thead>
<tr>
<th>Institution</th>
<th>21 and under</th>
<th>22 - 25 years</th>
<th>26 - 30 years</th>
<th>31 - 35 years</th>
<th>36 - 40 years</th>
<th>41 and over</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liverpool (n=25)</td>
<td>4.8%</td>
<td>92.8%</td>
<td>2.3%</td>
<td>1.1%</td>
<td>0%</td>
<td>1.2%</td>
</tr>
<tr>
<td>Loughborough (n=21)</td>
<td>4.3%</td>
<td>86.2%</td>
<td>14.3%</td>
<td>2.8%</td>
<td>3.8%</td>
<td>16.7%</td>
</tr>
<tr>
<td>Manchester (n=51)</td>
<td>4.6%</td>
<td>96.8%</td>
<td>2.3%</td>
<td>1.1%</td>
<td>0%</td>
<td>1.2%</td>
</tr>
<tr>
<td>Nottingham (n=90)</td>
<td>9.7%</td>
<td>72.8%</td>
<td>14.3%</td>
<td>4.4%</td>
<td>0%</td>
<td>1.1%</td>
</tr>
<tr>
<td>Nottingham Trent (n=6)</td>
<td>33.3%</td>
<td>66.7%</td>
<td>9.3%</td>
<td>5.1%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Open (n=95)</td>
<td>16%</td>
<td>58.6%</td>
<td>25.0%</td>
<td>8.4%</td>
<td>1.1%</td>
<td>0%</td>
</tr>
<tr>
<td>Paisley (n=9)</td>
<td>22.4%</td>
<td>77.6%</td>
<td>9.3%</td>
<td>5.1%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Queen’s (n=26)</td>
<td>16.7%</td>
<td>83.3%</td>
<td>5.0%</td>
<td>2.3%</td>
<td>0%</td>
<td>1.1%</td>
</tr>
<tr>
<td>Reading (n=8)</td>
<td>52.6%</td>
<td>47.4%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Royal Holloway (n=15)</td>
<td>50.0%</td>
<td>49.3%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Salford (n=21)</td>
<td>42.9%</td>
<td>57.1%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Sheffield (n=91)</td>
<td>42.5%</td>
<td>57.5%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Southampton (n=12)</td>
<td>38.5%</td>
<td>61.5%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>St. Andrews (n=21)</td>
<td>40.5%</td>
<td>59.5%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Strathclyde (n=12)</td>
<td>37.5%</td>
<td>62.5%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Surrey (n=19)</td>
<td>21.1%</td>
<td>78.9%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Sussex (n=14)</td>
<td>61.7%</td>
<td>38.3%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Swansea (n=6)</td>
<td>20.0%</td>
<td>79.3%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Trinity (n=14)</td>
<td>44.3%</td>
<td>55.7%</td>
<td>0%</td>
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<td>0%</td>
</tr>
<tr>
<td>UCL (n=37)</td>
<td>51.4%</td>
<td>48.6%</td>
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<tr>
<td>UCD (n=6)</td>
<td>42.2%</td>
<td>57.8%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Warwick (n=79)</td>
<td>53.7%</td>
<td>46.3%</td>
<td>0%</td>
<td>0%</td>
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</tr>
<tr>
<td>York (n=41)</td>
<td>41.2%</td>
<td>58.8%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Other (n=4)</td>
<td>50.0%</td>
<td>50.0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
</tbody>
</table>
Figures 22a and 22b illustrate the spread of ethnicity amongst the sample from each institution. As has been found throughout this report thus far, the White British ethnic group dominated the samples from every British institution. However, Queen Mary’s University revealed a noticeably diverse spread of ethnicity, as did University College London, and Kings College London.

Figure 22a: The spread of ethnicity in the sample from each institution
Figure 22b: The spread of ethnic groups amongst the sample from each institution (cont.)
Figures 23a and 23b show the proportion of students of each occupational background from each institution. Major group 2 occupational backgrounds made up the largest proportion at the majority of institutions.
Figure 23b: The spread of occupational backgrounds amongst the sample from each institution (cont.)

n = 1,342

- Major 1 (n=261)
- Major 2 (n=600)
- Major 3 (n=139)
- Major 4 (n=106)
- Major 5 (n=48)
- Major 6 (n=28)
- Major 7 (n=28)
- Major 8 (n=26)
- Major 9 (n=12)
- Other (n=94)
Figures 24a and 24b explore the spread of nationalities within the sample from each institution. British nationals dominated the majority of the samples from all institutions. In fact, 7 of the 54 institutions returned responses from British nationals only. However, there was a high representation of other EU nationalities within the samples from ECL (23.1% n=9), QMUL (17.6% n=3) and the Open University (42.9% n=3).

Figure 24a: The spread of nationalities amongst the sample per institution

<table>
<thead>
<tr>
<th>Institution</th>
<th>British</th>
<th>Irish</th>
<th>Other EU</th>
<th>Asian</th>
<th>African</th>
<th>North American</th>
<th>Australasian</th>
<th>Dual nationality</th>
<th>European (non-EU)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aberdeen</td>
<td>20%</td>
<td>10%</td>
<td>10%</td>
<td>20%</td>
<td>20%</td>
<td>10%</td>
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</tr>
<tr>
<td>Aberystwyth</td>
<td>10%</td>
<td>9%</td>
<td>9%</td>
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<td>Bath</td>
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<td>Cambridge</td>
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<tr>
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<td>Durham</td>
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<tr>
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</tr>
<tr>
<td>Hertfordshire</td>
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<td>0%</td>
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</tr>
<tr>
<td>Hull</td>
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<td>10%</td>
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<td>10%</td>
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</tr>
<tr>
<td>Imperial</td>
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</tr>
<tr>
<td>Keele</td>
<td>10%</td>
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<tr>
<td>KCL</td>
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<td>Kent</td>
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<td>Lancaster</td>
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<tr>
<td>Leeds</td>
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<td>Leicester</td>
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<td>10%</td>
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</tr>
<tr>
<td>Liverpool</td>
<td>10%</td>
<td>0%</td>
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<td>10%</td>
<td>10%</td>
<td>0%</td>
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</tr>
</tbody>
</table>
Figure 24b: The spread of nationalities amongst the sample per institution (cont.)

n = 1,370

- British (n=1,155)
- Irish (n=72)
- Other EU (n=77)
- Asian (n=32)
- African (n=3)
- North American (n=5)
- Australasian (n=2)
- Dual nationality (n=22)
- European (non-EU) (n=2)
Figures 25a and 25b reveal the geographical origin of the respondents from each institution. On inspection it is apparent that the largest proportions of students originated from the region in which the institution is located, particularly so for those institutions based in Scotland, Wales and Northern Ireland. For example, 100% (n=16) of students attending Cork University originated from the Republic of Ireland; 100% (n=16) of those attending Glasgow University originated from Scotland; and 100% (n=5) of those attending Aberdeen University originated from Scotland. Being a distance learning provider the Open University served students from a range of geographical areas. It is also apparent that the many larger institutions attracted students from a range of locations, particularly University of Durham, Imperial College London, University of Cambridge, University of Warwick, and the University of Bristol.
Figure 25a: The spread of respondents from each geographical area by institution

- North East (n=39)
- North West (n=99)
- York and Humb (n=78)
- East Midlands (n=81)
- West Midlands (n=108)
- East Anglia (n=129)
- London (n=90)
- South East (n=218)
- South West (n=139)
- Wales (n=52)
- Scotland (n=96)
- Northern Ireland (n=34)
- Elsewhere (n=109)
- Republic of Ireland (n=61)
Figure 25b: The spread of respondents from each geographical area per institution (cont.)

