In²research

Impact Report 2023

Improving access to postgraduate research degrees and careers

Foreword

In2scienceUK's mission is to increase diversity and inclusion in science, technology, engineering and maths (STEM). Our In2research programme aims to improve access to postgraduate research degrees and careers for people from low socio-economic backgrounds and under-represented groups.

In2research has seen year-on-year growth since being piloted for the first time in 2020. In 2022/23 we collected data from participants and volunteers alongside case studies to assess impact of the programme. I encourage readers to explore this report which will provide an insight into the impact and success stories we are seeing for our participants and volunteers this past year.

I would like to say a huge thank you to our dedicated staff, volunteers and partners, without whom In2research would not be able to continually grow. As we move into 2024, we are implementing a number of exciting changes which will enable us to further support an increasing number of beneficiaries looking to pursue postgraduate research and careers.

Anishta Shegobin,
Head of Programmes

UCL has partnered with In2scienceUK to create a consortium including City University of London, Leading Routes, and UPSIGN. Our collective vision is to work together to identify and remove barriers that exist for students who may wish to embark on research careers through doctoral education.

The pilot phase showed the efficacy of the programme and from there we have grown to a point where we are supporting over 100 students, all of which have experienced some systemic disadvantage, and some multiple forms. These barriers, faced by students because of racial minoritization, gender, socio-economic status or through being returners to education, have been effectively reduced through participant mentoring and support, and more importantly through the race and cultural literacy we give to our staff volunteers.

Interacting with the amazing students that go through our programme tells us the positive impact we are having, but we are always going to aim higher. We want to be able to scale the programme to support as many students as possible, potentially in a variety of ways, but we also want to create long-lasting change within the sector.

Our combined success wouldn't be possible without our outstanding participants and the plethora of voluntary support we get from staff across the UK.

Mike Sulu,
UCL Principal Investigator

Programme Overview

In2research is a one-year programme developed by In2scienceUK and UCL which aims to give people from low socio-economic and under-represented backgrounds the skills and experience they need to access PhDs and research careers.

In2research addresses three main barriers to research careers:

1

Knowledge and information

We aim to demystify research by providing information on the pathways to research careers, such as how to apply for postgraduate research study and funding, and providing skills workshops in areas including interview skills and networking skills.

2

Lack of experience relevant to postgraduate careers

Postgraduate research study programs often demand substantial research experience. As many internships are unpaid, accessing such experience is challenging for our participants. In2research provides an 8-week research placement with a tax-free stipend exceeding £3,000, including workshops on interview and networking skills.

3

Research culture and wellbeing

We recognise the significant unconscious and conscious biases that exist within institutions. We provide tailored race and cultural literacy for all volunteers to promote a more inclusive and welcoming workplace.

In 2022/23:

We received 362 student applications

105 participants were supported, with 87 research placements delivered, a significant increase of 102%, up from 43 placements last year

Participant Case Studies

"

My confidence has definitely improved during my In2research placement. Having a really nice and supportive supervisor, I was never scared to ask questions.

The best part of my placement was getting into the lab and feeling like I'm doing something useful for the world through research. I've also learned a lot about neurons, and have been practising cell culture techniques and immuno-staining, as well as writing a literature review on peripheral nerve injuries, which may actually get published!

I've also attended weekly lab meetings, and while I was nervous to speak at first because of my speech impediment, my Placement Host helped me build my confidence and got me to a point where I was able to give a presentation to multiple research groups and PIs.

In2research has helped me learn that I thrive in a lab environment. My Placement Host has even offered me the chance to stay on beyond the end of my placement and do a few more tests for this project, as well as coming back in a few years for my masters project! "

Faiza,
2022/23 In2research Participant

"

Coming from a deprived area, growing up on free school meals, I couldn't afford to consider accessing opportunities which were unpaid or low paid. It is nice that the In2research programme removes that barrier, you can access research, it is a choice available to you.

The big thing that got in the way is the financial aspect. It is good to know there are other avenues, you aren't locked into one route with a PhD. I am now looking into research jobs from which I can potentially transition into a PhD-level career.

The In2research programme has also improved my confidence... I'm much more confident than before. Getting to be around scientists whilst they worked, seeing and interacting with them day to day, it made me realise they are just people as well. They are really nice people to speak to and ask for help. Being around them just helped. In2research has helped me realise I don't need to leave science completely if I don't want to. "
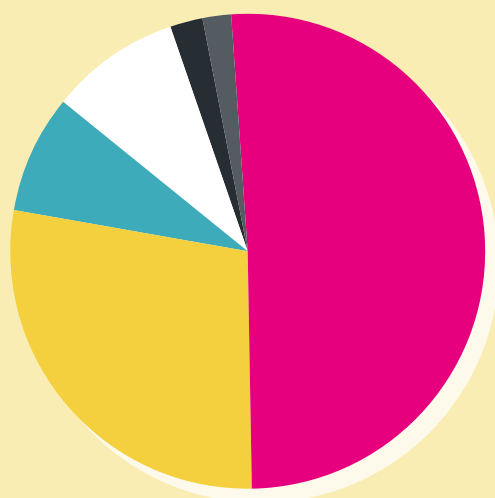
Abdul,
2022/23 In2research participant
and previous In2science summer participant

Our Participants

We supported **105 participants** in 2022-23

92% of participants were from UK-domiciled minority ethnic groups;

- 2% Arab
- 51% Asian or Asian British
- 28% Black, Black British, Caribbean or African
- 8% White
- 9% Mixed/Multiple ethnicity
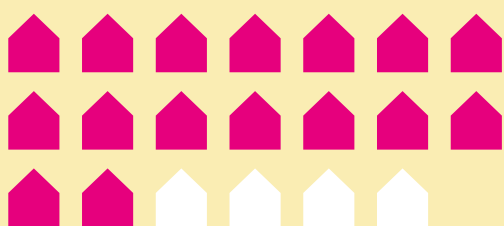- 2% Any other Ethnic Group

