

THE
BEHAVIOURAL
INSIGHTS TEAM.

Behavioural Insights and the Somerset Challenge

A report from the Behavioural Insights Team

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At the Behavioural Insights Team

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Section 1: The Partnership

1.1 The Somerset Challenge

The Somerset Challenge is a school-led collaborative partnership, with the goal of significantly raising standards of achievement for young people in Somerset. Our ambition is to improve examination outcomes, close the gaps between different groups of young people and to create a self-improving system led by schools.

Using the successes from The London Challenge, a collaborative effort by London schools that saw substantial improvement in their outcomes during the first decade of this century, we are adapting the model to suit Somerset and its needs. There are 38 schools signed up and newsletters sent each half term will keep everyone up-to-date with what is happening across the county.

1.2 The Behavioural Insights Team

The Behavioural Insights Team is a social purpose company, jointly owned by the Cabinet Office, Nesta, and its staff. It was formed in 2010 as part of the UK Prime Minister's Strategy Unit, and was the first central government team in the world dedicated to applying the lessons of behavioural science to public policy. Having grown from a small team of 17 at the time of the spin-out from government, it now has over fifty staff members located across three countries and working in almost every area of public policy.

1.3 BIT Project Team



Michael Sanders

Principal Advisor & Head of Research & Evaluation

Michael is the Head of Research at the Behavioural Insights Team and has led the programme of work with the Somerset Challenge, supervising all of the trials conducted.



Elizabeth Linos

Senior Advisor

Elizabeth is a Senior Advisor on BIT's Research Team and is currently a PhD Candidate in Public Policy at Harvard University. She has been lead the trials focused on teacher motivation and recruitment.



Antonio Silva

Advisor

Antonio is an Advisor on the team and is finishing a PhD in anthropology at UCL. He was centrally involved in the design of trials focused on raising aspirations and inspiration.



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Associate Advisor

Alex is an Associate Advisor in the Behavioural Insights Team and developed the Virtual Learning Platform. He was involved in the field research as well as the trial design of the VLP trials.



Aisling Ní Chonaire

Associate Advisor

Aisling is an Associate Advisor and has co-ordinated contact with the teachers and schools in Somerset. She has been involved with the implementation of the Somerset trials, as well as the design and analysis of the teacher trials.

Section 2: Introduction

Britain's school network increasingly resembles a patchwork made of segments of varying shapes, colours and patterns. The comprehensive education system largely set up in the decades following the Second World War has been replaced by a combination of comprehensives, the relatively few remaining grammar schools, two flavours of academies reflecting the preferences of the last two governments, and a small but growing number of Free Schools.

In addition to greater variety in the governance types of schools, a second layer of patchwork has emerged in the form of multiple "Challenges" – groups of schools working together with a common purpose of improvement.

Taking their lead from the widely successful London Challenge, which has led London schools from among Britain's worst to among their best, these Challenge organisations are attempting to leverage a combination of shared solutions to shared problems and an openness about best practice, and to exploit economies of scale in bringing outside innovation to bear. The Somerset Challenge is one such grouping of schools.

The Somerset Challenge brings together 38 of the 39 secondary schools in Somerset with a common vision of raising standards and combating the problems they face. In this regard, it is unusual in its success at engaging local schools and encouraging them to take part in the Challenge.

One facet of the Somerset Challenge's work in its first year was to commission the Behavioural Insights Team to apply the findings from behavioural science to the problems faced in Somerset Schools. This represents the first time that the Behavioural Insights Team has worked directly with a group of schools in a local area on a broad and ambitious scheme of work that has aimed to address a range of issues identified by the schools. This internal report summarises the findings from the first year of this collaboration, ahead of the publication of a public facing report following the 2015 General Election and the conclusion of the trials.

In this report, we give a brief introduction to the Somerset Challenge and the issues faced by Somerset Schools. This is followed by a description of the initial field work conducted by the Behavioural Insights Team to better identify the specific barriers to success.

