

Role models, mentoring and university applications - evidence from a crossover randomised controlled trial in the United Kingdom<sup>1</sup>

Simon Burgess<sup>2</sup>

Raj Chande<sup>3</sup>

Catherine Dilnot<sup>4</sup>

Eliza Kozman<sup>5</sup>

Lindsey Macmillan<sup>6</sup>

Michael Sanders<sup>7</sup>

We conduct a randomised controlled trial in the South West of England to evaluate a policy to encourage pupils from poorer backgrounds to apply to prestigious universities. Current university students visited local schools and colleges, providing information on the true costs and benefits of university, and giving inspirational talks about making that decision.

Consistent with previous literature in this area, we find that there is a significant effect on the likelihood of students attending a selective university, but weaker effects on other outcomes.

We find that effects are largest for students attending further education colleges, which typically cater for more disadvantaged students (in our sample, 6.2% of students in schools are eligible for free school meals compared to 7.4% in colleges), and offer a wider range of vocational courses.

---

<sup>1</sup> We are very grateful to Julia Carey, Project Manager; Abbi Stoneman, Christine Spencer and Maggi Walton, Project administrators; Amy Butterworth, Deputy Head of Admissions at UoB helped with understanding data and provided admissions data; Kate Guest from Teach First ran the mentor training; and all the student mentors; and Louise Jones for research assistance We are also very grateful to the University of Bristol for co-funding this project.

<sup>2</sup> University of Bristol

<sup>3</sup> Behavioural Insights Team

<sup>4</sup> Oxford Brookes University and UCL Institute of Education

<sup>5</sup> Behavioural Insights Team and UCL School of Public Policy

<sup>6</sup> UCL Institute of Education

<sup>7</sup> Behavioural Insights Team and University of Oxford Blavatnik School of Government

# Introduction

Education is central to an individual's chances of high earnings, a satisfying job, good health and a long life.<sup>8</sup> However, access to education in the UK is uneven, with young people's socio-economic status (or rather, that of their parents), strongly predicting their educational attainment and highest qualifications.

This imbalance has created a growing focus on 'widening participation' (WP) - increasing access to university education for young people from low-income families. As the majority of UK universities receive public funding, a range of policy levers have been used to drive this agenda. English universities wishing to charge the highest permitted rate of tuition fees are required to develop programmes of WP activity, which means that in 2017-18, English universities will collectively invest £833.5 million into such activities<sup>9</sup>. However, there is a scarcity of high-quality evidence to inform this expenditure.

One of the main barriers to university access is the so-called 'attainment gap'. Unequal participation reflects the fact that children from low-income households perform worse than other students throughout UK secondary education.<sup>10</sup> When poorer students do apply to university, it is generally with lower grades than their more privileged peers; therefore, these students are less likely to enter the most selective institutions.<sup>11</sup>

However, differential attainment does not entirely explain patterns of university entry in the UK; poorer students are also simply less likely to apply to university, and particularly the most selective institutions.<sup>12</sup> This aligns with evidence from the USA that high-achieving, low-income students have tendency to apply to less selective colleges than similarly qualified peers from wealthier backgrounds.<sup>13</sup> These findings suggest that whether, and where, a student applies to university is influenced by a broader range of factors than attainment alone. In the next section we review recent research and policy evaluation aimed

---

<sup>8</sup> See Burgess (2016) Human Capital and Education: The State of the Art. <http://ftp.iza.org/dp9885.pdf>

<sup>9</sup> OFFA (2016) 2017-18 access agreements: institutional expenditure and fee levels

<sup>10</sup> Crawford, C., & Greaves, E. (2015). Socio-economic, ethnic and gender differences in HE participation.

<sup>11</sup> UCAS (2016) End of Cycle 2016 Data resources; UCAS (2016) End of Cycle Report (2016)

<sup>12</sup> Anders, J. (2012). The link between household income, university applications and university attendance. *Fiscal Studies*, 33(2), 185-210.

<sup>13</sup> Hoxby, C., & Avery, C. (2013). The missing "one-offs": The hidden supply of high-achieving, low-income students. *Brookings papers on economic activity*, 2013(1), 1-65.

at this issue. The studies suggest that relatable role models and mentoring can be effective tools to encourage greater investment in education.

Our study sought to build on this evidence in the UK context and provide an empirical basis to inform WP expenditure. We ran a randomised controlled trial over three years using existing university undergraduates to go into local schools and colleges to deliver inspirational talks, provide a clear guide to the true costs and benefits of going to university, and to undertake additional small-scale tutoring.<sup>14</sup> We recruited students from the University of Bristol, mostly first years, to act as volunteer mentors, and we recruited local schools and colleges, typically from the more disadvantaged areas in and around Bristol who send comparatively few of their pupils on to University of Bristol or similarly high tariff universities. Further details on the operation of the intervention are provided below.

The results suggest that the intervention was effective. The point estimates are all positive and while statistical power is low, the estimates reach standard levels of significance in a number of cases. Quantitative significance is also important and the point estimates indicate effects that are economically meaningful, particularly for a very low-cost intervention. It is interesting that the effects are stronger in Further Education colleges, typically catering for more disadvantaged students.

The remainder of this paper is organised as follows: in the next section we review the international evidence on the barriers to university attendance and ways to overcome them. Following that we set out our experiment design, followed by data description and analysis. Finally we provide a discussion of our results and conclusions.

