

Impact Report 2015 Cohort: London

Dr Kate A. Hamblin*

"My in2science experience was the most beneficial and eye opening 2 weeks I've ever had and has motivated me to achieve my goals".



" I was able to prove that my passion for science stretched further than the four walls of the classroom"

*Dr Kate A. Hamblin, Oxford Institute of Population Ageing, University of Oxford, 01865 612 816, kate.hamblin@ageing.ox.ac.uk.

Disclaimer: Kate Hamblin was appointed by In2ScienceUK to analyse data and produce this report.

Social mobility in STEM.

Extensive research in the UK shows that young people from low income backgrounds face major barriers when pursuing their interest in science. These include a lack of opportunity to engage and experience science in an out-of-classroom context, professional role models and access to high quality information on STEM careers and degrees ^{1,2,3}. This contributes to the lower representation of this group at top universities ^{4,6}. Even when poor students make it to A'levels, they are 50% less likely to study at a top university than their non-free-school meal counterparts ⁵.

What in2scienceUK does

The in2scienceUK programme supports 16-17 year olds from the lowest socio-economic backgrounds who have no family history of attending university. The programme provides access to skills days, inspirational two week work placements and STEM specific career and university advice aimed to improve participants knowledge of science, transferable skills and personal self-confidence. Rather than focus on those who are already high-achieving, we select young people who are in the B/C grade bracket where the opportunity to take part will make the most transformative difference.

Our vision

By leveraging the support of top scientists, our aim is to increase the number of young people with STEM qualifications. With higher salaries available in STEM careers our vision is that In2scienceUK will provide a way out of economic inequality for these young people as well as benefiting the UK economy from an increase in STEM skilled workers.

2015 placements

In 2015 we supported 160 young people from low socio-economic backgrounds access STEM focused advice, support and work placements. UCL hosted 96 placements, Bath 32, Imperial 12, KCL 11 and 9 in commercial organisations.

This has been possible due to the commitment of scientists who volunteer their time year on year to support, engage and inspire the students during their working day. The continued support and generosity of our funders has also enabled us to expand our provision.

Rebecca McKelvey
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With thanks to
our founding
sponsors

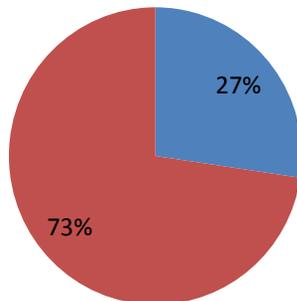


Student Demographics

117 London Sixth Form students took part in In2ScienceUK 2015.

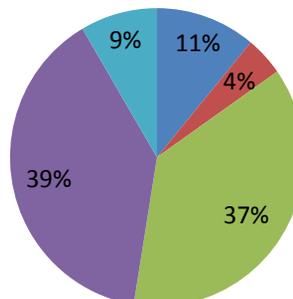
Gender of participants:

- Male
- Female



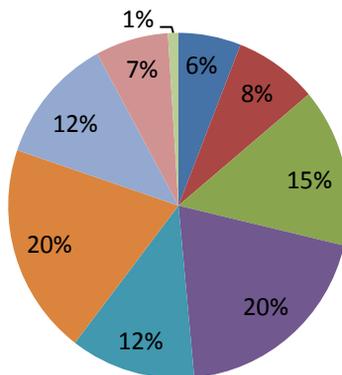
Ethnicity of participants:

- White – British
- White – Other
- Black or Black British
- Asian or Asian British
- Other Ethnicity



IDACI decile:

- D1
- D2
- D3
- D4
- D5
- D6
- D7
- D8
- D9



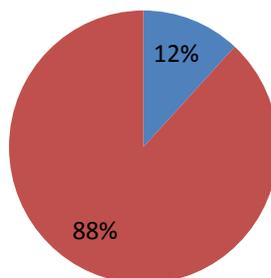
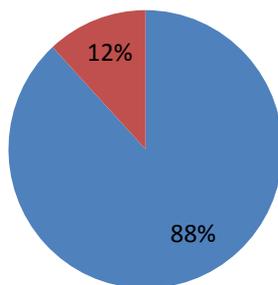
IDACI is a [Department for Education](#) index used to assess the proportion of children living in a low income household in a Super Output Area (SOA).

Each decile contains 10% of SOAs. Decile 1 (1) contains the most deprived SOAs; decile 10 (10) contains the least deprived SOAs.

49% of participants fall within deciles 1 to 4 i.e. the 49% most deprived SOAs.