- North East (n=39)
- North West (n=99)
- York and Humb (n=78)
- East Midlands (n=81)
- West Midlands (n=129)
- East Anglia (n=91)
- London (n=90)
- South East (n=218)
- South West (n=139)
- Wales (n=52)
- Scotland (n=96)
- Northern Ireland (n=34)
- Elsewhere (n=109)
- Republic of Ireland (n=61)

n = 1,343

Legend:

- North East (n=39)
- North West (n=99)
- York and Humb (n=78)
- East Midlands (n=81)
- West Midlands (n=129)
- East Anglia (n=91)
- London (n=90)
- South East (n=218)
- South West (n=139)
- Wales (n=52)
- Scotland (n=96)
- Northern Ireland (n=34)
- Elsewhere (n=109)
- Republic of Ireland (n=61)
Figures 26a and 26b reveal the proportion of students with a disability across each institution. 39 of the institutions did not receive a response from a disabled student. Of those institutions with sufficient numbers to make a valid assessment, the University of Hull returned a response of 20% disabled (n=2); the University of Leicester returned a response of 15% disabled (n=6) and Reading University returned a response of 13% (n=1).
Figure 26a: The spread of disability status across the institutions

n = 1,372

Aberdeen (n=5)  Bath (n=12)  Birmingham (n=42)  Bristol (n=72)  Cardiff (n=21)  Cork (n=16)  DIT (n=10)  Dublin City (n=93)  Dundee (n=91)  Edinburgh (n=99)  Exeter (n=29)  Galway (n=4)  Glasgow (n=16)  Heriot Watt (n=15)  Hertfordshire (n=16)  Hull (n=10)  Imperial (n=71)  Keele (n=9)  KCL (n=5)  Kent (n=12)  KCL (n=10)  Lancaster (n=20)  Leeds (n=26)  Liverpool (n=25)
Figure 26b: The spread of disability status across the institutions (cont.)

<table>
<thead>
<tr>
<th>Institution</th>
<th>Yes (64)</th>
<th>No (1288)</th>
<th>Prefer not to say (20)</th>
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</thead>
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<td>Loughborough (n=22)</td>
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<td>0%</td>
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<td>Manchester (n=51)</td>
<td>14.3%</td>
<td>85.7%</td>
<td>0%</td>
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<td>Nottingham Trent (n=92)</td>
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<td>92.2%</td>
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<tr>
<td>Oxford (n=97)</td>
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<td>96.1%</td>
<td>0%</td>
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<tr>
<td>Paisley (n=6)</td>
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<td>96.6%</td>
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</tr>
<tr>
<td>QMUL (n=17)</td>
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<td>88.2%</td>
<td>0%</td>
</tr>
<tr>
<td>Reading (n=8)</td>
<td>14.3%</td>
<td>85.7%</td>
<td>0%</td>
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<tr>
<td>Salford (n=13)</td>
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<td>92.3%</td>
<td>0%</td>
</tr>
<tr>
<td>Sheffield (n=21)</td>
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<td>92.3%</td>
<td>0%</td>
</tr>
<tr>
<td>St Andrews (n=21)</td>
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</tr>
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<td>Swansea (n=6)</td>
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<td>88.2%</td>
<td>0%</td>
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<tr>
<td>Trinity (n=14)</td>
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<td>UCL (n=38)</td>
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<td>UCD (n=9)</td>
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<tr>
<td>Warwick (n=79)</td>
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<td>92.3%</td>
<td>0%</td>
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<tr>
<td>York (n=40)</td>
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</tr>
<tr>
<td>Other (n=4)</td>
<td>11.8%</td>
<td>88.2%</td>
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</tr>
</tbody>
</table>
2.4 Intentions after graduation

This section will explore what final year physics students intended to do after graduating from University by looking at a number of demographic factors.

Figure 27 shows the breakdown of intentions after graduation by gender and by the total sample. Overall, 37% (n=502) of the sample intended to go into work after graduation. A further 27% intended to study for a PhD (n=377). It is immediately noticeable that intentions did not seem to vary considerably by gender: the large proportion of both males and females intended to go into work following graduation (37% (n=351) and 35% (n=151) respectively). A further 28% (n=265) of males and 26% (n=112) of females intended to conduct further study in the form of a PhD.
Figure 27: Intentions after graduation by the total sample and by gender

- **Male (n=945)**
  - Take gap year: 7.0%
  - Go into work: 37.1%
  - Further study - PGCE/Teacher training: 5.2%
  - Further study - PhD: 28.0%
  - Further study - MSc: 10.5%

- **Female (n=429)**
  - Take gap year: 5.1%
  - Go into work: 35.2%
  - Further study - PGCE/Teacher training: 7.0%
  - Further study - PhD: 26.1%
  - Further study - MSc: 13.1%

- **Total sample (n=1,374)**
  - Take gap year: 6.4%
  - Go into work: 36.5%
  - Further study - PGCE/Teacher training: 5.7%
  - Further study - PhD: 27.4%
  - Further study - MSc: 11.3%
Exploring intentions after graduation by geographical area, it was found that there were some variations (see Figure 28): the largest proportion of respondents from the Republic of Ireland (38% n=23) and elsewhere (outside EU) (47% n=52) intended to conduct a PhD. In all remaining areas the most likely route was employment following graduation: 51% (n=46) of respondents residing in East Anglia and 46% (n=44) from Scotland intended to go into work.

Figure 28: The spread of intentions after graduation by geographical areas
Figure 29 explores intentions after graduation by ethnic background. Exercise caution when considering these results, as the respondent numbers in many of the ethnic groups was low. 40% (n=406) of White British graduates intended to go into work after graduation and a further 25% (n=256) intended to conduct a PhD. The largest proportion of graduates from a White other background intended to conduct a PhD (39% n=41).