73% Female

26% Male

1% Self described

100% met at least one of these criteria and 37% met all three of these criteria:

81% of our participants were from a **low income household**

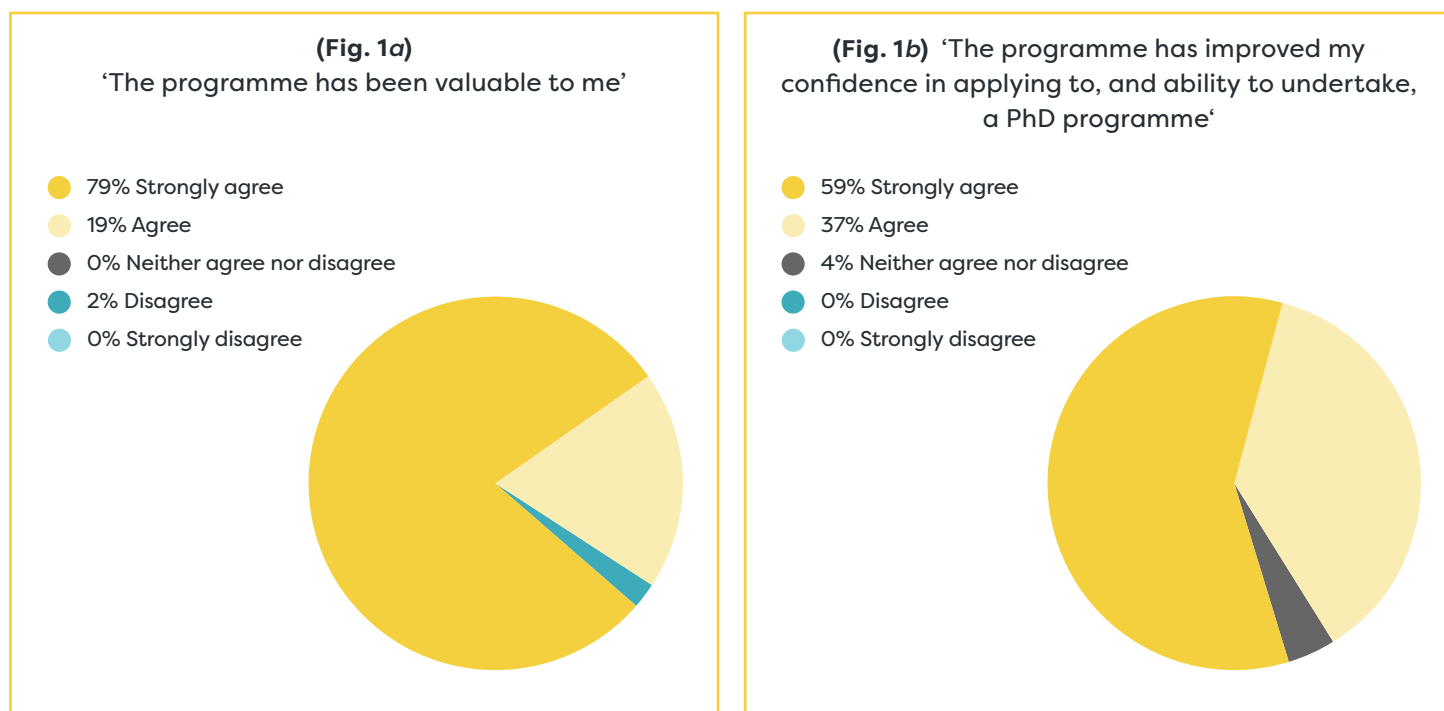**73%** of our participants were eligible for Free School Meals

55% of our participants at some point received **Pupil Premium, Education Maintenance Allowance (EMA)** or the **16-19 Bursary**

In2research Data

Our data is an early indicator that the In2research programme is providing improved access to postgraduate study for individuals from low socio-economic and under-represented backgrounds.

98% of participants agreed/strongly agreed that the programme was valuable to them, with 96% stating that the In2research programme has improved their confidence in applying to, and their ability to undertake, a PhD programme (Figure 1).

(Fig. 1a)
'The programme has been valuable to me'

- 79% Strongly agree
- 19% Agree
- 0% Neither agree nor disagree
- 2% Disagree
- 0% Strongly disagree

(Fig. 1b) 'The programme has improved my confidence in applying to, and ability to undertake, a PhD programme'

- 59% Strongly agree
- 37% Agree
- 4% Neither agree nor disagree
- 0% Disagree
- 0% Strongly disagree

The programme comprises four different elements:

Pre programme survey

Mid programme survey

Post programme survey

1 In-person professional development away day

2 Workshops and mentoring sessions

3 8-week research experience placement over the summer

**4** In-person professional development away day

5

Individuals from low socio-economic backgrounds may often experience financial concerns and without understanding what financial support is available, this can pose a significant barrier to engaging with postgraduate study. Before the programme, many participants reported insecurities about the application process and their ability to secure funding for a PhD. Only 3% of participants agreed or strongly agreed that they had confidence in their ability to develop a PhD application and only 2% agreed/strongly agreed that they knew how to apply for funding. The programme clearly equipped and improved the confidence of those participants, with 70% respectively 69% agreeing/strongly agreeing after the programme (Figure 2).