---

<sup>14</sup> The inspirational talks and information provision were delivered at school level and are evaluated in this paper. The tutoring was at pupil level and we are evaluating that in a separate paper.

## Evidence review

One explanation may be that students from low-income background have a less clear understanding of the costs and benefits of higher education. Indeed, they are certainly unlikely to have access to friends or family who can provide reliable advice on their options.<sup>15</sup> Consistent with this hypothesis, studies have shown that simple information provision can improve knowledge of the costs and benefits of higher education. For example, a randomised controlled trial in English schools found an information campaign to have a significant impact on participants' attitudes towards university; the proportion of Year 10 (age 14-15) students saying the financial aspect of university would stop them from applying dropped by 5 percentage points overall (relative to a baseline of 26%) and by 13 percentage points for students from low-income homes (relative to a baseline of 27%).<sup>16</sup> Similar trials in Canada<sup>17</sup> and Chile<sup>18</sup> have found that information-based interventions can improve reported attitudes towards post-secondary education opportunities.

However, attitudes do not equate to action. There is evidence that, while information-only interventions can improve student knowledge, this does not necessarily translate into greater investment in education. For example, although a recent trial found that daily informative texts can influence beliefs about the importance of education among sixth and seventh grade students in the USA, no associated impact on behaviour at school was detected.<sup>19</sup> Likewise, information-only interventions have proven ineffective at encouraging college application behaviour. This is convincingly demonstrated by a randomised controlled trial in which over 1 million US students were targeted with emails and letters about the financial support available to college applicants. Despite the scale of this trial, it was found to have no

---

<sup>15</sup> Scott-Clayton, J. (2012). *Information constraints and financial aid policy* (No. w17811). National Bureau of Economic Research.

<sup>16</sup> McGuigan, M., McNally, S., & Wyness, G. (2016). Student Awareness of Costs and Benefits of Educational Decisions: Effects of an Information Campaign. *Journal of Human Capital*, 10(4), 482-519.

<sup>17</sup> Oreopoulos, P., & Dunn, R. (2013). Information and college access: Evidence from a randomized field experiment. *The Scandinavian Journal of Economics*, 115(1), 3-26.

<sup>18</sup> Dinkelman, T., & Martínez A, C. (2014). Investing in schooling in Chile: The role of information about financial aid for higher education. *Review of Economics and Statistics*, 96(2), 244-257.

<sup>19</sup> Fryer, R. G. (2016). Information, non-financial incentives, and student achievement: Evidence from a text messaging experiment. *Journal of Public Economics*, 144, 109-121.

discernible impact on college enrollment.<sup>20</sup> Similarly, sending potential college graduates aid eligibility estimates has been shown to have no impact on aid submissions<sup>21</sup>.

These null results suggest that it is necessary to tackle more nuanced behavioural barriers to investment in education. Indeed, a growing body of literature supports a model that can account for seemingly 'irrational' behaviour in the education domain. This model incorporates factors such as present bias (whereby immediate costs and rewards are emphasised above those in the future) and a tendency for humans to rely on rules of thumb to make important decisions.<sup>22</sup> There is good experimental evidence that interventions which address these issues by simplifying the college application process, providing personalised support and altering defaults can have a positive effect on student behaviour.<sup>23</sup>

In addition to present bias and a tendency to opt for defaults, social factors can drive under-investment in education. For example, the concept of 'social norms' can explain how, by seeking to emulate the attitudes and actions of those in their social group, students adopt the idea that academic education is 'not for them'.<sup>24</sup> This attitude may be strengthened due to the 'availability heuristic' which states that judgements are affected by how easily an individual can recall relevant information; if a student has never encountered someone in their social circle who has successfully progressed to university, they may underestimate their own chances of being accepted.<sup>25</sup> Moreover, the prevalent attitude to education in a social group can mean that students suffer social costs for breaking rank. For example, the phenomenon of 'acting white' in the USA describes how black teenagers displaying pro-education behaviour can be rejected by their peers.<sup>26</sup> Given that young people are

---

<sup>20</sup> Bergman, P., Denning, J. T., & Manoli, D. (2016). *Is Information Enough? Evidence from a Tax Credit Information Experiment with 1,000,000 Students*. Working Paper, August.

<sup>21</sup> Bettinger, E. P., Long, B. T., Oreopoulos, P., & Sanbonmatsu, L. (2012). The role of application assistance and information in college decisions: Results from the H&R Block FAFSA experiment. *The Quarterly Journal of Economics*, 127(3), 1205-1242.

<sup>22</sup> Lavecchia, A. M., Liu, H., & Oreopoulos, P. (2014). *Behavioral economics of education: Progress and possibilities* (No. w20609). National Bureau of Economic Research.

<sup>23</sup> French, R., & Oreopoulos, P. (2017). Behavioral Barriers Transitioning to College. *Labour Economics*.

<sup>24</sup> Lavecchia, A. M., Liu, H., & Oreopoulos, P. (2014). *Behavioral economics of education: Progress and possibilities* (No. w20609). National Bureau of Economic Research.

<sup>25</sup> Tversky, A., & Kahneman, D. (1973). Availability: A heuristic for judging frequency and probability. *Cognitive psychology*, 5(2), 207-232.