Free School Meals/Education Maintenance Allowance:

Parents who have HE:



■ Yes ■ No

Member of other Higher education (HE) programmes

77% of participants were not on any other HE programme.

Others participated in;

15% Futures (15%)
UCL-Uni link (3 students)
K+ (student)

Participants came from 64 different schools .
The most prevalent were:

Cardinal Pole Catholic School	5
City And Islington Sixth Form College	5
Sacred Heart Catholic School	5
Brompton Manor Academy	5

Participants wanted to gain the following from placement:

- Insight into academia and degree choices;
- Practical lab skills and experience;
- Increased understanding of STEM careers;
- Communication skills;
- To put scientific knowledge into practice.

Pre- and Post-Placement Surveys

Plans for the Future: University and subject choice

Participants were asked to complete a number of questions pre- and post-placement. The findings from these surveys and comparisons of responses are outlined in the remainder of the report. This section will explore the students' aspirations regarding university and subject choice (n=109).

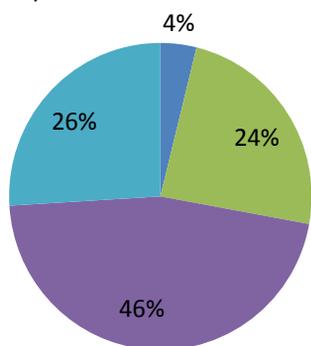
First choice of degree subject :

	Pre-placement	Post-placement
Biology/Biological Sciences	8	6
Biochemistry	6	5
Biomedical Science	9	16
Chemical Engineering	4	2
Chemistry	2	2
Computer Science	3	2
Electrical Engineering	3	2
Mathematics	2	3
Mechanical Engineering	6	1
Medicine	28	10
Natural Sciences	4	31
Pharmacology	5	4
Physics	1	3
Psychology	10	7
Veterinary Medicine	2	5
Other STEM	11	1
Non STEM	3	8
Unsure	2	1

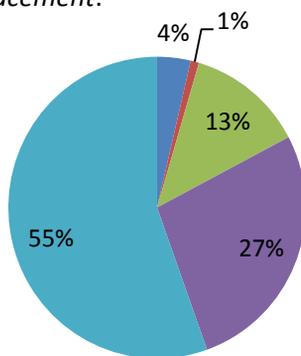
Participants were asked pre- and post-placement about their first choice of degree subject. The highlighted rows in the table to the left show where differences are >5. Post-placement, Natural Sciences were cited as their first choice of subject by 31 participants compared to 4 pre-placements. Increases were also observed in Biomedical Science and to a degree in non-STEM subjects. Participants selecting Medicine, Mechanical Engineering and other STEM decreased following placement; as the numbers selecting non-STEM (8) were less than the 18 no longer opting for Medicine or Mechanical Engineering, we can assume for the majority, they changed their first choice to another STEM subject.

The students were asked pre- and post-placement what their first choice of degree subject would be, and how sure they were of this choice. Post-placement, more participants were 'completely sure' of their choice.

Pre-placement:



Post-placement:



■ 1 (Don't know) ■ 2 ■ 3 ■ 4 ■ 5 (Completely sure)

Participants were asked to state five universities that they are hoping to apply to post-A'level. London-based universities remained the most popular first choice universities pre- and post placements, aside from Oxbridge.

First choice	Post-placement
UCL	17%
KCL	14%
Cambridge	8%
Imperial	8%
Oxford	7%

Pre- and Post-Placement Surveys

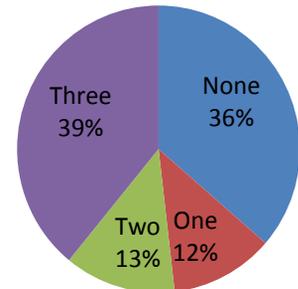
Skills and competencies

The students were also asked pre- and post-placement to rate their own skills, competencies and confidence in relation to both STEM subjects and university application procedures. This section explores their responses.

"in2scienceuk gave me the confidence in my lab skills that I need for my A'level Biology. It also was an amazing experience for meeting professional scientists".

The participants were also asked to reflect upon the skills they acquired from their placements. 64% learnt at least 1 laboratory skill, and over a third learnt three skills.