**(Fig. 2a)** 'I feel confident in my ability to construct a PhD/postgraduate research application'
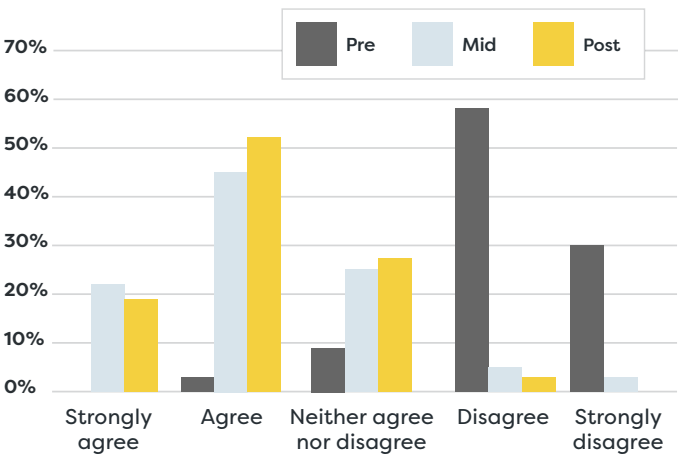
(Fig. 2b) 'I am clear on how to apply for funding for a PhD/postgraduate research'
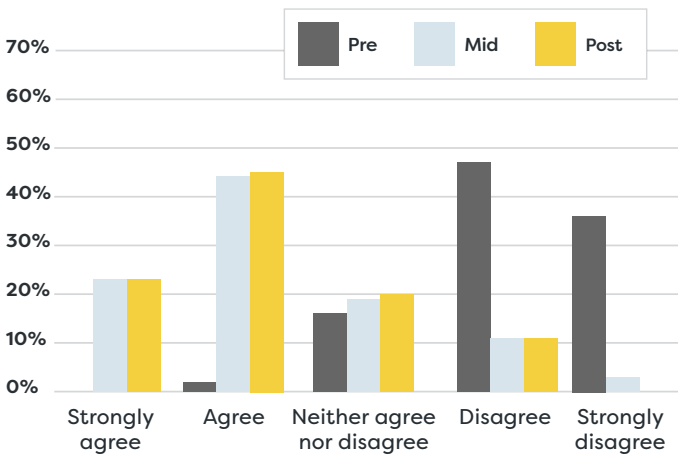

81% of participants agreed or strongly agreed before the programme that they understand what a PhD/ postgraduate research is (data not shown). However, before the programme, only 17% agreed or strongly agreed that they knew what skills are needed to complete a PhD/postgraduate research and only 11% agreed/strongly agreed that they understood what the day-to-day of a PhD involves. The In2research programme supported participants to develop their knowledge, skills and practical experience around the application and completion of a PhD/postgraduate degree, with 97% (+80%) reporting after the programme that they know what skills are needed and 91% (+80%) reporting they understood what the day-to-day of a PhD involves (Figure 3).