This field research, as well as informal conversations with participating school heads, led to the three main areas of focus, which make up the following three sections of this report: Aspiration and Inspiration; Feedback and Transparency;

and Teacher Motivation and Recruitment. In each of these sections we provide a brief overview of the relevant literature, and then describe the work conducted by the Behavioural Insights Team to date. We then offer our preliminary conclusions.

Section 3: Field Research

3.1 Objectives

From 19th – 20th June 2014, four members of The Behavioural Insights Team attended the Somerset Association of Secondary Head teachers (SASH) and Somerset Challenge conference hosted at Dillington House. They also visited several of the secondary schools in Somerset to conduct interviews of teachers and students.

The objectives for these two days were as follows:

- 1) To present The Behavioural Insights Team’s trial designs to the Somerset Association of Secondary Head Teachers and to gauge schools’ interests in participating in them.
- 2) To learn about each school’s specific requirements for these trials and their teaching environments to inform trial design.

Visits

Over the course of the two days, we visited the following schools:

Time of Visit	School
Day 1 – Thursday 19 th June	
9.30 – 11.30	The Taunton Academy – TA2 7QP
12.30 – 14.30	Bishop Fox’s School – TA1 3HQ
13.00 – 15.00	The Castle School – TA1 5AU
Day 2 – Friday 20 th June	
9.30 – 11.30	Huish Episcopi Academy – TA10 9SS
12.30 – 14.30	King Arthur’s School – BA9 9BX
13.00 – 15.00	Ansford Academy – BA7 7JJ

3.2 Findings

During our visits, we interviewed teachers and students to ascertain the challenges faced by Somerset Schools. Although a range of issues had been raised at previous SASH and Somerset Challenge meetings, the objective was to uncover any additional themes that came up independently. Our questions and discussions therefore followed a semi-structured format in which teachers and students were interviewed individually, and asked initial questions about what was good or could be improved about the school, as well as more targeted questions about issues thought to be relevant in Somerset – such as university attendance, homework, marking, and the relationship between teachers and students.

From these interviews, four themes emerged:

1. Feedback and teacher–student relationships
2. Quality, use and usability of online platforms
3. Aspirations for university among students
4. Recruitment and motivation of teachers

We found an unexpectedly high level of correspondence between discussions about feedback and teacher–student relationships and those about online platforms, and so pursued these together as a line of inquiry. The next sections explore the findings of these themes.

Teacher–Student Feedback & Systems of Learning

In this area of field research, we obtained feedback about the online virtual learning platforms that students and teachers were employing at the time, how these platforms were meeting the schools' requirements and where our own platform (created as a vehicle for the implementation of one of the BIT trials) could add further capability to the schools. The findings are summarised in Box 1.

Box 1: Field Research Findings about Online Platforms

- ◆ Online platforms, for homework and classwork, were used by teachers primarily for mathematics-based subjects as opposed to language studies.
- ◆ While a few teachers made use of several online platforms (such as MyMaths) for each of their classes, many didn't use any such platform.
- ◆ Most teachers that made use of a platform would be comfortable with migrating to a new platform if it was easy and only if support was provided.
- ◆ The main barrier to adopting learning platforms, from the perspective of the teachers that hadn't already, was ease-of-use.

This feedback was used in the design of our virtual learning platform (VLP). Given that most of the teachers that made use of them used a wide variety of platforms, and that many found them difficult to use, we decided to design our VLP to be a single, easy-to-use offering that all teachers could employ in their classes. To make it easier to use, and symbiotic with the systems already in place, we also decided to include the ability to link to, or upload, materials from other platforms or those that teachers had created offline.

We also heard how feedback from teachers regarding students' work was being administered, received and valued. There was great variety in the responses that we received – even within schools – about how feedback was given. All students stated a strong preference for more detailed and more frequent feedback.

These views are summarised in Box 2, below.

