

Belonging, perception and pathways into STEM education



Women into Science
and Engineering

TOGETHER WITH: **IET**

Introduction

In 2025, WISE collaborated with researchers at the Department of Economics at the Massachusetts Institute of Technology (MIT) on a new research project to explore how young people make decisions about their university applications. The focus was on students in Year 12 and Year 13 in the UK, and what shapes their choices about where to apply and what subject to study.

The project builds on existing evidence that students often rely on informal advice from peers, parents and their personal networks, rather than formal channels such as admissions guides and university websites. As a result, access to knowledge and opportunities is largely dependent on the influential figures around them, as well as their geographic location. This can reinforce existing socioeconomic inequalities.

This research project explores how factors such as socioeconomic background, identity and a sense of belonging influence students' decision making, and scalable approaches to address inequalities that result from these factors. Understanding these influences is especially important in the UK, where gaps in access to higher education — and to STEM pathways in particular — remain persistent.

In collaboration with

MIT Economics



This is a WISE report utilising research by Nagisa Tadjfar and Kartik Vira (PhD graduates from the Department of Economics at MIT) in **Friends in Higher Places: Social Fit and University Choice**, to highlight key findings and consider their implications for improving access and belonging in STEM education.

National admissions data shows that high-achieving students from low socioeconomic backgrounds are less likely to attend elite universities than equally qualified high-income peers. Around **40%** of the participation gap is not due to attainment, but simply due to lower application rates among disadvantaged students.

When grades are equal, and entry requirements are achievable – why are those from lower socioeconomic backgrounds choosing to avoid elite institutions?

➤ Academic capability is not the primary barrier

The research found that students from low socioeconomic backgrounds do not doubt their academic ability. Instead, the gap lies in perceptions of social fit.

In their baseline research, these students were equally confident in their chances of admission or graduation at elite universities. However, they were significantly more likely to believe that they wouldn't fit in and make friends.