**(Fig. 3a)** 'I know what skills I need to complete a PhD/postgraduate research'
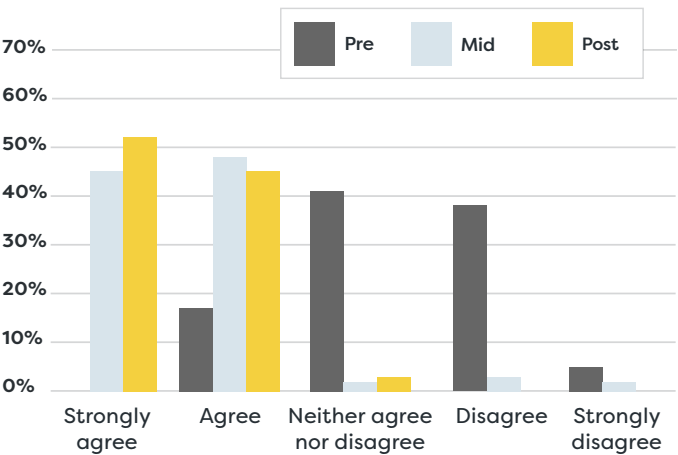
(Fig. 3b) 'I understand what the day-to-day of a PhD/postgraduate research involves'
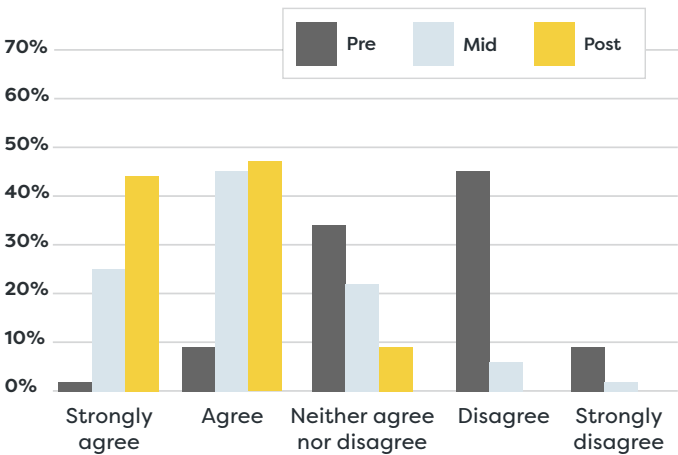
During the programme, participants developed confidence in their academic research skills. 94% of participants report after the programme that they are confident in doing a spoken presentation on a research topic compared to 44% before the programme. Furthermore, 83% of participants agreed/strongly agreed after the programme that they are confident in their ability to write a critical report or essay about a scientific topic compared to 41% before the programme. 88% of participants report after the programme that they are confident in discussing findings from a research paper outside of their area of expertise, an increase of 61% compared to before the programme (Figure 4)
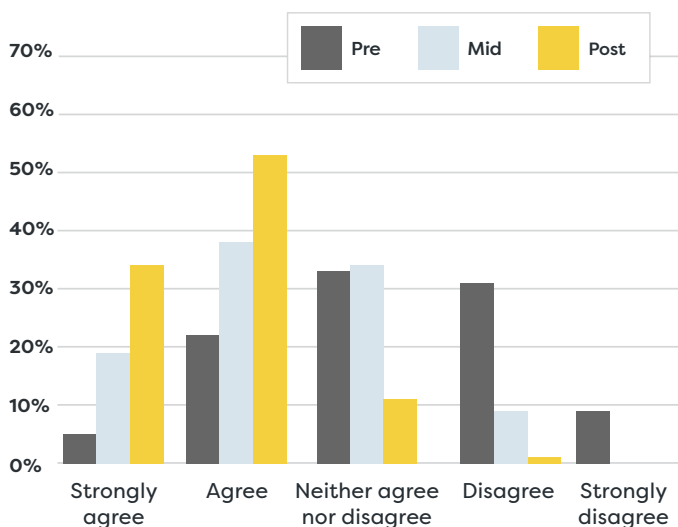
(Fig. 4a) 'I am confident in doing a spoken presentation on a research topic'
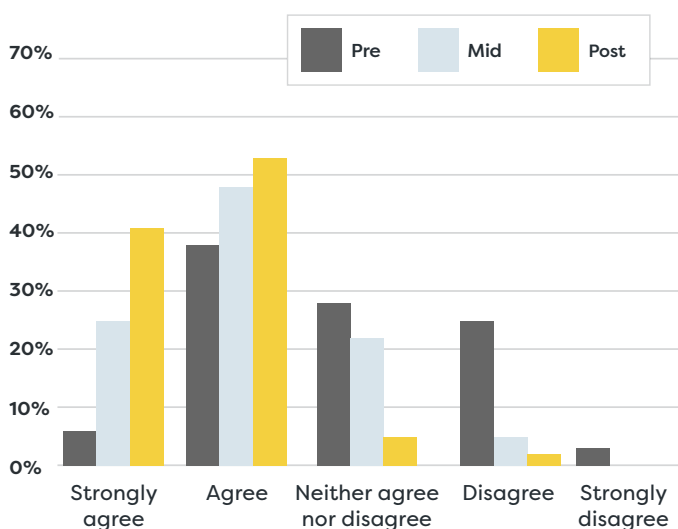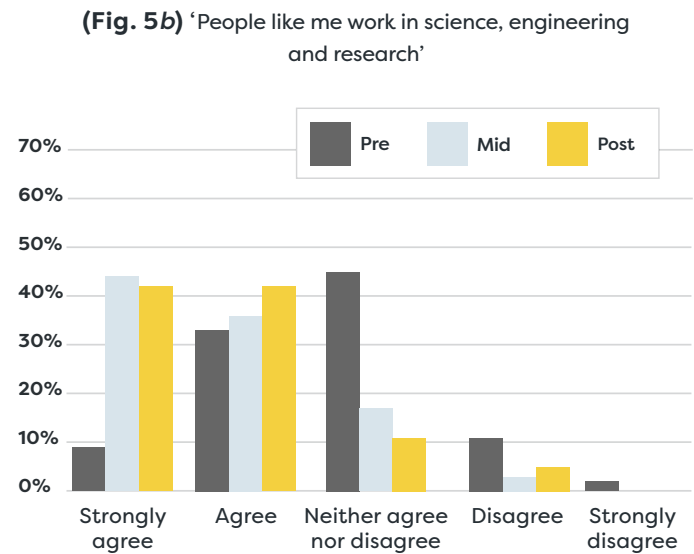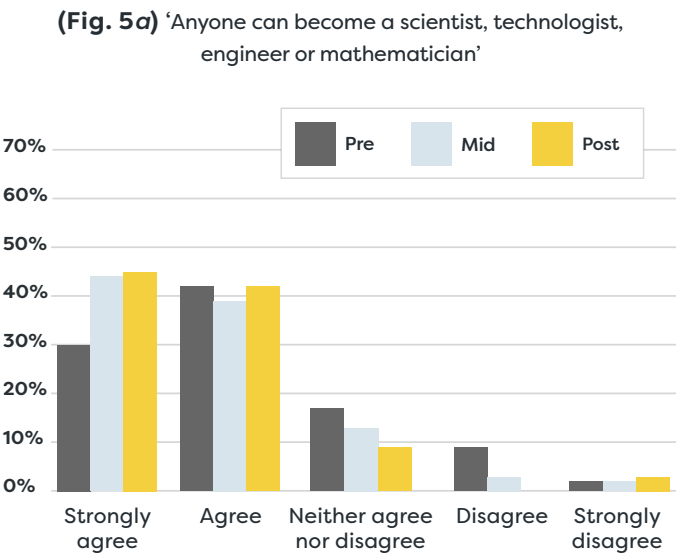