<sup>26</sup> Fryer, R. G., & Torelli, P. (2010). An empirical analysis of 'acting white'. *Journal of Public Economics*, 94(5), 380-396.; Austen-Smith, D., & Fryer Jr, R. G. (2005). An economic analysis of "acting white". *The Quarterly Journal of Economics*, 120(2), 551-583.

particularly prone to 'present bias', these social factors represent a powerful deterrent to university progression.<sup>27</sup>

The use of role models and mentoring offer social solutions to these social barriers. A role model can be broadly defined as a successful and inspirational member of one's in-group whose behaviour makes a particular goal desirable.<sup>28 29</sup> In the context of widening participation, a role model is normally a relatable undergraduate student who participates in outreach activities with a view to inspiring potential applicants. We can conceptualise role models as influencing students by the same mechanisms which are outlined above: exposure to an academically successful in-group exemplar may impact on a student's understanding of social norms; provide a memorable and engaging example upon which they can estimate their own chance of attendance; and alleviate anxiety around the social costs of university.

There is some evidence to suggest that role models can indeed have a positive influence on education outcomes. In a recent British study, secondary school students exposed to a talk from an inspirational local role model were approximately eight percentage points more likely to express an interest in attending university than those in the control group (55.8% compared to 48.0%).<sup>30</sup> In similar vein, exposure to a role model from a low-income background increased test scores by 0.27 standard deviations for poor Madagascan students (although it had no statistically significant effect on their wealthier peers).<sup>31</sup> This is in line with evidence that social distance is a mediating factor in role model efficacy.<sup>32 33</sup> Another study in the UK found that an inspirational letter from a university student from a low income background sent to 16-17 year old young people with good grades from non typical

---

<sup>27</sup> Lavecchia, A. M., Liu, H., & Oreopoulos, P. (2014). *Behavioral economics of education: Progress and possibilities* (No. w20609). National Bureau of Economic Research.

<sup>28</sup> McIntyre, R. B., Paulson, R. M., Taylor, C. A., Morin, A. L., & Lord, C. G. (2011). Effects of role model deservingness on overcoming performance deficits induced by stereotype threat. *European Journal of Social Psychology*, 41(3), 301-311.

<sup>29</sup> Morgenroth, T., Ryan, M. K., & Peters, K. (2015). The motivational theory of role modeling: How role models influence role aspirants' goals. *Review of General Psychology*, 19(4), 465.

<sup>30</sup> Silva, A. S., Sanders, M., Chonaire, A. N., & Team, B. I. (2016). Does the heart rule the head? Economic and emotional incentives for university attendance.

<sup>31</sup> Nguyen, T. (2008). Information, role models and perceived returns to education: Experimental evidence from Madagascar. *Unpublished manuscript*, 6.

<sup>32</sup> Ray, D. (2006). Aspirations, poverty, and economic change. *Understanding poverty*, 409421.

<sup>33</sup> Dasgupta, N. (2011). Ingroup experts and peers as social vaccines who inoculate the self-concept: The stereotype inoculation model. *Psychological Inquiry*, 22(4), 231-246.

university backgrounds increased the proportion of young people accepting an offer from a selective university by 30%.<sup>34</sup>

Mentoring can combine the inspirational effect of a role model with personalised assistance.

<sup>35</sup> Previous studies have demonstrated that this support can have a positive effect on college applications. For example, the offer of undergraduate mentoring and cash incentives for US high school students in their senior year has been found to increase the likelihood that female students progress to college by 15 percentage points (from a baseline of 50%) - an effect which persisted through to at least the second year of college.<sup>36</sup> Another highly relevant trial evaluated the impact of the 'College Possible' programme which offers tutoring and college application support to disadvantaged US students. This programme was found to have a strong positive effect on applications to four-year colleges with a gap of 30 percentage points between rates in the treatment group compared to the control.<sup>37</sup>

Mentoring has also been shown to help tackle the issue of 'summer melt' - a term used to describe the high numbers of students in the USA who fail to matriculate in the fall semester. One recent trial paired near-age peer mentors with college-bound students to provide support and encouragement to complete necessary enrollment tasks. This resulted in a 12.3 percentage points increase in enrollment among students who reported less clear college plans.<sup>38</sup> Coaching, which can be considered a specialised form of mentoring, has also been shown to increase retention on college courses once students arrive. Inside Track is a company which links mainly non-traditional US students with coaches who can offer support over their first in college. A randomised controlled trial found that at 12 months into the programme, 48.8% of the treated students were retained compared to 43.5% of those in the control group.<sup>39</sup> Moreover, the impact was sustained even after the coaches stop contacting students: treated students were 4 percentage point more likely to complete their degrees (from baseline of 31.2%).

---

<sup>34</sup> Sanders, M, Chande, R & Selley, E (2017), Encouraging People Into University. *Department of Education, United Kingdom*

<sup>35</sup> French, R., & Oreopoulos, P. (2017). Behavioral Barriers Transitioning to College. *Labour Economics*.

<sup>36</sup> Carrell, S. E., & Sacerdote, B. (2013). Late interventions matter too: The case of college coaching New Hampshire (No. w19031). Cambridge, MA: National Bureau of Economic Research.

<sup>37</sup> Avery, C. (2013). *Evaluation of the College Possible program: Results from a randomized controlled trial* (No. w19562). National Bureau of Economic Research.