Figure 29: The spread of intentions after graduation by ethnic origin

[n=1,366]

<table>
<thead>
<tr>
<th></th>
<th>Further study - MSc (n=153)</th>
<th>Further study - PhD (n=375)</th>
<th>Further study - PGCE/Teacher training (n=79)</th>
<th>Go into work (n=500)</th>
<th>Take gap year (n=173)</th>
<th>Other (n=86)</th>
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<tbody>
<tr>
<td>White - British (n=1027)</td>
<td>89.5%</td>
<td>78.8%</td>
<td>89.1%</td>
<td>79.1%</td>
<td>79.1%</td>
<td>89.1%</td>
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<tr>
<td>White - Irish (n=79)</td>
<td>69.4%</td>
<td>79.4%</td>
<td>79.4%</td>
<td>79.4%</td>
<td>79.4%</td>
<td>79.4%</td>
</tr>
<tr>
<td>White - other (n=104)</td>
<td>53.8%</td>
<td>41.1%</td>
<td>53.8%</td>
<td>53.8%</td>
<td>53.8%</td>
<td>53.8%</td>
</tr>
<tr>
<td>Mixed - White and Black Caribbean (n=2)</td>
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<td>69.4%</td>
<td>79.4%</td>
<td>79.4%</td>
<td>79.4%</td>
<td>79.4%</td>
</tr>
<tr>
<td>Mixed - White and Black African (n=1)</td>
<td>69.4%</td>
<td>53.8%</td>
<td>69.4%</td>
<td>69.4%</td>
<td>69.4%</td>
<td>69.4%</td>
</tr>
<tr>
<td>Mixed - White and Asian (n=11)</td>
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<td>69.4%</td>
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<td>53.8%</td>
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</tr>
<tr>
<td>Asian or Asian British - Indian (n=43)</td>
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<td>53.8%</td>
<td>53.8%</td>
<td>53.8%</td>
<td>53.8%</td>
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<tr>
<td>Asian or Asian British - Pakistani (n=9)</td>
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<td>53.8%</td>
<td>53.8%</td>
<td>53.8%</td>
<td>53.8%</td>
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</tr>
<tr>
<td>Asian or Asian British - Bangladeshi (n=5)</td>
<td>53.8%</td>
<td>53.8%</td>
<td>53.8%</td>
<td>53.8%</td>
<td>53.8%</td>
<td>53.8%</td>
</tr>
<tr>
<td>Asian or Asian Irish - other (n=1)</td>
<td>79.4%</td>
<td>79.4%</td>
<td>79.4%</td>
<td>79.4%</td>
<td>79.4%</td>
<td>79.4%</td>
</tr>
<tr>
<td>Asian or Asian British - other (n=14)</td>
<td>53.8%</td>
<td>53.8%</td>
<td>53.8%</td>
<td>53.8%</td>
<td>53.8%</td>
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</tr>
<tr>
<td>Black or Black British - Caribbean (n=1)</td>
<td>53.8%</td>
<td>53.8%</td>
<td>53.8%</td>
<td>53.8%</td>
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</tr>
<tr>
<td>Black or Black British - African (n=2)</td>
<td>79.4%</td>
<td>53.8%</td>
<td>79.4%</td>
<td>79.4%</td>
<td>79.4%</td>
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</tr>
<tr>
<td>Chinese (n=30)</td>
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<td>53.8%</td>
<td>53.8%</td>
<td>53.8%</td>
<td>53.8%</td>
<td>53.8%</td>
</tr>
<tr>
<td>Other (n=24)</td>
<td>24.9%</td>
<td>36.7%</td>
<td>24.9%</td>
<td>24.9%</td>
<td>24.9%</td>
<td>24.9%</td>
</tr>
</tbody>
</table>
Figure 30 presents the intentions of final year undergraduates by occupational background. The largest proportion of respondents within most occupational groups intended to enter into employment following graduation. The largest proportion of respondents in the Major 7 occupational group (50% n=14) and in the Major 8 occupational group (31% n=8) intended to conduct a PhD after graduating. Overall, there appears to be some variation in intentions across the socio-economic groups; between 25% and 44% of each occupational group intended to go into work after graduation and between 19% and 50% intended to conduct a PhD.
Figure 30: The spread of intentions after graduation by occupational background

n = 1,336

Major 1 (n=259)
Major 2 (n=598)
Major 3 (n=139)
Major 4 (n=104)
Major 5 (n=48)
Major 6 (n=28)
Major 7 (n=26)
Major 8 (n=12)
Major 9 (n=12)
Other (n=94)

- Other (n=85)
- Take gap year (n=170)
- Go into work (n=486)
- Further study - PGCE/Teacher training (n=76)
- Further study - PhD (n=367)
- Further study - MSc (n=152)
The following chart reveals how intentions following graduation vary across nationality (see Figure 31). Whilst exercising caution with some nationality categories due to small numbers, there are a number of notable differences. The largest proportion of those from the other EU intended to conduct a PhD (44% n=34) and a further 18% (n=14) intended to conduct an MSc. Similarly, those of Asian nationality were most likely to intend to conduct a PhD (49% n=16). 40% (n=455) of graduates of a British nationality intended to go into work after graduation.

Figure 31: The spread of intentions after graduation by nationality
Figure 32 presents the intentions of final year physics undergraduates across the different age groups. It is interesting to note how further study dominates the intentions of those in the older age groups and employment and gap years were less common. However, caution must be exercised due to the small numbers within the older age group categories. 33% (n=2) of the 41 years and over age group intended to conduct an MSc and 31% (n=232) of 22 to 25 year olds intended to conduct a PhD. Overall, employment was the most popular option for those in the younger age groups.

Figure 32: The spread of intentions after graduation across the age groups
It is immediately noticeable from Figure 33 that there was little notable variation in intentions after graduation between those with or without a disability. Of those stating they had a disability, fewer intended to go into employment (20% \(n=13\)), compared to 38% \((n=485)\) of those without a disability. However, a higher proportion of those with a disability intended to conduct a PhD (31% \(n=20\)) compared to 27.1% \((n=350)\) of those without a disability. A higher proportion of those who stated they had a disability intended to conduct teacher/PGCE training (14% \(n=9\)) compared to those without a disability (5% \(n=69\)).

Figure 33: The spread of intentions after graduation by disability status
Figures 34a and 34b reveal the spread of intentions after graduation from the sample across each institution. The most common intention from students in 33 of the institutions was to go into work.