(Fig. 4b) 'I feel confident in my ability to write a critical report or essay about a scientific topic'
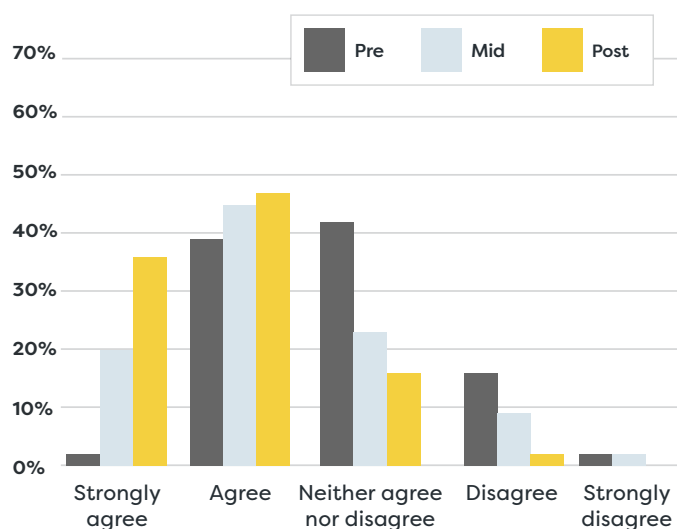
(Fig. 4c) 'I am confident in discussing findings from a research paper outside my area of expertise'
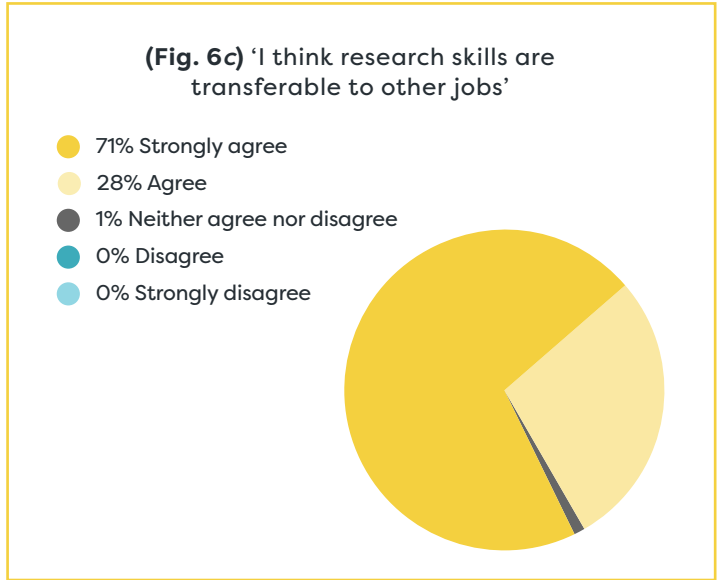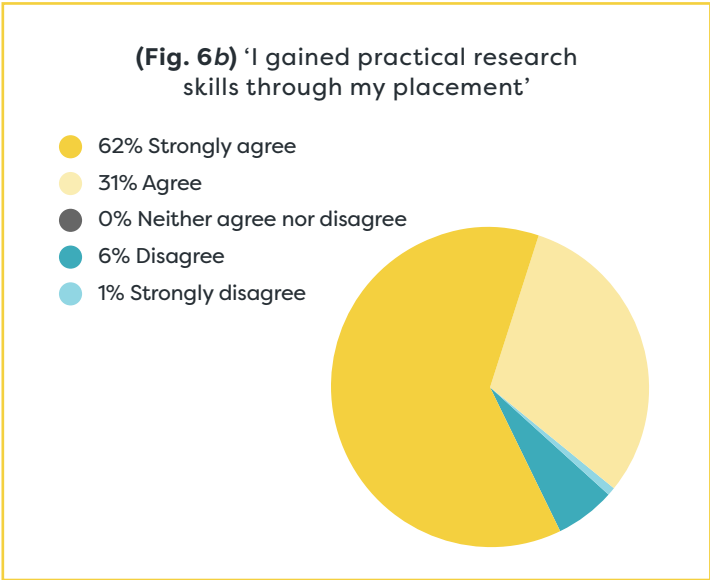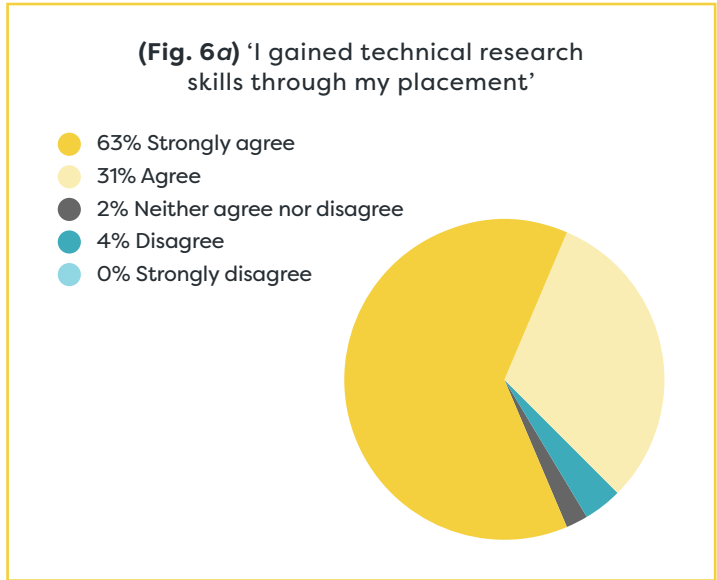
Our qualitative and quantitative data is also pointing to a positive shift in our participants' self-belief systems. Before the programme, only 72% agreed or strongly agreed that anyone can become a STEM professional and only 42% agreed/strongly agreed that people like themselves work in science, engineering and research. After the programme, 88% (+16%) expressed that anyone can become a STEM professional and 84% (+42%) reported that people like themselves work in science, engineering and research (Figure 5).

(Fig. 5a) 'Anyone can become a scientist, technologist, engineer or mathematician'

(Fig. 5b) 'People like me work in science, engineering and research'
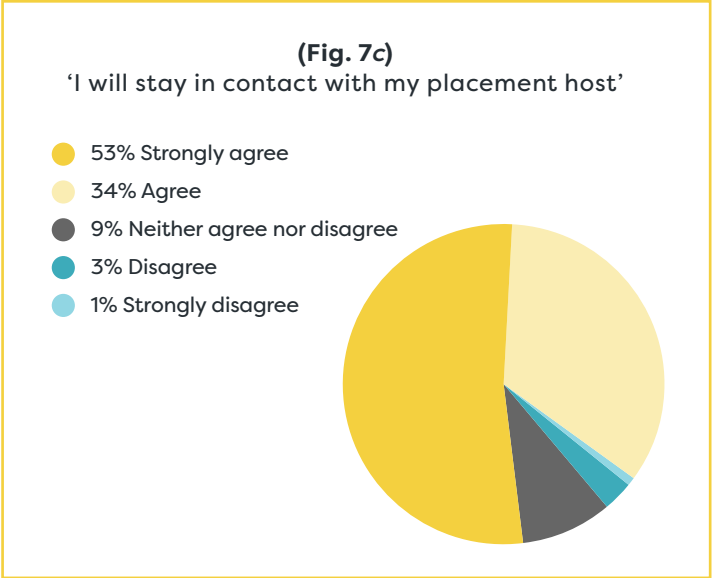

The placement was a very powerful element of the programme, with 75% of participants citing it as the most useful part (data not shown).