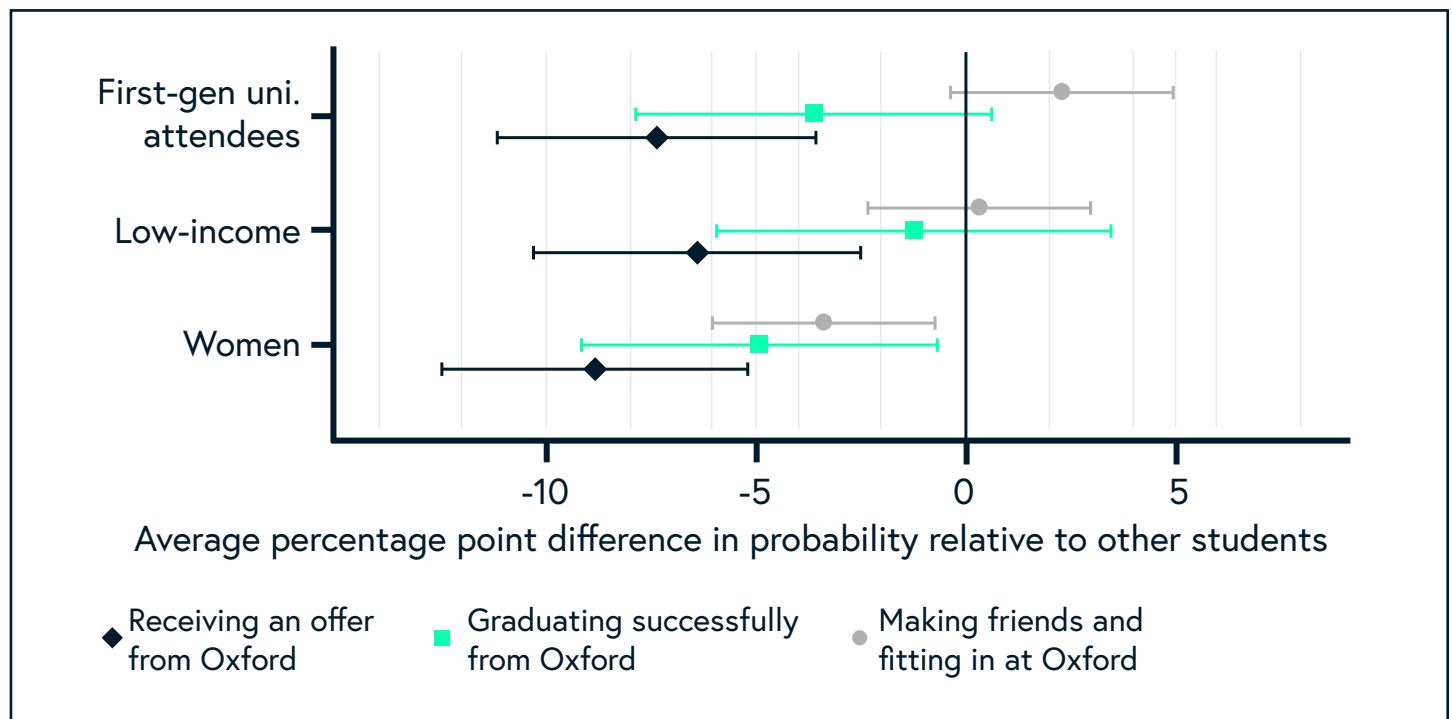


Figure 1

This suggests that stereotypes and assumptions are preventing students from aiming high when it comes to university choices. For students with good grades, the key barrier isn't "can I succeed academically?" but "do people like me belong there?".

➤ Students prioritise 'fitting in' over academic ability and growth

During structured one-on-one conversations with mentors, students consistently showed greater interest in learning about student life, social experiences and fitting in. Far fewer students prioritised discussing academic content, career pathways or course selection.

70% asked about student life at the mentor's university

68% asked about life at university and fitting in

66% asked about the course(s) the mentor studied

64% asked how to put in a good application
(e.g. personal statement advice)

53% asked how to choose which courses to apply to

36% asked about careers after university

30% asked how to succeed academically at university

Table 1 Share of conversations in which each topic was discussed with mentors, based on mentors' reports on conversations.

This further reinforces that students' decisions are strongly influenced by where they'll feel most comfortable and accepted, rather than focused on academic ambition or future career prospects.



Is university the “obvious next step”?

The number of young people attending university has increased significantly over the past three decades.



In the mid-1990s, around **30%** of young adults pursued higher education.



Today, that figure is around **50%**¹. This shift reflects the increasing normalisation of university as a default next step for students leaving school or college.

As a result, the factors shaping students' choices are shifting. Prestige reputation of institutions and academic ability often play a secondary role in shaping where students apply. Instead, students are increasingly focused on what university life will feel like: whether they will fit in, form friendships, and build a new sense of identity.

This suggests that university is increasingly seen not just as a route into employment, but as a key space for personal growth and identity formation.

¹ - commonslibrary.parliament.uk/research-briefings/cbp-7857/

Breakthrough exposure inspires ambition

Students' choices are shaped by what, and who, they know and see.

The research found that "breakthrough" events, described as when a school first sends a student to a top university, are hugely influential. This initial success is not just symbolic; it has a measurable effect on where future students apply. Once a student attends a top university, applications from that school can increase by as much as **50–80%** to that same university. The particular university matters: breakthroughs to Cambridge increase applications to Cambridge but not to Oxford, and vice versa.