Figure 34a: The spread of intentions after graduation across each institution

Aberdeen (n=5)  Bath (n=44)  Bristol (n=73)  Cardiff (n=22)  Cork (n=16)  DIT (n=10)  Dublin City (n=9)  Exeter (n=32)  Galway (n=4)  Glasgow (n=16)  Hull (n=10)  Imperial (n=7)  Keele (n=9)  KCL (n=5)  Leeds (n=20)  Liverpool (n=26)  Aberystwyth (n=12)  Cambridge (n=33)  Canterbury (n=21)  Durham (n=91)  Edinburgh (n=38)  Exeter (n=32)  Galway (n=4)  Glasgow (n=16)  Hull (n=10)  Imperial (n=7)  Keele (n=9)  KCL (n=5)  Leeds (n=20)  Liverpool (n=26)
Figure 34b: The spread of intentions after graduation across each institution (cont.)

n = 1,371

- Further study - MSc (n=155)
- Further study - PhD (n=377)
- Further study - PGCE (n=79)
- Go into work (n=499)
- Take a gap year (n=173)
- Other (n=88)
2.5 Employment during term time

Respondents were asked if they had undertaken any paid employment during term time, how many hours they worked on average, the type of work they had done, and their reasons for doing this work.

Figure 35 shows that 46.9% (n=638) had worked during term time. The most popular type of work (figure 36) was retail / customer service (19.9% n=278), followed by bar work (12.6% n=176). Respondents had undertaken a variety of jobs other than those listed, the most popular being teaching or tutoring of some description (n=30). The most popular reason for taking on work during term time (figure 37) was for money (41.7% n=582), followed by for personal development (14.8% n=206). Figure 38 shows that most respondents who worked did so for 10 hours or less per week (5.1% n=316), with most of the remainder working between 11 and 20 hours per week (37.7% n=231).
Figure 36: Type of work undertaken

*NB Respondents could choose more than one type of work

Figure 37: Reason for working

*NB Respondents could choose more than one reason for working

Figure 38: Number of hours worked

*NB Respondents could choose more than one number of hours worked.
2.6 Additional qualitative data from survey sent to Irish respondents

Additional questionnaires were sent out to Irish respondents to the survey later on in the year, after contacts in these institutions had been approached. The research team took the opportunity to include some additional qualitative questions in this questionnaire. The analysis of these is presented here. Full text of responses are provided in Appendix 4.

2.6.1 Influence to undertake a physics degree

Irish respondents were asked what their biggest influence in deciding to do a physics degree was (figure 39); 19.3% (n=11) stated that their teachers had influenced them most and 14% that they felt it was a requirement of their chosen career. However, 59.6% (n=34) of these respondents stated that the biggest influence was something other than the options listed. Of the further reasons provided, the majority (69.7%, n=23) stated that they choose to do a physics degree as they were interested in / loved the subject. A further 21.2% (n=7) respondents stated that they choose the subject when at school.

Figure 39: Biggest influence in deciding to do a physics degree

![Figure 39: Biggest influence in deciding to do a physics degree](image)

- Teachers: 19.3%
- Parental Influence: 1.8%
- Friends: 3.5%
- Required for chosen career: 14.0%
- Suggested by careers advisor: 1.8%
- Other: 59.6%

2.6.2 Most valuable element of physics course

Respondents were asked what they considered to be the most valuable element of the course they had studied. Many respondents (38.5%, n=20) stated that the lab work and practical work had been most valuable to them. 19.2% (n=10) of respondents stated that the problem solving abilities they had gained had been most
valuable to them. Some respondents stated the knowledge / ways of thinking the degree had provided them with was of most value to them.

Seven other respondents stated that the mathematical ability and skills they had obtained were of highest value to them. A further four respondents stated that the range of modules and the scope of the degree was most valuable to them:

“All aspects of the course have been valuable. We have been given the opportunities to study various modules which have given us a grounding in the basic principles of physics and in current developments”

2.6.3 Most interesting elements of physics course

Respondents were asked to state which elements of the course they had found most interesting. Two thirds (60.0%, n=30) stated that they found a specific subject / module most interesting, below are a few example comments:

In addition nine respondents (18.0%) stated they found the knowledge / intellectual skills most interesting:

“Understanding complicated processes using simple models and assumptions and also learning how people through history discovered new physics “laws” by serendipity or otherwise!”

Seven respondents stated that they found the lab / practical work involved in the degree most interesting and four respondents stated that they found the academic / peer environment most interesting.
3   Phase two results: 2006 cohort database update

This section provides details about the results of the follow up exercise with the 2006 cohort. This exercise produced responses from 39.6% of members of the original cohort (409 out 1034). No longitudinal analysis has been carried out on this data at this stage of the project, as this will be more appropriate and more robust as more data is gathered year on year throughout the life of the project. The analysis provided here is an overview of some of the top line data from the 2006 cohort database update.

Respondents were given the opportunity to update some of their profile information which had been gathered previously in the project. Some of this was information gathered for practical purposes of administering the project; specifically, contact details such as email and addresses. They were also given the opportunity to update information about some of their other profile information, such as any care responsibilities or any disabilities. Finally, respondents were asked to provide information about their current activities; specifically, if they were employed or in further education and details about these.

The online survey was routed; respondents who reported that they were continuing in higher education were not subsequently asked questions about employment. The routing process is apparent in the following reporting sections, with a smaller number of respondents (n=176) reporting on their employment. The question scheme for the online database is included in Appendix 5, and this illustrates the routing of the questions.
3.1 Disability

5.6% (n=23) of the sample self defined themselves as disabled (see Figure 40). Respondents were able to specify their disabilities. There was a range of mental and physical disabilities given, the most common (45%, n=10) being dyslexia.

![Figure 40: Proportion of respondents with a disability](image)

3.2 Care Responsibilities

A small proportion of respondents reported having responsibility for dependents (figure 41). 0.5% (n=2) were the main carer for a dependent child and 1.6% (n=6) were the main carer for a partner. 1.6% (n=6) shared responsibilities for caring for a dependent child; the same number shared responsibilities for a dependent parent. Five other respondents indicated that they cared for someone in some capacity.

![Figure 41: Proportion of respondents with care responsibilities for a child, parent or partner](image)
3.3 Educational Information

The spread of institutions attended was varied as can be seen in Table 3. The most commonly mentioned institutions were Durham University (8.5%) and University of Manchester (7.3%).

Table 3: University Attended

<table>
<thead>
<tr>
<th>Institution</th>
<th>Frequency (n=410)</th>
<th>Proportion (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Durham</td>
<td>35</td>
<td>8.5%</td>
</tr>
<tr>
<td>Manchester</td>
<td>30</td>
<td>7.3%</td>
</tr>
<tr>
<td>Imperial</td>
<td>25</td>
<td>6.1%</td>
</tr>
<tr>
<td>York</td>
<td>20</td>
<td>4.9%</td>
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<td>Paisley</td>
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</tr>
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</table>

43.3% (n=168) of respondents stated that they had achieved a first class degree classification and 34.5% (n=134) achieved an upper second classification (figure 42). Over half of respondents (56.7% n=229) stated that they were currently continuing in education (figure 43).

Figure 42: Degree Classification

Figure 43: Continuing in Education
3.4 Employment

3.4.1 Employment sector

The largest proportion 30.7% (n=54) of respondents stated that they were currently employed in the industry sector. 34.7% (n=61) stated that they were working a sector that was not listed or that the questions was not applicable to them (figure 44).