Box 2: Field Research Findings about Feedback

Processes

- ◆ Several teachers felt that their feedback systems were ambiguously administered and didn't feel confident that they knew the correct processes.
- ◆ There was a lot of variety in the described feedback processes (both within and between schools). Several schools provided a timetable for students' feedback and used stickers and report cards as a means for feedback. Others had no formal process for feedback and it was left to each teacher's discretion to provide it.
- ◆ Several students stated that they had not received feedback from any of their teachers. Within some schools, students suggested that several teachers provided a lot of feedback whilst others provided no feedback.

Form

- ◆ Most students and teachers stated that they thought that feedback was worthwhile. Most students stated a preference for specific and practical feedback.
- ◆ There were positive perceptions of feedback among students who received good feedback about their performance, and some of those students stated that there was active competition to get better grades.
- ◆ Several students stated that negative feedback, delivered to a student in the presence of others, was demotivating and prevalent.

The findings concerning feedback were used heavily in the design of our VLP, as well as when developing and considering the effectiveness of our *feedback* and *transparency* interventions.

Students' Aspirations & Learning Environments

From our interviews, we also learnt about students' perceptions of their learning environments, their aspirations for work and university and how their schools could be improved. These findings, summarised below, were useful for our understanding of students' aspirations and how they are formed and encouraged.

Box 3: Field Research Findings about Aspiration

- ◆ Many of the year 11/12 students that we interviewed wanted to go to university.
- ◆ The most common reasons given included: that attending university was expected of them; it was something that all students were doing; and that it would improve their chances of getting a job.
- ◆ Many students, even with good grades, did not have a firm grasp of the costs and benefits of university attendance.
- ◆ Students expressed a lack of clarity about the exact nature of going to university or what it could help them to achieve.

Recruitment and Motivational Challenges

We also learnt about schools' challenges regarding teacher recruitment and motivation. We found that teachers who were earlier in their careers reported in general higher levels of motivation than those later in their careers. This was supported by a feeling among more experienced teachers that they had "lost" some of their initial motivation since joining the profession, due to the heavy demands of teaching and the regular changes to the profession.

Recruitment was raised as a particular issue by heads of school and department heads within several schools, although not all departments and not all schools. These problems were described in interviews as being particularly acute in rural schools and for STEM subjects.

These findings prompted our work in boosting teacher recruitment and motivation.

Box 4: Field Research Findings about Teacher Recruitment

- ◆ There was a widely accepted problem of hiring well-trained teachers, especially Maths teachers.
- ◆ All schools used a similar format for their job adverts (aimed at hiring new teachers) – based on previous years’ teaching curricula. This implied that there was little experimentation in the hiring process.
- ◆ The main reasons that teachers gave for wanting to work at their school were as follows: they wanted to live in a village, they preferred quieter towns or their parents lived nearby.

Section 4: Boosting Aspiration and Inspiration

In light of the above field research findings, we sought to tackle issues related to students' aspirations to go to university. First, many students didn't appear to have the correct information on the costs and benefits of going to university, namely the types of existing financial support available and the increased future earnings graduates are likely to receive. Second, we found a common lack of understanding of how university education could help students to achieve professional and life goals – like getting better jobs, making friends or being able to afford their hobbies. This seemed to be at least partially associated with the students' peer groups and family not having themselves gone to university.

As a result of these insights, we designed and carried out two interventions to address these issues which are described in more detail below. These were tested by two initial pilot studies on small groups, which informed the development of larger scale trials across Somerset Schools.