<sup>38</sup> Castleman, B. L., & Page, L. C. (2015). Summer nudging: Can personalized text messages and peer mentor outreach increase college going among low-income high school graduates?. *Journal of Economic Behavior & Organization*, 115, 144-160.

<sup>39</sup> Bettinger, E. P., & Baker, R. B. (2014). The effects of student coaching: An evaluation of a randomized experiment in student advising. *Educational Evaluation and Policy Analysis*, 36(1), 3-19.

# Experiment Design

## Interventions

Participants in our trial could receive one of three treatments - either they were in the control group, in which case they received no additional support encouraging them to attend university compared to their school's business as usual, or they were assigned to the 'talk' or 'mentoring' conditions, which we describe below.

Both interventions were delivered by student mentors recruited from the student body of the University of Bristol. Recruitment was conducted at the Freshers' and Volunteers' Fairs<sup>40</sup>, and via email sent through course mailings. Mentors received training from Teach First in the first year, and in subsequent years were trained by a combination of Teach First and returning mentors from the previous year. All students were subject to Disclosure and Barring Service checks, which are the standard checks in the UK to ensure that mentors did not have a criminal record that would preclude them from working with young people. Participants' travel to schools was paid for, but was otherwise their involvement was voluntary and unpaid.

In the 'talk' arm of the trial, student mentors visited the schools and delivered 'Inspire Talks' to full year groups of students. These talks were intended to be both informational and inspirational and focussed on how the mentor had progressed to university and what it was like to attend. In the second arm of the trial, student mentors provided one-on-one tutoring to a smaller number of students. Each school selected five students to take part in this tutoring which was designed to tackle the attainment gap directly by seeking to raise attainment, as well as 'aspirations'. Typically, there were around two sessions per half-term, lasting an hour. This arm of the trial did not include any students in the last two years of schooling as it was felt it would be more difficult for student mentors to support the more advanced course content at this level.

---

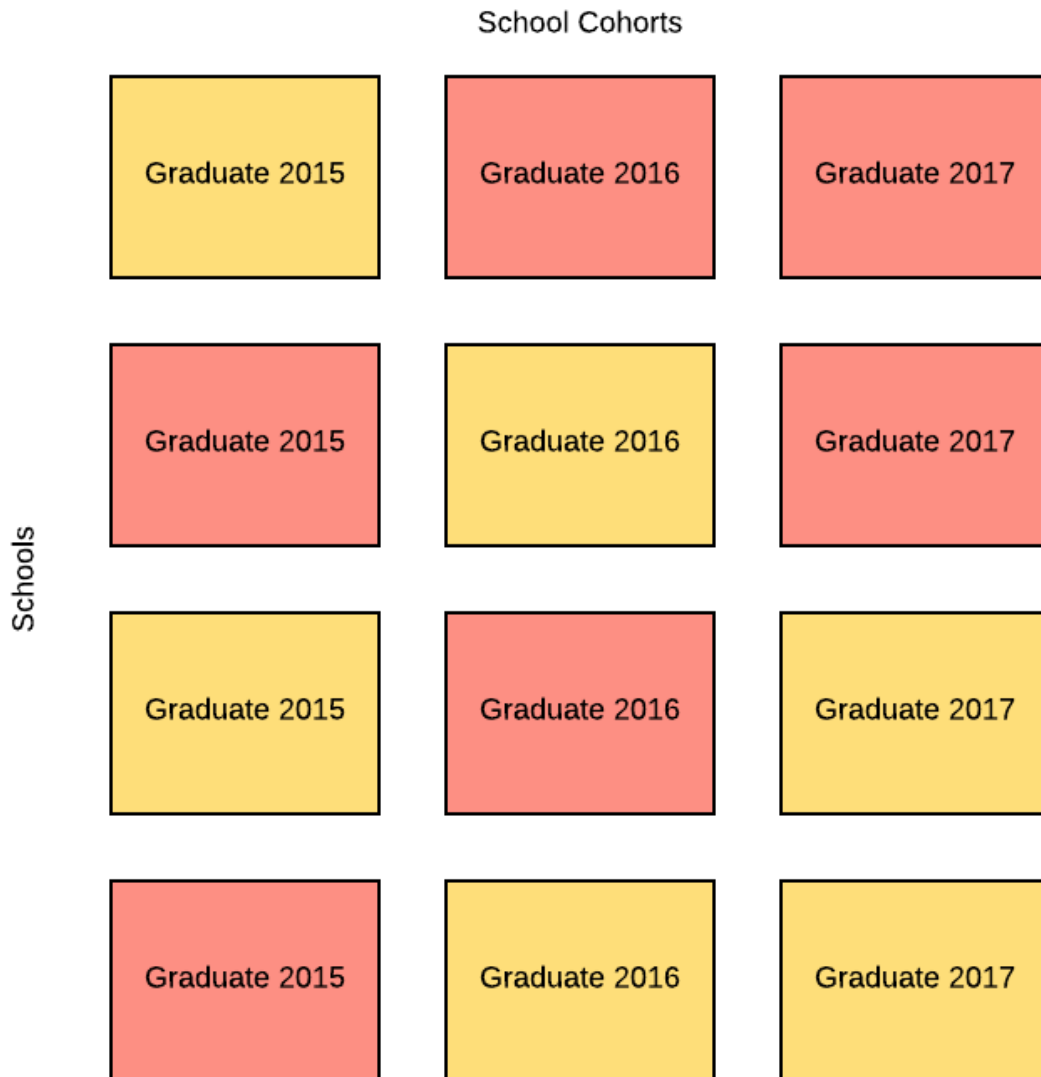
<sup>40</sup> These events take place early in the school year and are organised by the university's students' union.