Figure 44: Employment Sector

13.1% (n=24) of respondents stated they were currently working in the education sector, of this the majority (79.2%) were working schools and 16.7% were working in universities (figure 45).

Figure 45: Area of Education sector
6.8\% (n=11) of respondents were working in the government sector, of this 45.5\% (n=5) were working in central government or civil service in a government department (figure 46).

**Figure 46: Area of Government sector**

![Area of Government sector](image)

30.7\% (n=54) of respondents were working in industries, and the spread of the types of industries respondents were working in was quite varied (figure 57). 18.5\% (n=10) were working in electronics / IT or software industries. 37\% of these respondents stated they were working in an industry area that was not listed; however, the other responses provided display a wide range of industries.

**Figure 47: Type of Industry**

![Type of Industry](image)
14.8% (n=26) of respondents stated they were working in the services sector, 34.6% (n=9) of which were working in financial services.

**Figure 48: Type of Service**

![Type of Service Chart](chart)

3.4.2 **Level of responsibility**

40.3% (n=71) of respondents were working in positions where they had the responsibility of being a project / team member whilst 23.9% were working as trainees. Very few respondents were working in management level roles (1.7% n=3) and even fewer were working in senior management level positions (1.1%).
3.4.3 Function of role

Respondents were asked to state the main function of their role; as can be seen in figure 50, respondents were carrying out a variety of roles. The most commonly mentioned functions were teaching, consultancy and development. Respondents who answered ‘other’ or ‘not applicable’ to this question were given the opportunity to elaborate on their answer and specify the main function of their role. The responses received were very broad and showed no specific trend, although four were carrying out technical support of some nature.

Figure 50: Main function of role
3.4.4 Type of organisation

The geographic spread of organisations was quite well distributed amongst all local, national and international organisations. More respondents worked in international organisations (41.7% n=70) than local or national organisations.

Figure 51: Geographic spread of organisations

![Geographic spread of organisations](chart)

Many respondents (47.6% n=80) were working in large firms, with more than 250 employees (figure 52).

Figure 52: Size of organisations

![Size of organisations](chart)

3.4.5 Earnings and mode of work

Most respondents (89.1%) were earning less than £30,000 a year (figure 53). 32% of respondents stated they were earning anything up to £19,999 (n=47) and 38.1%
(n=56) stated they were earning between £20,000 and £24,999 a year. The majority (91%) of respondents stated that they were working full time (figure 54).

Figure 53: Salary of respondents

![Chart showing salary distribution](chart1.png)

Figure 54: Mode of work; Full time / part time

![Chart showing work mode distribution](chart2.png)
3.4.6 Membership of professional organisations

31 respondents said they were members of the Institute of Physics. 10 respondents were members of more than one professional organisation.

Respondents reported being members of the following organisations:

- Association of Consulting Actuaries (1)
- Association for Learning Technology (2)
- Association of Science Education (3)
- Association of Teachers of Mathematics (1)
- BALPA (1)
- British Association for the Advancement of Science (1)
- British Nuclear Energy Society (2)
- Chartered Financial Analysts Institute (1)
- General Teaching Council for Scotland (1)
- Institute of Chartered Accountants in England and Wales (1)
- Institute of Engineering and Technology (2)
- Institute of Physics (31)
- Institute of Physics and Engineering in Medicine (1)
- KPMG LLP (1)
- National Association of Schoolmasters' Union of Women Teachers (4)
- National Union of Students (1)
- National Union of Teachers (3)
- Non-Governmental Organizations (2)
- Securities and Investment Institute (1)
- South Wales Police – Special Constables (1)
3.4.7 Relation of occupation to physics

61% (n=92) of respondents stated that their current occupation was either not at all related or not particularly related to physics (figure 55). However, 78% (n=117) of respondents stated that they found their physics background either quite useful or very useful in their current occupation (figure 56).
3.5 Career Breaks

Most respondents (81.5%, n = 318) had not taken a career break (figure 57). Of those who had, 50.7% (n = 35) had taken a break lasting between 7 and 12 months, and 42% (n = 29) had taken a break lasting between of up to 6 months (figure 58).
Figure 57: Whether or not respondents have taken career breaks

![Bar chart showing the percentage of respondents who have taken career breaks. 18.5% have taken career breaks, and 81.5% have not.]

n = 390

Figure 58: Length of career break

![Bar chart showing the distribution of the length of career breaks. 42.0% have taken breaks between 0 - 6 months, 50.7% between 7 - 12 months, 7.2% between 13 - 24 months, and 0.0% between 25 - 60 months.]

n = 69
Appendices
Appendix 1: Questionnaire

Institute of Physics

The Institute of Physics (IoP) undergraduate survey is the first step in trying to understand what physics graduates end up doing with their physics degrees. Very little is known about the career paths of physics graduates who take up careers outside of physics, and there are currently very little data regarding ethnicity and disability, as well as more general information regarding careers.

In order to do this, the IoP is conducting a longitudinal study of physics graduates: all final year undergraduate students of physics will be asked to fill in this questionnaire, and the participants will then be subsequently contacted at yearly intervals via email, to build up a picture of their earnings and careers over that period.

The responses will remain confidential and will be handled by an external organisation. QUAD research: no information concerning a specific individual will be held at your University or at the IoP, and information regarding disability and ethnicity will not be used to identify specific groups or individuals (Privacy Statement).

All participants who complete the questionnaire and enter their contact details at the end of the questionnaire will be automatically entered into a prize draw with the chance of winning the following:

- 4 x cash prizes of £500

We would like to thank you in advance for helping us with this study; the findings of the research will be pivotal in planning future projects aimed at encouraging participation in physics to a wider, more diverse community, as well as informing potential physics undergraduates of the opportunities available to them. For further enquiries contact Saher Ahmed at the Institute of Physics on 020 7470 4800 or saher.ahmed@iop.org.

The survey will take just a few minutes to complete.

Contact details

The following section asks you to provide a number of contact details. This information will be used to contact you for the subsequent phases of research and will not be used to identify you or your responses.

Q1 Full name

Q2 Permanent address (i.e. family home, not term time address)

Q3 Personal Email Address (please supply an email address that will be valid in a year’s time)

Q4 Home telephone number (if possible, please supply a contact telephone number that will be valid in a year’s time)
Q5 Mobile phone number

Background information

Q6 Gender
- [ ] Male
- [ ] Female

Q7 Date of Birth

Q6 Nationality

Q9 Ethnicity (please tick one only)
- [ ] White - British
- [ ] White - Irish
- [ ] White - other white background
- [ ] Asian or Asian British - Pakistani
- [ ] Asian or Asian British - Bangladeshi
- [ ] Asian or Asian British - other Asian background
- [ ] Mixed - White and Black Caribbean
- [ ] Black or Black British - Caribbean
- [ ] Mixed - White and Black African
- [ ] Black or Black British - African
- [ ] Mixed - White and Asian
- [ ] Black or Black British - Other Black background
- [ ] Mixed - White and other background
- [ ] Chinese
- [ ] Asian or Asian British - Indian
- [ ] Other (please specify below)

Q10 Parent or guardian’s occupation, or in the case of mature students, current / most recent occupation

Q11 Additional parent or guardian’s occupation, or in the case of mature students, partner’s occupation (if applicable)

Q12 At which institution are you currently studying?