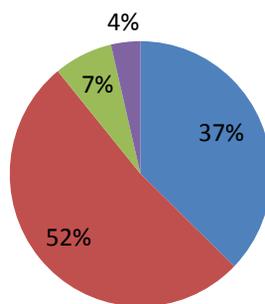
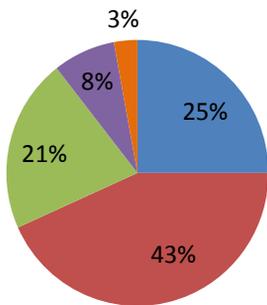
Number of laboratory skills learnt:



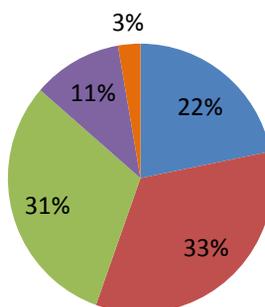
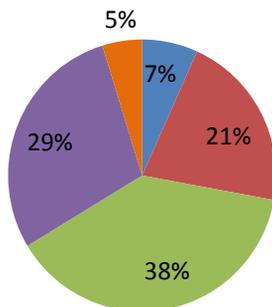
Pre-placement:

Post-placement:

I have knowledge about university - I know what I have to do to successfully apply to study at university.



I feel confident that I can write a high quality UCAS personal statement.



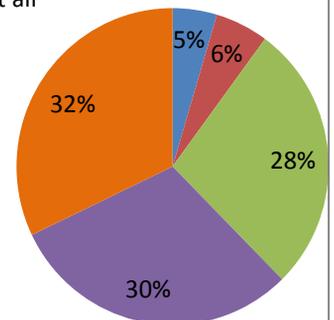
■ Strongly Agree
 ■ Agree
 ■ Undecided
■ Disagree
 ■ Strongly Disagree

Skills Day

When evaluating the Skills Day, 32% of the participants rated it as 'Very Useful'.

How useful was the Skills Day?

■ 1 (Not at all useful)
■ 2
■ 3
■ 4
■ 5 (Very useful)



93% of participants said they would not have been able to arrange their placement on their own.

"in2ScienceUK has not only provided me with valuable experience in the engineering industry (something that is difficult to get due to health and safety), it has also taught me how to act in a professional manner when it comes to written and verbal communication".

Most useful aspects of Skills Day:

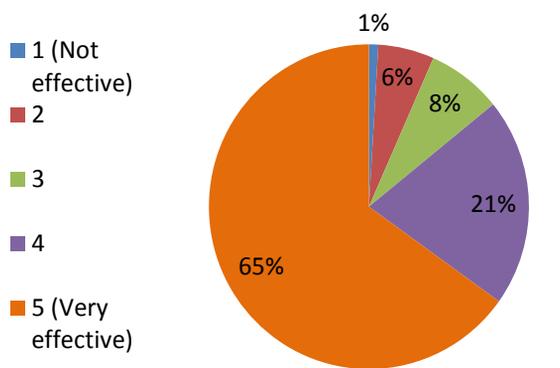
- Personal Statement and UCAS tips
- Talks from Admissions Tutors
- Writing professional emails
- Information on STEM careers
- Interaction with university scientists.

Pre- and Post-Placement Surveys

In2science's Impact

The students were also asked to also rate the In2science placement scheme in terms of its effectiveness, their enjoyment and their perceptions of university and STEM careers. We were also able to compare pre- and post- survey responses to examine the impact of in2science on participants' confidence and motivation to apply to university to study STEM subject.

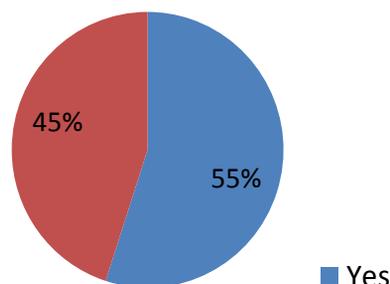
On a scale of 1-5, how effective was your placement? 5 being the highest score



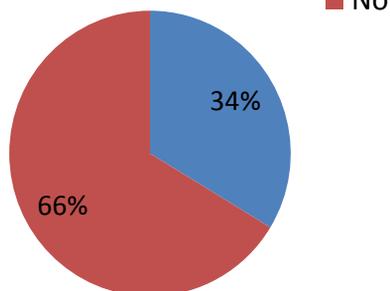
"I am far more confident in my understanding of a STEM career and the variety of degree pathways available to get into a STEM career of my choice".

Participants were asked whether In2science changed their perceptions of sciences careers and university more generally. Over half said in2science had altered how they thought about science careers whereas just over a third said the same regarding applying to university.

Has in2science changed your perception of science careers?



Has in2science changed your perception about applying to university?