We also designed and set up an online tool to help explain the financial benefits and costs from attending a university like Bristol. This was presented by the mentors, although in the final year they switched to conveying the main points on slides.

### **Experiment Design**

The experiment ran from the 2013/14 to the 2015/16 academic year. It was conducted as a cluster randomised, cross-over design randomised controlled trial. A stylised graphical representation of this design can be seen below. In a cross-over trial, school/year pairs (for example, the cohort of School X that will graduate in year Y), are randomised to one of the three conditions, where stratification occurs at the level of the school - as such, each school contains at least one year group that receives each of our treatment conditions. This design was selected in order to maximise schools' adherence with the trial (as all schools in the trial receive at least one intervention, they all have some incentive to continue), and to maximise statistical power for a given sample of schools by allowing us to estimate both time period and school fixed effects.



**Figure 1: Stylised Graph denoted school/cohort pairs randomised to treatment (yellow) or control (pink)**

Compared to a standard cross-over design, this trial is complicated by the eligibility criteria for our interventions. As described above, participants in the last two years of school were deemed ineligible for the mentoring condition, as the level of knowledge required to support studies at that level may have been beyond that of our student mentors. As such, participants who are aged less than 16 are randomised to receive, with one third probability, either the mentoring intervention or the talk intervention, or business as usual, while participants above that age, are randomly assigned to receive, with one half probability, either the talk intervention or business as usual.

## Sample

Schools were recruited for the trial through direct mail contacts. Schools were recruited that were close to the University of Bristol, partly due to the practicality of implementation and the nature of our funding, and partly because the aim was explicitly to 'widen participation' from local schools. The region covered by our trial, and the schools included, can be seen on the map below. Although the majority of schools in our sample are secondary schools, there are a few relatively larger further education colleges in the trial. In total 36 schools and colleges were recruited and took part in the study.



Figure 2: School Locations

# Analysis and Data Description

## Data Description

We have three main sources of data - our own assignment data, data from Universities and Colleges Admission Service (UCAS), and data provided by the University of Bristol. These data cover all applications from our trial schools and colleges for academic years ranging from 2001 to 2016 (the latest year for which data are available). These data are merged together by school and college on their URN and the application cycle year of each cohort. Data purchased from UCAS contains four of our five outcome measures - the number of applications from a school to any university, the number of applications from a school to any Russell Group University<sup>41</sup>, and how many of these applications results in acceptances - that is, cases where an application to a university attracts an offer which subsequently is accepted by the student - this is the best proxy we have for whether a student attends that university. Each student can make up to five applications, unless they are applying to study medicine in which case they can apply to four. Because almost all students will apply for either 0 or 5 universities (there is no marginal cost to each application, either financial or effortful), we believe it is safe to interpret an increase in the number of applications by 5 as an increase in the number of students applying to university by 1. For Russell Group applications this is less clear-cut, as applications to Russell Group universities can take up any number of the students' five applications, or none, and so an increase in Russell Group applications by 5 might be interpreted in a number of ways - either one student applying to five Russell Group universities, 5 students applying to one each, and so on. As each student will typically only accept one offer, it is more straightforward to interpret this variable. Data from the University of Bristol contains data on all applications to the University of Bristol for our trial schools.

In total our data contain 36 institutions, of which 9 are colleges and 25 are schools, observed between 2002 and 2017 application\_cycles. The majority of schools appear in our data 14 times, with some schools observed on relatively fewer occasions either due to the schools being established during the period covered by our data or changing their name or status (and hence their unique reference number) and their prior details not being known.

---

<sup>41</sup> The Russell Group is a membership body of good British Universities, which includes the University of Bristol. As it is a membership body, schools can join it, and pay fees to be members. As such, it is not a perfect predictor of being an 'elite' university, although it typically represents most of the best Universities in the UK.

## **Censoring**

All of our data are provided at the school/year level, and data provided by UCAS are subject to censoring rules to protect the anonymity of university applicants. These censoring rules mean that where fewer than 2 applicants are listed in a category, this is reported as 0. Similarly, any number between 2 and 5 is rounded to a 5. Therefore we cannot be sure whether 0s or 5s represent real data or are an artefact of censoring; this introduces a risk of bias into our analysis. However, randomisation should control for this issue, although it may limit the interpretation of our point estimates.

## **Time period**

Data from our trial period are combined with historic data in order to maximise statistical power, and to minimise the risk of bias due to the relatively small number of clusters to be randomised, by allowing us to control more fully for school specific fixed effects and for the time trend of applications school-by-school.