Q13 Please specify your full degree title
Q14 Do you consider yourself to have a disability?
- Yes
- No
- Prefer not to say

Q15 If you answered yes to Question 14, please specify from the list below.
- Dyslexia
- Blind / partially sighted
- Deaf / hearing impaired
- Wheelchair user / mobility impaired
- Personal care support
- Mental health disability
- Unseen disability
- Multiple disability
- Other disability (please specify below)

Care responsibilities

The following section asks you about your current care responsibilities. Please read the questions carefully and specify your care responsibilities under each section as appropriate.

Q16 Do you have any care responsibilities for a dependent child?
- Yes, I am the main carer
- Yes, I share the caring responsibilities
- No

Q17 Do you have any care responsibilities for a parent?
- Yes, I am the main carer
- Yes, I share the caring responsibilities
- No

Q18 Do you have any care responsibilities for a partner?
- Yes, I am the main carer
- Yes, I share the caring responsibilities
- No

Employment

Q19 Have you ever undertaken paid employment during term time?
- Yes
- No

Q20 Please categorise the type(s) of work (Tick all that apply)
- Clerical
- Bar work
- Retail / customer service
- Research
- Catering
- Manual
- Caring / support work
- Other (please specify below)
Q21  For what reason(s)? (Tick all that apply)
- Personal development
- Professional development
- Requirement of course
- Money
- Improve employment opportunities
- Meet new people
- Other (please specify below)

Q22  Can you give an estimate as to the number of hours in paid employment per week?

Your future career

The following section asks you about your future career. As before, please read each question carefully and tick the box that is most appropriate to you.

Q23  What do you intend to do after your degree?
- Further study - MSc
- Further study - PhD
- Further study - PGCE/Teacher training
- Go into work
- Take a gap year
- Other (please specify below)

Contact details for prize draw

Thank you very much for your time. If you wish to be placed into the prize draw, please provide the following contact details. The details provided will be held separately to the survey responses.

Name: ............................................................
Mobile number: ............................................
Email address: .............................................
Year of Study: ..............................................

Thank you for your time
Appendix 2: Occupational classifications


Major group 1: Managers and senior officials
- Corporate managers
- Managers and proprietors in agriculture and services

Major group 2: Professional occupations
- Science and technology professionals
- Health professionals
- Teaching and research professionals
- Business and public service professionals

Major group 3: Associate professional and technical occupations
- Science and technology associate professionals
- Health and social welfare associate professionals
- Protective service occupations
- Culture, media and sports occupations
- Business and public service associate professionals

Major group 4: Administrative and secretarial occupations
- Administrative occupations
- Secretarial and related

Major group 5: Skilled trades occupations
- Skilled agriculture trades
- Skilled metal and electrical trades
- Skilled construction and building trades
- Textiles, printing and other skilled trades

Major group 6: Personal service occupations
- Caring personal service occupations
- Leisure and other personal service occupations
Major group 7: Sales and customer service occupations
- Sales occupations
- Customer service occupations

Major group 8: Process, plant and machine operatives
- Process, plant and machine operatives
- Transport and mobile machine drivers and operatives

Major group 9: Elementary occupations
- Elementary trades, plant and storage related occupations
- Elementary administration and service occupations
### Appendix 3: Participant institutions

Table 11: Response rate by institution (n=1381)

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<tr>
<th>Institution</th>
<th>Total final year student cohort</th>
<th>Frequency of responses</th>
<th>Proportion of total sample (%)</th>
<th>Proportion of institution's cohort (%)</th>
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<td>13</td>
<td>4</td>
<td>0.29%</td>
<td>30.8%</td>
</tr>
<tr>
<td>UCD</td>
<td>?</td>
<td>9</td>
<td>0.65%</td>
<td>-</td>
</tr>
<tr>
<td>Warwick</td>
<td>130</td>
<td>85</td>
<td>6.15%</td>
<td>65.4%</td>
</tr>
<tr>
<td>York</td>
<td>83</td>
<td>41</td>
<td>2.97%</td>
<td>49.4%</td>
</tr>
<tr>
<td>Other</td>
<td>29</td>
<td>4</td>
<td>0.29%</td>
<td>13.8%</td>
</tr>
<tr>
<td>Total</td>
<td>242</td>
<td>1381</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
N.B. 15 respondents did not provide institution information and therefore do not appear in this table. ‘?’ indicates that there is no total number of students data for this institution. ‘–’ indicates that the figures cannot be calculated due to missing data about total number of students.
Appendix 4: Questions asked of Irish respondents

Q35. Other Influences

Chose at school (7 comments)

- In school I enjoyed learning about how the world works and also problem solving, physics was the natural choice for me
- Physics and Maths were my favourite subjects in Secondary school so I decided to study them in College as I didn't have any specific career in mind
- Picked science as didn't know what to do. Picked physics as didn't want to study geology
- Studied physics, chemistry and biology for leaving cert. Did not want to do chemistry or biology in college so it was physics by default
- There was no definite reason as to why. I had a preference to study science in college but I didn't know what are I wanted to go into. I thought physics was interesting and practical. There was no real influence, it was just that I preferred physics to my other science subjects
- Took a general science course in first / second year in college and then had to choose a definite degree course. Decided in the first two years that physics was my favourite subject and exactly what I wanted to continue studying
- When to college and picked general science and always picked Physics when it can to keep subject until Physics was the only on left

Interest / love of subject (23 comments)

- A love of maths and wanting to understand the workings of the universe
- Enjoyed physics at school and felt that it would be the only subject that would provide an interesting and varied career
- Enjoyed the thought of knowing and figuring out how the world around us works
- Found it interesting
- General interest in science and physics classes during the leaving cert!
- Have always wanted to know how things work. Couldn't decide on any single engineering path
- I did general science and then enjoyed physics so chose to major in it
• I enjoyed the subject
• I found it interesting
• I like physics
• I liked applied maths and the particle physics part of the Leaving Certificate course. And my parents just told me to do what I wanted to do. So I did physics
• Interest in area
• Interest in physics
• Interested in physics
• Interested me
• It wasn't suggested to me by anybody. Just loved maths and physics
• Just an Interest in physics and astronomy in general. Wanted at the time to become an astronomer
• My own personal interest
• Personal interest (2)
• Personal interest in the subject throughout secondary level education
• Personal Interest, fascination with the subject
• Thought it would be interesting