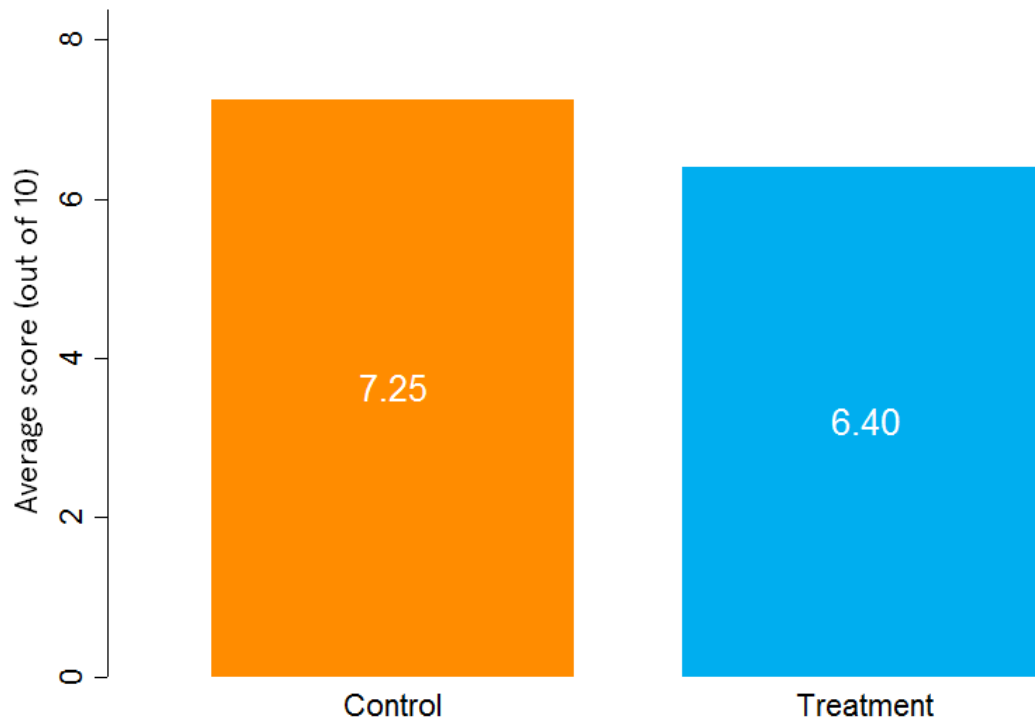
4.1 Pilot 1: Inspiring Teachers

During the field work, some teachers had suggested that at least part of the lack of ambition stemmed from the profession, with teachers not seeing the potential in some of their students, or assuming that they would not benefit from university.

To attempt to combat these preconceptions, we conducted a pilot study that aimed to inspire in teachers the sense that their effort was important to their students' decision to attend university.

Working with a small group of deputy heads, we gave a short talk that emphasised the role teachers had played in the success of the speaker. Half of the teachers in the audience were randomly selected to be surveyed immediately before the talk, and half were randomly selected to be surveyed afterwards. In addition to a series of generic questions, the surveys asked participants to rate how important (out of 10) the respondent thought teachers were to the decision by students to attend university. The results of this pilot, which are shown in Figure 1, below, do not show a statistically significant effect of this treatment, and we find that this sample (of deputy heads) already possess high levels of belief in the importance of teachers in this area. As a result of this finding, the decision was taken to pursue primarily student-focused interventions, although we believe that differently structured messages could be used to influence teachers' beliefs about their role in students' university attendance.

Figure 1: Results of Pilot 1: Deputy Head's Scores (1-10) "How important are teachers to students' university decisions?"