The percentage of participants that agreed or strongly agreed with the following statements **increased** after completing the placement:

- I feel confident that I have the ability to study at a top 30 university in the UK.
- I am motivated to go to a top university to study a STEM subject.
- I know where to seek support and advice about the university application process.
- I know lots about the financial options that are available to students studying at universities in the UK.

The percentage of participants that disagreed or strongly disagreed with the following statements **increased** after completing the placement:

- I feel concerned about the transition to university and the skills I will need to help me when I'm there.

"I think it's amazing that the opportunity exists, it is so hard to find work experience in such a field unless you have the connections, so for people like me, it was great, I am very grateful".

Participants were asked whether they felt their In2ScienceUK placement could have provided any additional support. Those who provided suggestions focused on additional support with university applications including funding, interviews, personal statements and the UCAS process, as well as additional opportunities for more placements or mentoring from university scientists.

References

- 1 Wellcome Trust. Review of informal science learning. 2012(a).
- 2 Wellcome Trust. Analysing the UK Science Education Community: The contribution of informal providers. 2012(b).
- 3 Wellcome Trust. Experiments in Engagement: Review of literature around engagement with young people from disadvantaged backgrounds. (2014).
- 4 The Sutton Trust Report (2010)
- 5 Department for education (2015). Destinations of key stage 4 and key stage 5 pupils: 2012 to 2013
- 6 <http://www.hefce.ac.uk/>

Impact Report 2014 London Cohort: One Year On

Dr Kate A. Hamblin*

“I genuinely believe that applying for the in2science placement was one of the best decisions I have made as I don't think I could have ever had an experience like this anywhere else. I learned so much, not only about the research but about the life of a PhD student, a professor and my love for science.”



“Throughout the program I was given a different perspective on the sciences rather than just your cliché 'revise and complete exams'. I was shown the more practical side to the sciences and learned the fact that the way to excel in a lab is to communicate, share ideas and most of all, experiment”.

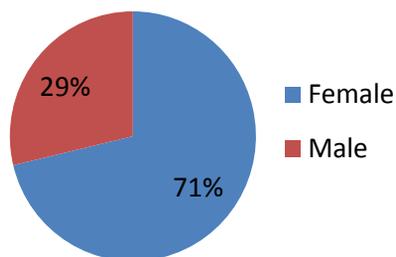
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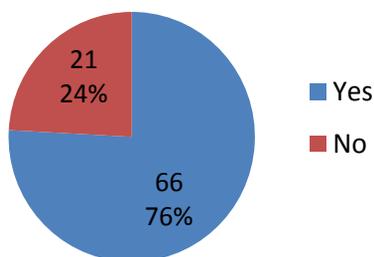
2014 Cohort: Student Demographics

87 London Sixth Form students took part in In2ScienceUK 2014.

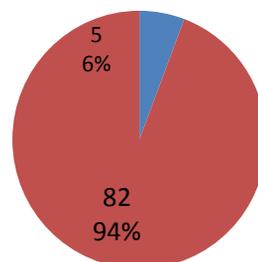
Gender of participants:



Free School Meals:

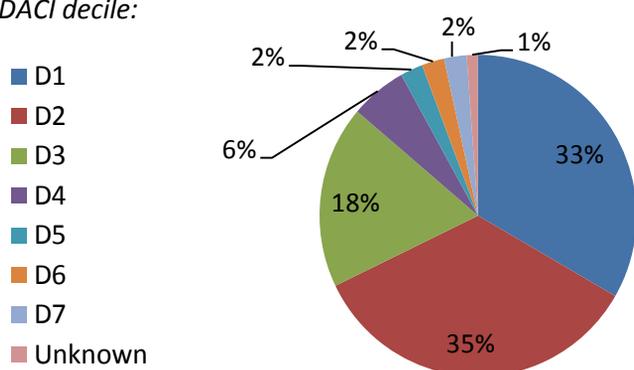


Parental HE:



When combined, **100%** of participants receive Free School Meals and/or do not have parents who have completed Higher Education.

IDACI decile:



[IDACI](#) is a [Department for Education](#) index used to assess the proportion of children living in a low income household in a Super Output Area (SOA).

Each decile contains 10% of SOAs. Decile 1 (D1) contains the most deprived SOAs; decile 10 (D10) contains the least deprived SOAs.

86% of participants fell within deciles 1 to 3 i.e. the 3 most deprived SOAs.