Other (3 comments)

• I decided on this course from reading college literature. I do not believe anyone directly influenced my decision outside this
• I did science in ITT as I did not get any of my business courses that I had chosen in my CAO application. Started out doing a cert, then a diploma then a degree. Loved my physics lecturer, **** ***** and from that choose physics over Chemistry and Biology-crazy!
• I was looking for a challenge...stupidly

Q36. Most valuable element of your course

Knowledge / ways of thinking (7 comments)

• Learning more about the world we live in, from the macroscopic to microscopic, and understanding concepts that I would never have touched on in any other degree
• Quantum physics
• My acquired skills with quantitative research
• Using brain
• Development of analytical skills, solid scientific background training, valuable advice and assistance from mentors
• Learning a way of thinking that is applicable to many different areas
• The lectures in English

Lab / practical work (20 comments)

• Practical work
• Practical labs and their format. There was a special electronics and computational lab experiments
• Practical lab aspects of the course and the more relevant courses to industry such as diagnostic imaging, vacuum technology
• Laboratory work has been extremely valuable
• I think your course of mini-lab projects in third and fourth year as opposed to a final year project was very valuable because it gives more rounded knowledge of different areas of physics research
• Laboratory work
• Lab / Practical work
• Laboratory techniques, analytical techniques, computational method, error analysis. Giving seminars, completing projects
• Lab work (2)
• Open experiment - theory and production of a self sustained self triggering harmonic oscillator
• The lab work, the consideration of physical theories to aid understanding, the interaction and discussion with lecturers and fellow students
• Laboratory work has been by far the most important learning tool for me while studying physics. This is because you get a chance to really question the underlying theory of the subject
• Lab reports
• The work experience in a lab
• The course work has been exceptional, and the small class size helps develop better student-lecturer relationships
• Experimental sessions have been invaluable, also strong background solid state physics
• All elements contributed to the value of the course. I suppose the most challenging were laboratory write-ups, thesis and presentations. Good time keeping - or lack there of were found here. Good way to learn the importance of that!
• Gaining computer and lab based skills along with studying for my degree
• Some of the lab work and computer programming are things that I think will stand to me. Basically the things that I managed to get my head around even though doing that was tough (although I never put in enough work to get my head around lots of it). Also being pushed so hard to learn so much was good. Even though it had the overall effect of discouraging me. I don't know how I'll survive without constantly being bombarded with information, it's stimulating and challenging in a way I enjoy

### Mathematical ability / skills (7 comments)

• Numerical skills
• Improvement of maths and problem solving ability, as well as computer skills
• General maths background
• The numerical and computational skills combined with a development of problem solving abilities
• Development of mathematical ability
• Learning how mathematics forms the wiring of everything in nature and through it the dynamics of any system can be modeled and simulated. Thus, it showed me how mathematics and physics are intertwined with one another forming the basis of all science
• Mathematics courses

### Problem solving abilities (10 comments)

• In first and second year I studied physics through problem based learning (P.B.L), this has provided me with valuable problem solving ability and allowed me to develop my interpersonal skills as our class were required to work in groups
• Probably labs as gained good experience for later in my career, but lecture on topic also vital for a good knowledge and understanding
• The challenging nature of the course, i.e. problem solving
• It's definitely made me more confident and allowed me see that no matter how challenging something appears, it can, most of the time, be done
• Problem Solving and team work skills. Also the defining the ability of understanding complicated problems
• The transferable skills - problem solving, research, analytical thinking, communication, computation, presentation
• The development of transferable skills like problem solving and analytical thinking
• Problem solving skills
• Problem based learning of physics for the first two years
• Problem solving skills

Range of modules / scope (4 comments)

• All aspects of the course have been valuable. We have been given the opportunities to study various modules which have given us a grounding in the basic principles of physics and in current developments
• Environmental, mathematics and statistics, applied heat, applied optics, acoustics, final year project
• Broad degree
• Electives maybe

None / can’t say (2 comments)

• I don't know
• N / A

Other (2 comments)

• Photography
• Project work
Q37. Most interesting element of your course

Academic / peer environment (4 comments)

- Cosmology
- Discussions with lecturers and fellow students about concepts in physics and lab work
- I love listening to the lecturers (when they're good that is) and straining to follow each element of a topic
- Group projects

Knowledge / intellectual skills (9 comments)

- Understanding complicated processes using simple models and assumptions and also learning how people through history discovered new physics "laws" by serendipity or otherwise!
- The history of thought in physics
- The diagnostic imaging, hope to go on and do a masters in it in a years time
- To see what the things that drew me to the subject were all about. Like what general relativity and quantum mechanics actually looked like and consisted of. Also, a lab we did on holography was brilliant, it inspired me to read up about it. Number theory was quite cool. Just seeing how the basics worked, it was so different from the maths I had seen before
- Studying a wide range of different areas within physics
- Getting the overall picture of what physics tries to achieve, a full description of the workings of the universe on its smallest and largest scales. Fascinating
- Finding out how the world works by using physics from simple things to the more complicated using quantum mechanics
- Problem based learning, optics (both geometrical and electromagnetic), holography, electronics, quantum mechanics, material science, statistical physics. I'm really interested in all elements of the course
- Name it. Learned about the mysteries of the universe. Can't beat that

Lab / practical work (7 comments)

- Practical work, Nuclear physics and Relativity
• Laboratory work and a physics in medicine module
• Lab / Practical work
• Research work
• The experimental work has been most interesting
• Laboratory sessions
• Final year research project

Specific subject / module (30 comments)

• Optics
• Particle physics
• Courses in solid state, thermal and quantum physics
• Applied maths, e.g. fluid dynamics and mathematical biology
• A course I didn't follow in France : Environmental Science
• Electronics, astrophysics and high energy particle physics. Electronics is a very practical subject and different from the usual run of the mill subjects. In my final year I'd several quantum mechanics classes and although they were interesting they were conceptually difficult and this might that they were sometimes boring. Electronics was sort of a refreshing subject. HEP was also very interesting as it’s really topical and it makes sense of a lot things. It also has huge implications for astrophysics which was also a very interesting course. Astrophysics takes the physics learned in other courses and places them in a very different situation, i.e. the thermodynamic laws or particle antiparticle production for black holes
• High energy particle physics, astrophysics, and atomic and molecular physics
• I really enjoyed the high energy particles physics and astrophysics courses
• The more theoretical courses- high energy particle physics, astrophysics, electromagnetism. Completing lab projects, in particular computational projects
• 4th year modules, electromagnetism, photonics, condensed matter, quantum
• QM
• Nuclear physics, thesis on single wall carbon nano tubes
• The astrophysics parts - what I was most interested in entering the course
• The most challenging subjects, such as general relativity and quantum field theory
• Probably the most interesting element of the course was the main physical science of optical science describing the interaction of light and matter and material science and how they both including many other fields form the basis in
understanding biological science from the many different types of eyes to the
structure of cells and their organelles. And that the answer to unlocking the
secret of life lies in the electromagnetic interaction between molecules. That is
what drives me to dig deeper and deeper in science