94% of participants reported acquiring technical research skills and 93% stated that they acquired practical research skills through their placements.

Furthermore, 99% of participants deemed research skills transferable to other jobs (Figure 6).

(Fig. 6a) 'I gained technical research skills through my placement'

- 63% Strongly agree
- 31% Agree
- 2% Neither agree nor disagree
- 4% Disagree
- 0% Strongly disagree

(Fig. 6b) 'I gained practical research skills through my placement'

- 62% Strongly agree
- 31% Agree
- 0% Neither agree nor disagree
- 6% Disagree
- 1% Strongly disagree

(Fig. 6c) 'I think research skills are transferable to other jobs'

- 71% Strongly agree
- 28% Agree
- 1% Neither agree nor disagree
- 0% Disagree
- 0% Strongly disagree

Professional socialisation skills are an important element of a successful career. Many individuals from low socio-economic and under-represented backgrounds may also be the first in their family to enter higher education and building relationships with positive role models can be empowering. Our programme enabled participants to grow their networks through forming strong relationships with their hosts and members of their research groups during their placements alone. This is evidenced by the fact that 82% of the participants said that they built a network through their placement. 84% of participants agreed/strongly agreed that they felt included in the research group and 87% that they intended to stay in contact with the host (Figure 7).

(Fig. 7a)
'I have built a network through my placement'

- 44% Strongly agree
- 38% Agree
- 16% Neither agree nor disagree
- 0% Disagree
- 2% Strongly disagree

(Fig. 7b)
'I felt included in the research group'

- 63% Strongly agree
- 21% Agree
- 12% Neither agree nor disagree
- 1% Disagree
- 3% Strongly disagree

(Fig. 7c)
'I will stay in contact with my placement host'

- 53% Strongly agree
- 34% Agree
- 9% Neither agree nor disagree
- 3% Disagree
- 1% Strongly disagree

The workshops, mentoring sessions as well as the placement provided participants with increased confidence in connecting with scientists. 58% of participants agreed or strongly agreed before the programme that they feel confident to introduce themselves to a STEM professional in person compared to 89% after the programme. 47% agreed/strongly agreed before the programme that they feel confident in talking to people at a STEM event compared to 89% after the programme (Figure 8).

(Fig. 8a) 'I feel confident introducing myself to a STEM professional in person'

(Fig. 8b) 'I feel confident talking to people at a STEM event'
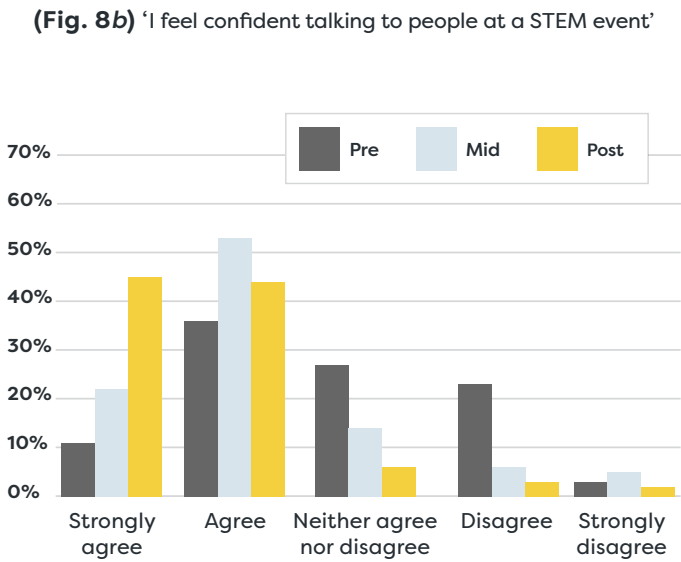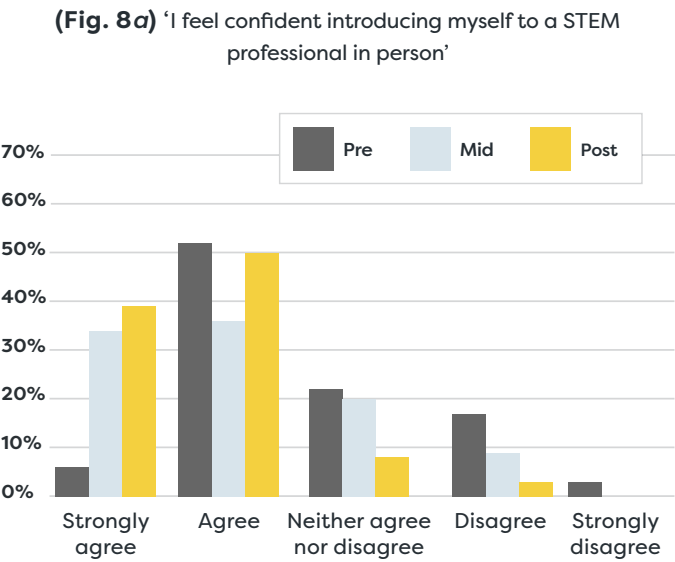
The In2research programme also increased participants' confidence in knowing what the next steps are for their transition to research study and in embarking on a career in their field. This is evidenced by an increase of 33% of participants who said after the programme that they are confident about the next steps in their career (Figure 9).