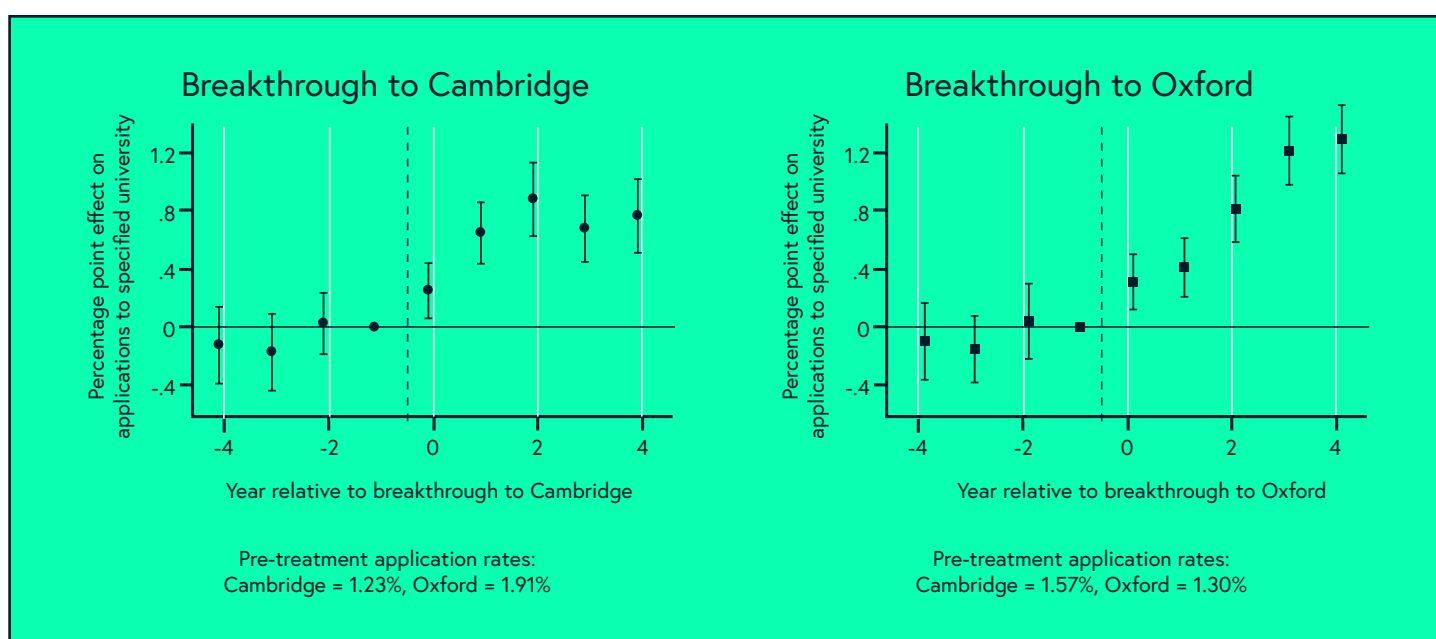


Figure 2

Importantly, the research found this influence is sustained for several years, shaping the expectations of future cohorts, not just immediate applicants.

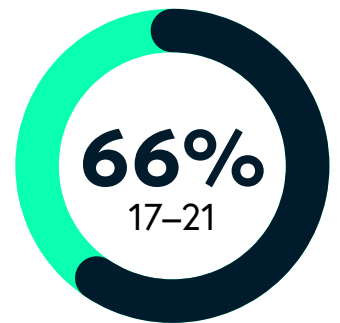
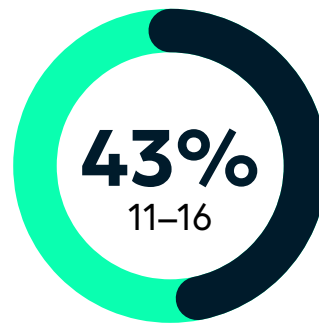
A loose sense of 'knowing someone', even if it is just by association of being at the same school, can build confidence and provide a point of support, should they need it. Given the complexity of the university application process, access to alumni who have already navigated this journey can provide reassurance and make these pathways feel more achievable.

This highlights the value of visible role models and the long-term influence of alumni networks. For schools, former students are not just success stories, but a critical asset in widening aspirations and supporting future applications.

Confidence gap

We often talk about the confidence gap, particularly in relation to the early age at which it emerges and its long-term impacts on girls and women. In this context, confidence is not simply about belief in ability. The pressing issue lies in a gap in social confidence preventing girls from participating, fitting in and succeeding in given environments.

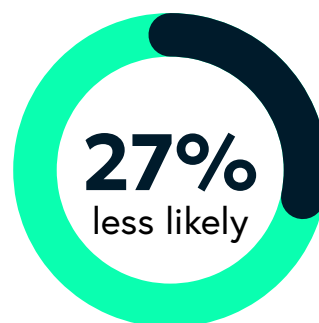
Concerns about fitting in intensify over time. The proportion of girls who believe it will be difficult to progress in male-dominated industries rises from **43%** at ages **11–16** to **66%** among **17–21-year-olds**.



At the same time, nearly half of young people attribute the drop-off in girls' participation in STEM to feeling uncomfortable being one of the only girls in the classroom².

Taken together, this suggests that the confidence gap is not about ambition or ability, but about belonging.

This extends beyond academic or career pathways into everyday social experiences: teen girls are **27%** less likely than teen boys to feel confident that they can make new friends³. This is further shown in Figure 1. Students may aspire to these pathways but opt out when they cannot see a version of themselves.



2 - www.girlguiding.org.uk/globalassets/docs-and-resources/blogs-and-case-studies/gas/girlguiding-girls-attitudes-survey-2025.pdf

3 - wise.theiet.org/about-wise/wise-young-professionals-committee/resources/the-confidence-gap/

➤ Visibility changes future

The research demonstrates that even light-touch exposure to relatable student experiences can significantly influence a student's feelings towards a university and their prospects.

In a randomised trial, students were shown videos of current undergraduates discussing their experiences at university and with the application process. The results were immediate and measurable, with students becoming more optimistic about fitting in socially, and more likely to include one of the universities shown in the videos in their list of five universities that they would apply to. These effects persisted in a survey completed around the UCAS application deadline, several months after seeing the videos, showing that a relatively simple intervention can have lasting impact.