- QFT
- Modern physics
- Mathematical biology
- Nuclear physics
- Material physics
- Lasers and optical communications
- Can't really pick, all the course in 3rd and especially 4th year are interesting in
  there own way astrophysics just because of the sheer size and extraordinary
  objects, electromagnetism really cool to see why Snell's law is and why can
  approximate radiation as plane wave, high energy physics as the very
  fundamental nature of matter, and so on, it all incredibly interesting
- Relativity
- Quantum mechanics, astrophysics and lab work
- The vast majority of the physics course has been interesting but if forced to
  choose, it would have to the astrophysics subjects
- Astrophysics
- I have found the semiconductor aspect the most interesting along with
  nanotechnology. Both subjects are very prevalent at the moment and very
  interesting
- Environmental, applied heat, applied optics, acoustics, final year project
- Astrophysics in fourth year including a workshop module and project
- Optics, modern physics
Appendix 5: Questions / fields for online follow-up

Format:

Question / field number: question / field name
Additional text to provide
Question / field type: drop down box – fields / tick boxes / open answer
Mandatory response (if applicable)
Information visible from existing database (if applicable / available)
Information provided for information only (if applicable / available)

1. **First name**  
   Information provided for information only

2. **Surname**  
   Open answer  
   Information visible from existing database

3. **Address Line 1**
4. **Address Line 2**
5. **Address Line 3**
6. **Address Line 4**
7. **Address Line 5**
8. **Address Line 6**
9. **Address Line 7**
10. **Address Line 8**
11. **Postcode**  
    Open answers  
    Information visible from existing database

12. **Personal email address (1)**  
    Please supply an email address that will be valid in a year’s time  
    Open answer  
    Information visible from existing database

13. **Personal email address (2)**  
    Please supply a second email address if possible  
    Open answer  
    Information visible from existing database

14. **Home telephone number**  
    If possible, please supply a contact telephone number that will be valid in a year’s time  
    Open answer  
    Information visible from existing database

15. **Mobile telephone number**  
    Open answer  
    Information visible from existing database

16. **Gender**  
    Information provided for information only

17. **Date of birth**
18. **Nationality**  
Information provided for information only

19. **Ethnicity**  
Information provided for information only

20. **Do you consider yourself to have a disability?**  
Drop-down box – fields:
- Yes (please go to question 21)
- No (please go to question 22)
- Prefer not to say (please go to question 22)

Information visible from existing database

21. **If you answered yes to Question 21, please give details**  
Open answer  
Information visible from existing database

22. **Full degree title**  
Open answer  
Information visible from existing database

23. **Degree classification**  
Open answer  
Mandatory response

24. **University attended**  
Open answer  
Information visible from existing database

25. **Are you in continuing education?**  
Drop down box – fields:
- Yes (please go to question 26)
- No (please go to question 27)

Mandatory response

26. **If so, please provide details (Course title, University)**  
*Now please go to question 36*
Open answer

27. **Occupation**  
*Please tell us about your current occupation (role / job title)*  
Open answer  
Mandatory response

28. **Employment sector**  
Drop down box – fields:
- Education
- Government
- Industry
- Services
- None of the above/not applicable (please specify)

Mandatory response

29. **Employment sector details**  
Drop down boxes - this routed / dependable on field 27 as follows:

I. Education:
II. Government:
- Armed Forces
- Central government or civil service in government department
- Regulatory body
- Research Council
- Research Laboratory
- Other government
- None of the above (please specify)

III. Industry:
- Aerospace
- Agriculture
- Forestry or fishing
- Chemical
- Petrochemical
- Instrumentation
- Construction
- Electrical
- Food, drink and tobacco manufacture
- Oil
- Information systems engineering
- Light manufacturing
- New media, i.e. web design, editing or electronic Publishing
- Nuclear fuel processing
- Electronics/IT/Software
- Publishing
- Printing
- Telecommunications
- Transport
- Other industry – please specify (Open answer)
- None of the above (please specify)

IV. Services
- Consultancy (scientific/technical)
- Consultancy (management)
- Contract R&D
- Financial Services
- Health and care services
- Interest groups (professional body, learned society, trade union)
- Legal services
- Other services
- None of the above (please specify)

30. Which of the following best describes your degree of responsibility?

Drop down box – fields:
- Senior management
- Management
- Project lead (non-managerial)
- Project / team member
- Trainee
- Other – please specify (Open answer)
- None of the above (please specify)
31. **Main function of your role**
   Drop down box – fields:
   - Teaching
   - Pure research
   - Applied research
   - Development
   - Production
   - Marketing/retail/distribution
   - Administration
   - Management
   - Consultancy
   - Technical support
   - Other – please specify (Open answer)
   - None of the above (please specify)

32. **Is your organisation**
   Drop down box – fields:
   - Local
   - National
   - International

33. **Size of your organisation**
   Drop down box – fields:
   - Micro firm: 0 – 9 employees
   - Small firm: 10 – 49 employees
   - Medium firm: 50 – 249 employees
   - Large firm: over 250 employees
   - None of the above (please specify)

34. **Salary bands**
   *Including paid bonuses*
   Drop down box – fields:
   - Up to £19,999
   - £20,000 – £24,999
   - £25,000 – £29,999
   - £30,000 – £34,999
   - £35,000 – £39,999
   - £40,000 – £49,999
   - £50,000 – £99,999
   - More than £100,000

35. **What professional organisations are you a member of?**
   Open answer

36. **Do you have care responsibilities for:**
   - **A dependent child**
     Drop down box – fields:
     - Yes, I am the main carer
     - Yes, I share the caring responsibilities
     - No
     *Information visible from existing database*
   - **A parent**
     Drop down box – fields:
Yes, I am the main carer
Yes, I share the caring responsibilities
No
Information visible from existing database

A partner
Drop down box – fields:
Yes, I am the main carer
Yes, I share the caring responsibilities
No
Information visible from existing database

Other
Please specify
Open answer

37. Have you had a career break?
Drop down box – fields:
Yes (please go to question 39)
No (please go to question 39)

38. How long was your career break?
Drop down box – fields:
0 – 6 months
7 – 12 months
13 – 24 months
25 – 60 months
61 months or longer

39. In your opinion how closely related to physics is your current occupation?
Drop down box – fields:
Very closely related
Quite closely related
Not particularly related
Not at all related

40. In your opinion how useful is your physics background to your current occupation?
Drop down box – fields:
Very useful
Quite useful
Not particularly useful
Not at all useful