(Fig. 9)
I am confident about what the next steps are in my career
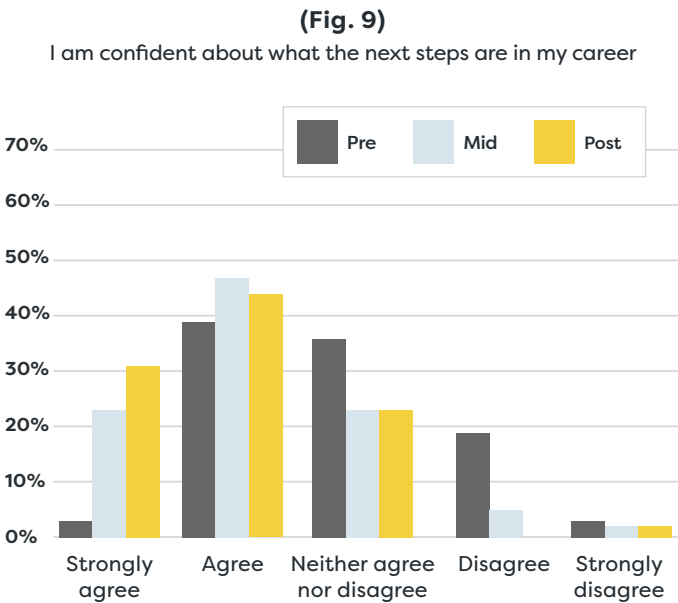
After the programme, 77% of participants agreed/strongly agreed that they would like a career in academic research and 66% reported that they would like a career in industrial research (Figure 10).

(Fig. 10a)
'I would like a career in academic research'

- 34% Strongly agree
- 43% Agree
- 19% Neither agree nor disagree
- 4% Disagree
- 0% Strongly disagree

(Fig. 10b)
'I would like a career in industrial research'

- 26% Strongly agree
- 40% Agree
- 25% Neither agree nor disagree
- 6% Disagree
- 3% Strongly disagree
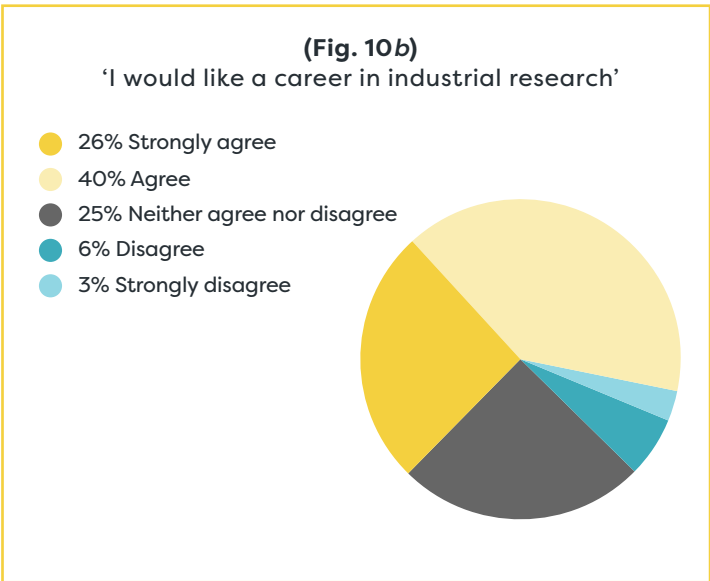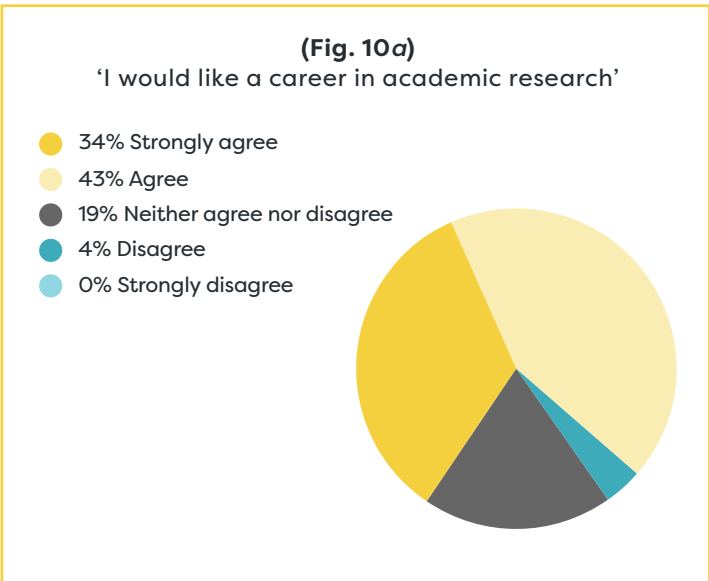
Furthermore, 59% of participants said they are planning to apply for a PhD and 10% of participants were starting a Masters degree in 2023/24 (data not shown).

91% of our participants reported that In2research helped them make a decision about whether they want a career in research.

97% are excited to join the In2research Alumni Community.

66 Kendall's Story

I grew up in Devon, in a single-parent family of five, and I had Free School Meals for my entire schooling. I wasn't thinking of applying to university, I didn't see the benefit.

I ended up doing Computer Science at university by accident but then had to drop out due to illness. After some time, I realised I missed coding! I reapplied for Computer Science with Maths. In the second year of my degree, a member of staff recommended In2research to me and I signed up straight away!

I wanted to look into going into research, but I didn't know what that looked like. At university, that world seemed closed off.

Through In2research I was able to work with an open study called the Summit, part of the biggest lung cancer screening programme in the UK. This consisted of people getting low dose CT scans on their lungs. All the scans are then screened for cancerous cells with the aim to identify nodules. My research project involved working on an AI model which can segment (draw around the boundary of) and label the nodules by type, size and more, and will help streamline processes for radiologists. This could help create more accessible, easier analysis, a potential alternative to getting expert opinions for each and every individual scan.