Participants came from **64** different schools in the area including:

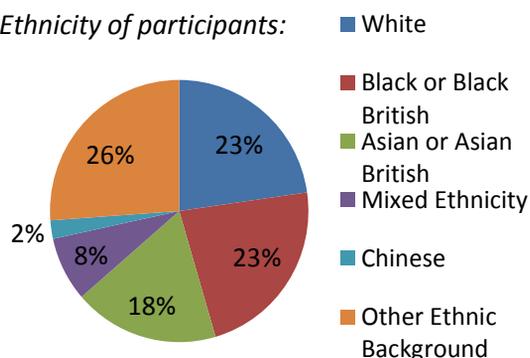
The UCL Academy	6
City & Islington Sixth Form College	5
Stockley Academy	3
Woodhouse College	3

Participants were studying the following AS-Level subjects:

Chemistry	82%	Physics	32%
Biology	85%	Maths	64%

97% of participants were studying at least 1 science; **85%** were studying 2 or more sciences; **17%** are studying all 3 sciences and **15%** were studying all 3 sciences and Maths.

Ethnicity of participants:



Participants wanted to gain the following from their placement:

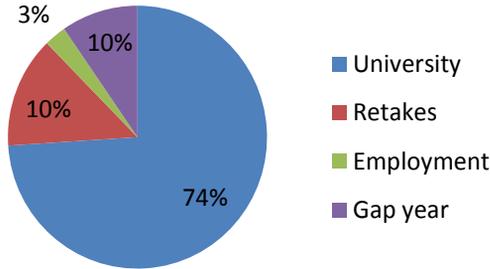
- Learn new skills e.g. lab skills.
- Increase confidence.
- Experience real research first-hand.
- Insight into university and careers.
- Do something to strengthen applications.
- Work with professional scientists.
- Help direct university and degree choices.

20.7% of participants were members of educational programmes such as [HE+](#), [HEAPS](#), [Generating Genius](#) and [Social Mobility Foundation](#).

2014 Cohort: In2Science's Impact

73 of the 2014 in2science London cohort were surveyed one year on from their placement to establish their intentions for the future, and their feelings about their placements and the impact it had on them. This section explores their answers.

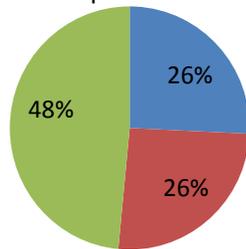
The vast majority of the 2014 cohort surveyed progressed to University in September 2015. Only a very small proportion took up paid employment (2 students).



Intended University	Count
King's College London	9
Queen Mary University of London	7
University College London	5
Imperial College London	3
University of Nottingham	3

Seven students are taking a gap year before progressing to University. The remainder who are not in employment are progressing to the universities: featured in the table and pie chart.

- Not going to university
- Going to non-Russell Group university
- Going to a Russell Group university



subject of study:

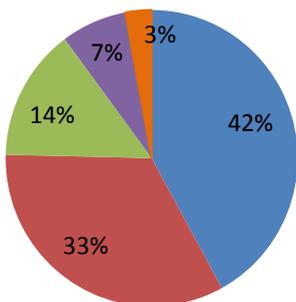
The participants attending university in 2015 all responded that they are to study a STEM subject.

Biomedical Sciences	12
Medicine	6
Psychology	6
Biochemistry	5
Engineering	5
Neuroscience	5
Biology	4
Computer Science	4
Physics	4
Chemistry	3
Pharmacy	2
Electrical Engineering	1
Natural Sciences	1
Non-response/ N/A	10

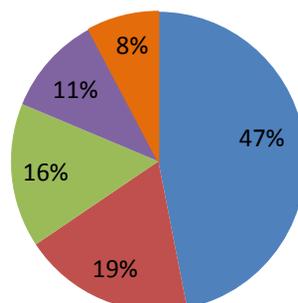
The students were also asked about the impact of their placements on their subject and university choice. The majority reflected that their placement increased their enjoyment of science subjects, and helped them with their choice of university course. Over 50% also said their placement helped them decide whether to attend university.

How much did your placement...

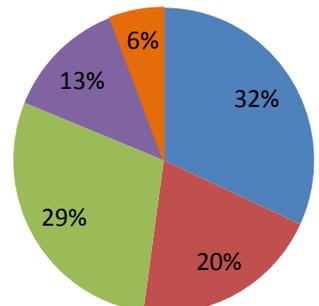
...increase your enjoyment of science subjects?



...help you with your choice of university course?



...help you decide whether you would go to university?



- 5 (A lot)
- 4
- 3 (Moderately)
- 2
- 1 (Not at all)