## **Analytical Strategy**

Using this data, we create a panel of schools/colleges: the school (subscript  $s$  below) is the cross sectional unit and application cycle (cohort) is the time variable (subscript  $t$  below). For each of our five outcome measures (applications and acceptances to any/Russell Group universities, applications to Bristol) we estimate a regression model specified as;

$$Y_{st} = \alpha + \beta_1 T_{st} + \beta_2 \gamma_t + S_i + u_{st}$$

Where  $Y$  is the outcome of interest,  $\alpha$  is a constant,  $T$  is a binary variable indicating treatment if 1 and 0 else,  $\gamma_t$  is a time trend,  $S_i$  is a school/college fixed effect and  $u_{st}$  is the error term. Because our unit of observation and our unit of randomisation are the same, we do not cluster our standard errors. The results of our analysis are in the table below.

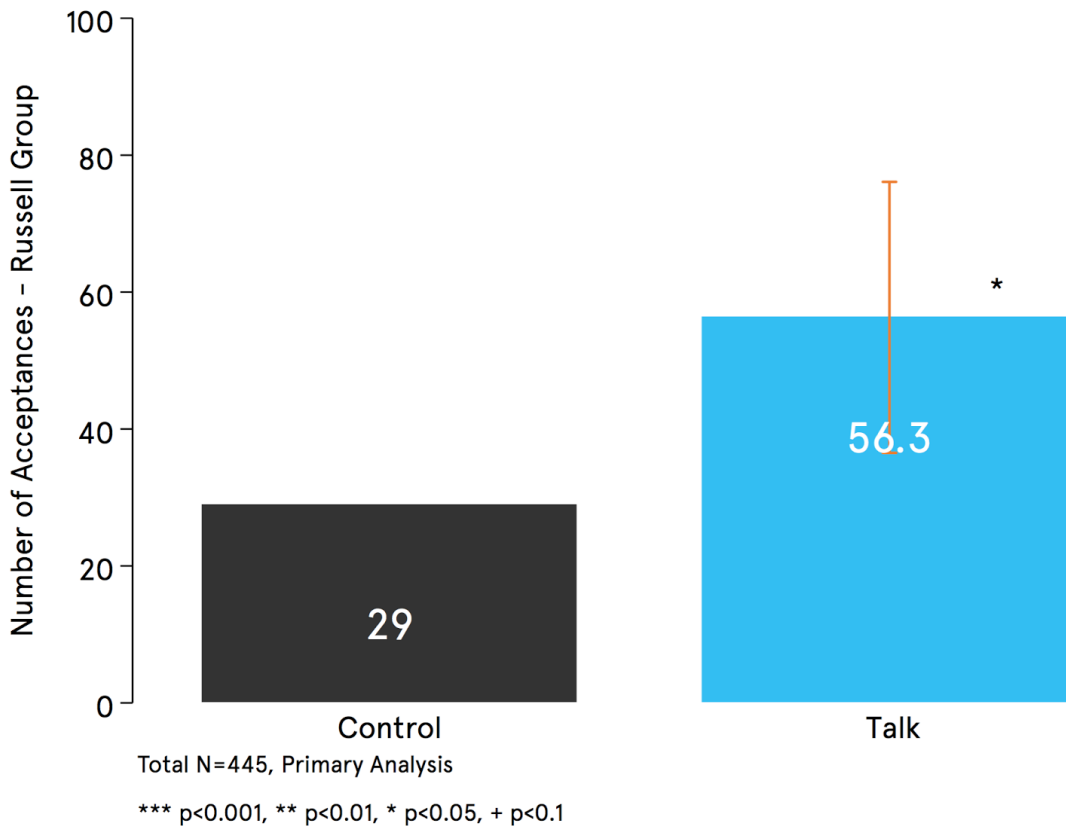
Table 1: Results of primary analysis (School/College Fixed Effects)					
	(1)	(2)	(3)	(4)	(5)
	Total Applications	Total RG Applications	Bristol Applications	Total Acceptances	Total RG acceptances
Treatment	151.309 (279.468)	80.127+ (47.942)	0.882 (7.405)	26.415 (53.375)	27.314** (10.070)
Constant	-2.49e+04+ (16343.140)	-2773.230 (2803.625)	20.764 (567.358)	-6786.789* (3121.355)	-2334.378*** (588.872)
Time Trend	Yes	Yes	Yes	Yes	Yes
Cluster Fixed effects	Yes	Yes	Yes	Yes	Yes
Trial Period Control Group Mean	691	124	17	130	29
N	445	445	457	445	445

Robust Standard Errors in Parentheses  
+ p<0.1, \*p<0.05, \*\*p<0.01, \*\*\*p<0.001

Our findings are positive but not conclusive. For all of our variables of interest we see a positive relationship between treatment and the outcome measure. However, due to a combination of factors, principally small effect sizes associated with our intervention, a relatively small sample, the lack of availability of individual data, and the greater than anticipated level of variability in the outcome measures, these are not generally statistically significant.

We find a substantial, 80 application per school/college increase in the number of applications to Russell Group universities as a result of treatment, which is statistically significant at the 10% level. Given a control group mean of 124, this is a very sizeable quantitative effect, but note that once we split up (large) colleges from (small) schools, the effect size for schools is much smaller, see tables 2 and 3. Similarly, we find a positive and

significant increase in the number of people accepting offers from Russell Group universities (see figure 3, below), which is our most reliable proxy for attending that sort of institution - and this is statistically significant at the 1% level. These findings are robust to alternative specifications (including the inclusion of time fixed effects rather than a time trend) in the direction and size of the point estimate, but not in terms of statistical significance<sup>42</sup>.