Working on real-life medical data sets was really interesting. I got to use different types of software including 3Dslicer to view and label medical images, MONAI label which is a deep learning-based labelling extension and so many more platforms. Using the HPC cluster to run everything on was great too and is really useful experience to have.

Being able to spend time with those who are interested in the same area and gain a lot of knowledge from them was really valuable to me. I always thought academia was an exclusive group of people. I'm much less anxious about it now, I thought it was going to be hard work all the time but, actually, it's time spent doing things you're interested in and everyone is really nice.

I received invaluable support from my In2research Mentor. She supported me through every part of the application process for a fully-funded, four-year MRes and PhD opportunity. I was so surprised to be successfully offered a place starting this next academic year! I wouldn't have applied at all if I didn't do In2research 99

Kendall,
2022/23 In2research Participant

Our Volunteers

We are hugely grateful to all our volunteers who continue to play a crucial role in helping us deliver invaluable support for our beneficiaries.

This year on In2research:

21 speakers delivered workshops or talks.

47 mentors delivered mentoring sessions

90 hosts and their named co-hosts supported our participants through in-person, 8-week summer research placements.

Hosts

92% of hosts agree/ strongly agree that they have enjoyed their role on the programme.

73% of our hosts attended live or watched a recorded session on race and cultural literacy. Among them, 75% agreed or strongly agreed they know more about barriers faced by people from diverse backgrounds accessing postgraduate study due to the training. Additionally, 83% expressed a desire to learn more about race and cultural literacy.

31% of hosts have applied to host again next year and 51% would consider hosting again in a future year.

Mentors

91% of our mentors agreed/strongly agreed that they have enjoyed their role on the In2research programme and 79% said that they would consider being an In2research mentor again.

74% agreed/strongly agreed that they know more about the barriers that people from different ethnic and socio-economic groups face when accessing postgraduate study as as a result of the In2research race and cultural literacy training.

71% agreed/strongly agreed that they are more likely to advocate for cultural change within their institution as a result of participating in the programme.

Case study - Volunteers

"I'm a new lecturer, I only started in September. This placement really helped me sharpen my leadership skills and my supervision skills, and taught me how to adapt these skills to different students at different stages of their academic career.

My In2research participant has helped my PhD students as well. Having someone for them to demonstrate to and to teach has really helped them build their own skills.

The placement has gone brilliantly. The participant has integrated really well into the lab group and engages with all the additional activities - not just the core ones. We're considering inviting them back for future work.

My advice to potential volunteers is to do it! Why wouldn't you want to? You're providing a great opportunity, and that's part of what we should be trying to do as researchers - pushing for research-led education. I'd be delighted to have someone next year, and in subsequent years - in fact, I've already applied for the 2023/24 programme."

Dr Melissa Rayner,
2022/23 In2research Placement Host In2research Mentor

"I find a lot of value in 'bringing people to science' and bringing these opportunities to people who don't usually get them. So a programme like In2research is exactly what I was looking for.

I have hosted internships for more privileged students, who have had so many opportunities to do things like this but a programme like In2research is much more beneficial.

I've found hosting on this programme to be about understanding yourself, knowing what person you are and what contribution you want to make to society. As a Placement Host you learn so much from this experience.

Seeing the effect I can have on someone's career is very powerful. This experience has built my confidence to know that yes, I can make a difference."

Dr Marius Somveille,
2022/23 In2research Placement Host

Looking forward
2024 and beyond

This year we have made significant progress on the In2research programme. We have supported more participants than ever before across STEM as well as, for the first time, arts, humanities and social sciences. We have listened to feedback from our beneficiaries and volunteers, and this is reflected in changes for the upcoming 2023/24 In2research programme. So far, as a result, the 2023/24 programme has seen stronger, more scalable recruitment in a third of the time this delivery phase has taken previously. We are seeing increased engagement and retention of volunteers.

Most importantly of all, we are seeing early indicators that In2research is helping to address the research access problem. As the programme grows year on year, we will be able to start developing longitudinal data to better capture the longer term impact of In2research.

A challenge and focus for the future of In2research is looking at how we develop scalability of the programme. There are elements of the programme which currently limit scalability, including areas of participant support. We need to give careful consideration to how this programme will evolve in a scalable way beyond 2025, what elements of the programme we can devolve to institutions and what elements to continue in-house.

At In2scienceUK we have launched a number of initiatives to continue to support our participants throughout their career journey to give them the best possible opportunity for a bright future. Our participants will receive continued support through our In2careers and alumni offer, which aims to provide opportunities to support career progression. Our alumni community have access to a portfolio of opportunities, including employability workshops and skills clinics, university peer mentoring and industry networking opportunities, access to work experience and internships, attendance to events, as well as a host of volunteering opportunities to be able to give back to our community.

With special thanks to our funders and partners

Babraham Institute Cambridge

Cancer Research UK

City University of London

Henry Royce Institute

Leading Routes

Royal National Institute for Deaf People

Springer Nature

The Royal Society

University College London

UCL Department of Physics

UCL Faculty Brain Sciences

UCL Faculty of Arts and Humanities

UCL Faculty of Engineering

UCL Faculty of Life Sciences

UCL Faculty of Maths and Physical Sciences

UCL Faculty of Population Health Sciences

UCL Faculty of Social & Historical Sciences

UCL Faculty of the Built Environment (Bartlett)

UCL Institute of Education

UCL Students' Union

UCLH Biomedical Research Centre

UK Dementia Research Institute

UPSIGN

Uptake Strategies

University of London Scholars Programme

2022/23 In2research Award Winners, from left to right, **Dr Kate Pattle (Host of the Year), Clementine Domine (Mentor of the Year), Jhumana Ali (Communication Award)** and **Khadija Ahmed (Style Award).**

To support us, you can contact:
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