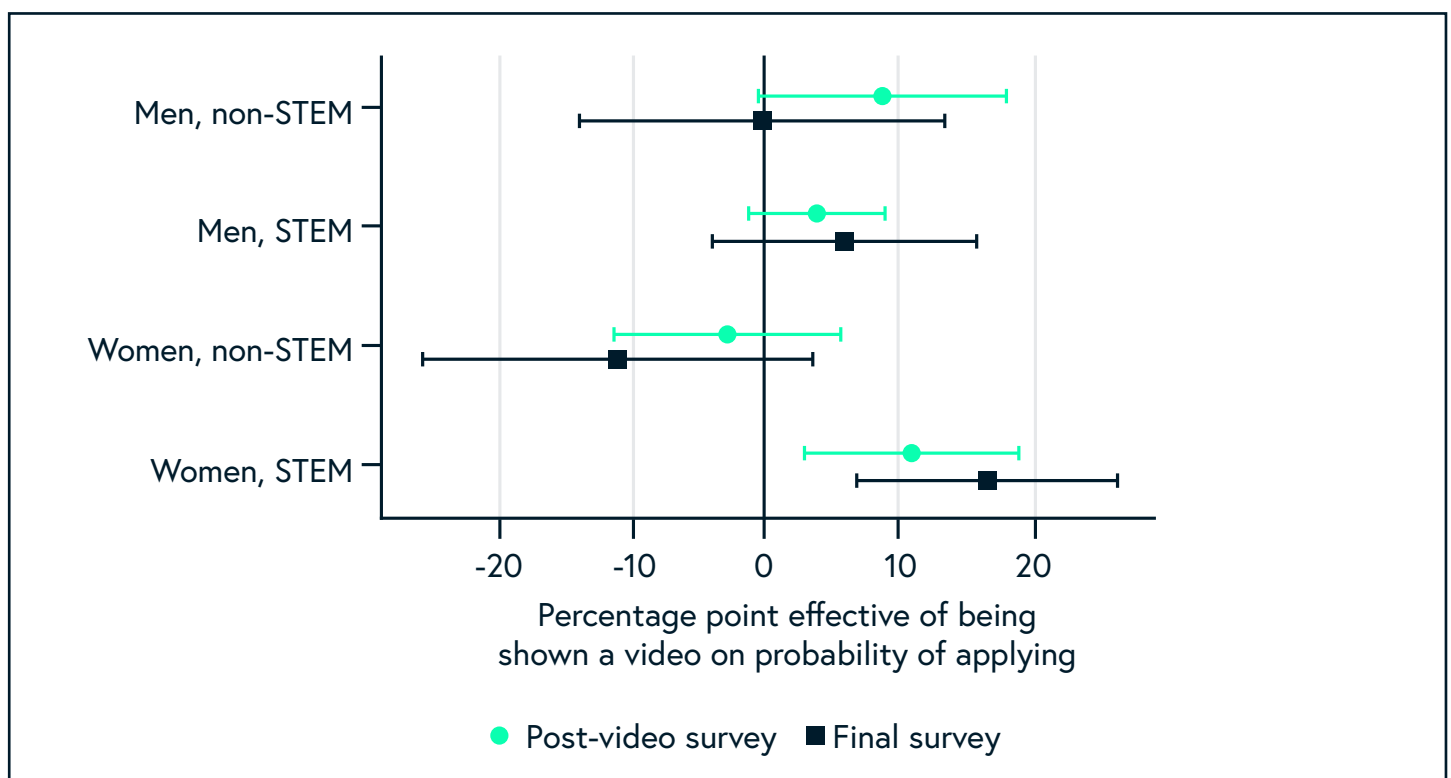


Figure 3

Most importantly for WISE and the work we do, the effect was particularly strong for **women interested in STEM**, suggesting that visibility and representation are especially important in these pathways where women are significantly underrepresented.

This further highlights the importance of outreach work, in particular showcasing realistic and relatable role models to help young people – especially girls – to understand that people like them belong in STEM careers and academic institutions.

Next steps

To support this research project, WISE is hosting an academic roundtable to bring together key voices from the academic and STEM sectors to discuss the findings and propose solutions.

At this event the researchers will present their findings, and we will discuss how UK academia, industry and government can collaborate to ensure higher levels of belonging in STEM education.

WISE is also hosting a free to attend webinar where the research findings will be presented. This will be available to watch on-demand here:

[Transforming equity in university applications with MIT Department of Economics](#)



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