**Figure 3: Acceptances of Offers from Russell Group Universities, full sample**

The point estimates suggest a 5% increase in applications to Bristol itself, though this is also not statistically significant.

Our point estimates of the treatment effect across our outcome measures excluding the Bristol applications is large in relative terms. One explanation for this is that a modest treatment effect in small schools is being exaggerated by the censoring rules described above, while another is that our treatment effect is biggest in larger institutions. Although the number of students enrolled is not known, we do know that colleges are typically larger institutions, drawing their cohorts from many schools.

<sup>42</sup> We have selected our empirical strategy based on maximising power in the limited dataset that we have, and therefore have selected the model with the highest adjusted R squared as our primary analysis.

To investigate further, we therefore conduct analysis by splitting the sample between colleges and schools, shown in the two tables below.

Table 2: Results of secondary analysis, evaluating treatment effect on colleges (College fixed effects)					
	(1)	(2)	(3)	(4)	(5)
	Total Applications	Total RG Applications	Bristol Applications	Total Acceptances	Total RG acceptances
Treatment	453.415 (663.311)	243.710* (115.154)	-2.889 (20.431)	69.103 (131.464)	81.849** (25.781)
Constant	-4.03e+04 (42379.763)	-1283.427 (7357.346)	558.590 (1736.666)	-1.29e+04+ (8399.387)	-3367.286* (1647.209)
Time Trend	Yes	Yes	Yes	Yes	Yes
Cluster Fixed Effects	Yes	Yes	Yes	Yes	Yes
Control Group Trial Period Mean	1617	234	48	315	54
N	101	101	103	101	101

Robust Standard Errors in Parentheses

+ p<0.1, \*p<0.05, \*\*p<0.01, \*\*\*p<0.001



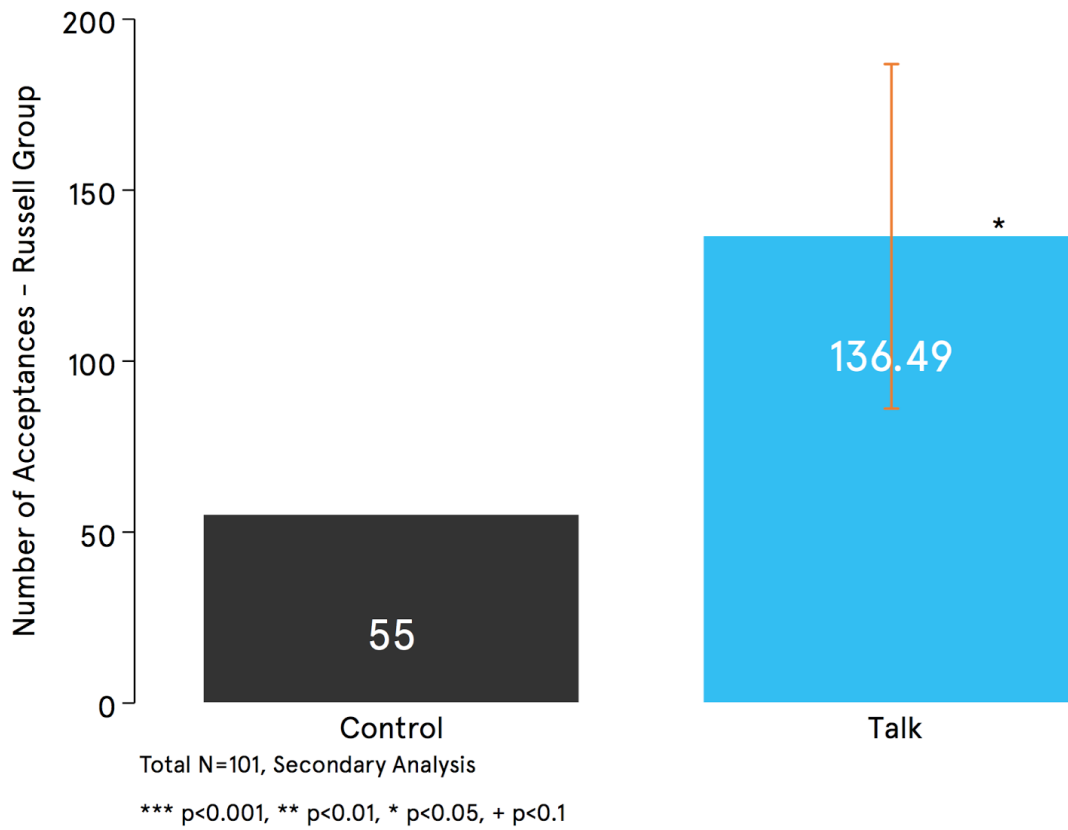
Table 3: Results of secondary analysis, evaluating treatment effects on schools (School fixed effects)

	(1)	(2)	(3)	(4)	(5)
	Total Applications	Total RG Applications	Bristol Applications	Total Acceptances	Total RG acceptances
Treatment	13.091 (121.139)	24.343 (38.382)	-1.108 (2.307)	4.100 (20.501)	9.075 (7.203)
Constant	-6643.842 (6313.782)	-1101.701 (2000.444)	-99.629 (170.465)	-2390.100* (1068.509)	-1144.580** (375.430)
Time Trend	Yes	Yes	Yes	Yes	Yes
Cluster Fixed Effects	Yes	Yes	Yes	Yes	Yes
Control Group Trial Period Mean	362	86	20	64	20
N	338	338	354	338	338

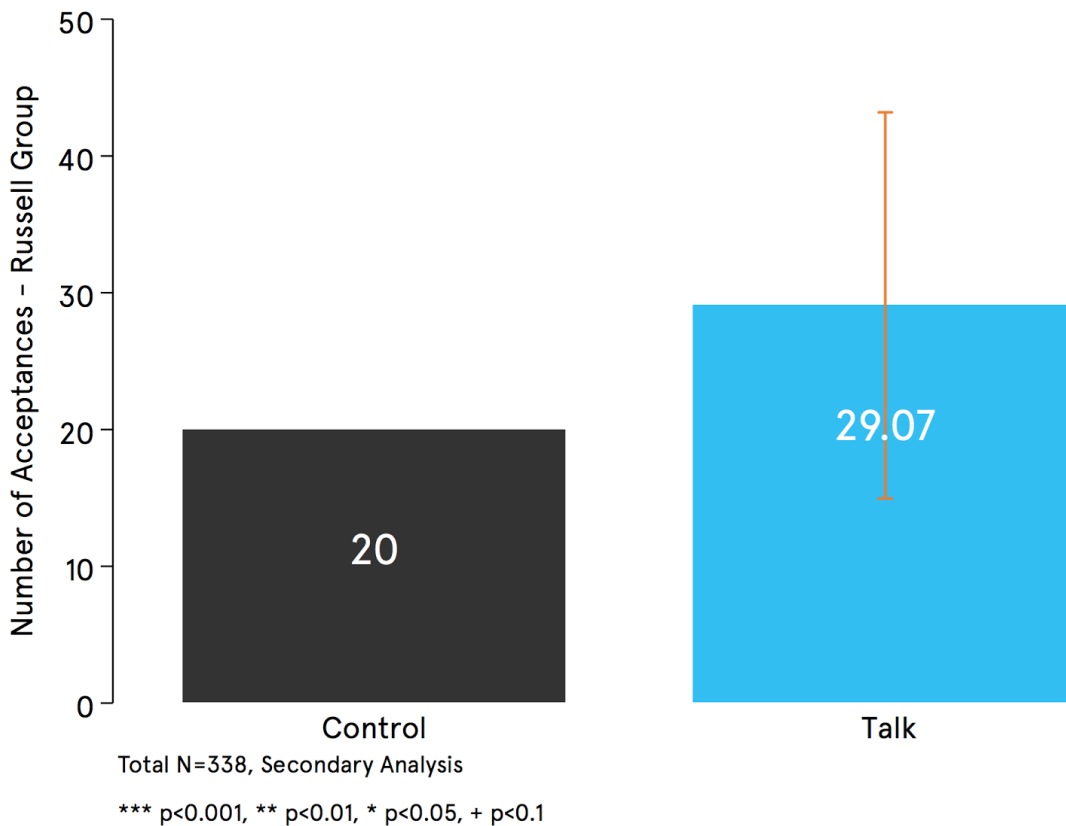
Robust Standard Errors in Parentheses

+ p<0.1, \*p<0.05, \*\*p<0.01, \*\*\*p<0.001

In these table we see additional evidence that our treatment is stronger for students in further education colleges. As well as having significantly more students, leading to significantly more applications overall, the treatment effect is statistically significant and positive for both applications and acceptances to Russell Group universities (figure 4). The effect remains positive but statistically insignificant for pupils in schools (figure 5). There are no significant results for applications to Bristol.



**Figure 4: Effect on Acceptances of Offers from Russell Group Universities for College students**



**Figure 5: Effect on Acceptances of Offers from Russell Group Universities for College students**

## Discussion

We have conducted a randomised controlled trial testing the impact of talks from current students at the University of Bristol on applications from local school and colleges. Although our findings are limited by data availability and the scale of the trial, we have found indicative evidence supporting the hypothesis that an inspirational talk from a current student can raise pupils' applications to university. We observe in our data that this is particularly concentrated on applications for more selective, Russell Group universities, than on universities overall.

We find a differential impact of our treatment for colleges compared to schools; all point estimates are positive but much larger in colleges and more precisely determined. Only some of the effects are statistically significant, but all are suggestive of a positive effect.

Speculating as to the mechanism underlying this finding, it is possible that college environments, which typically contain more students, are less conducive to personal support for application to university and selective university in particular. Alternatively, it could be that the selection of students into these further education colleges is a relevant factor. Because colleges offer a wider variety of courses, it could be that students who select into these institutions are interested in pursuing less typical careers and may not be aware of the benefit or options for university in the absence of our intervention. Future qualitative and quantitative research could investigate this more fully.

Clearly further research is needed to confirm - or not - these suggestive findings. But if the sizeable point effects we have shown here are confirmed, then this intervention merits inclusion in the Widening Participation policy portfolios of universities.

We would argue that it offers positive outcomes for all participants. The pupils will almost surely be better off, being accepted at elite universities that they would not otherwise have applied to. The mentors themselves also gain in a number of ways, with the addition to their cvs, training and experience, improved 'soft skills', plus the 'warm glow' from volunteering in their adopted city. Finally, the University gains from an increased capability to attract talent from a broader and more diverse pool, an enhanced student experience with more local volunteering opportunities, and local reputational gain.