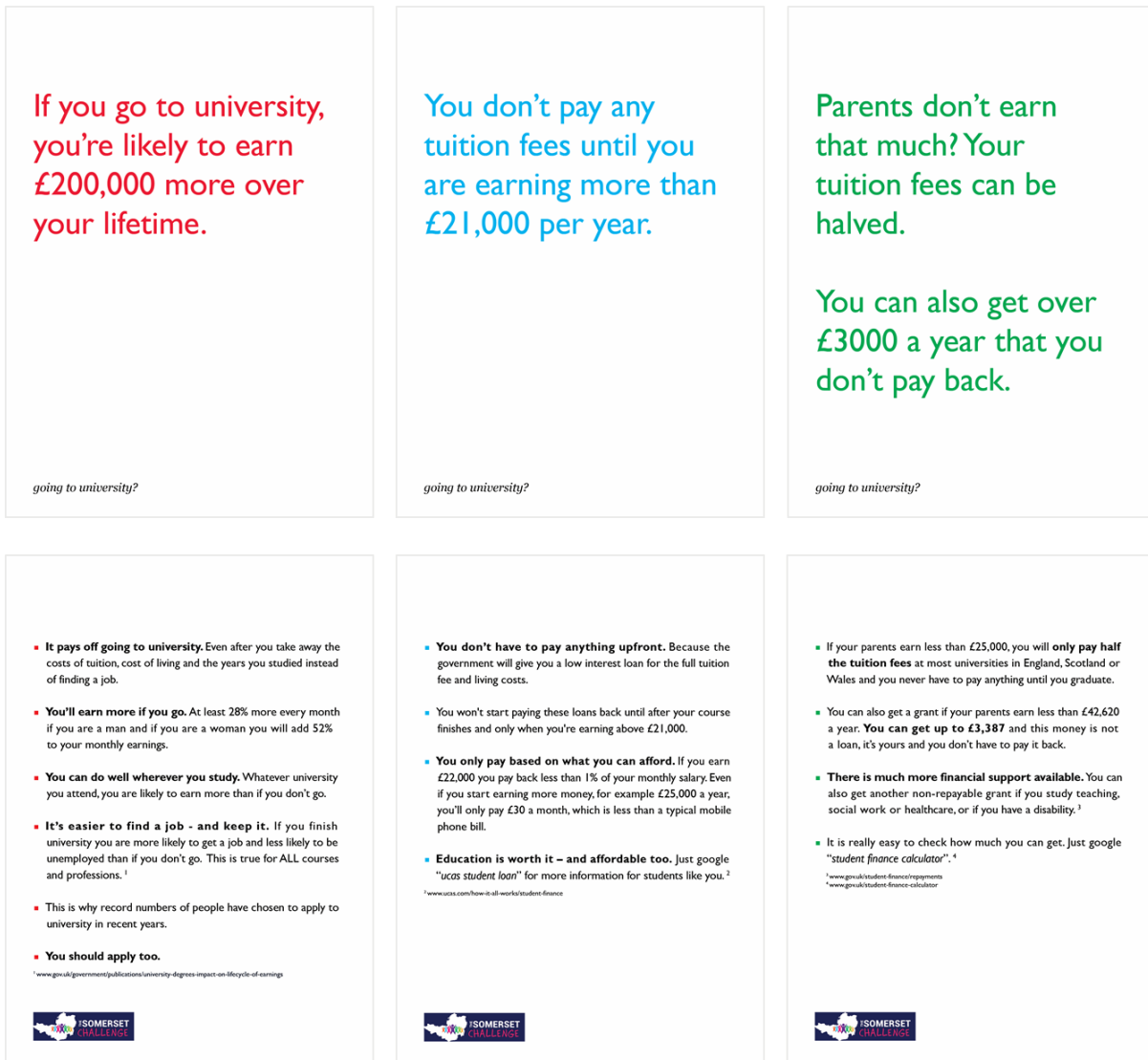


4.2 Pilot 2: Informing Students

There is evidence to suggest that people are often not aware of the future financial cost and benefits of further education (Jensen, 2010) and this may have been exacerbated by confusion around the new tuition fees system in 2010, and the increased complexity around repayment rates. Students and parents may not be fully informed about the costs and benefits of university, such as the student loans repayment system, the type of financial aid available and the benefits of having a university degree in the form of increased lifetime comes of about £200,000.

Based on the idea that well informed individuals are able to make better choices for their future, we provided information to both parents and students about the costs and benefits of higher education in order to increase the chances of students applying to university. Specifically, we ran experiments where we distributed flash cards to students and parents with information on the future earnings of attending university, the level of financial support available to low income students, and how the amount of student loan repayments will be dependent on future income (see Figure 2).

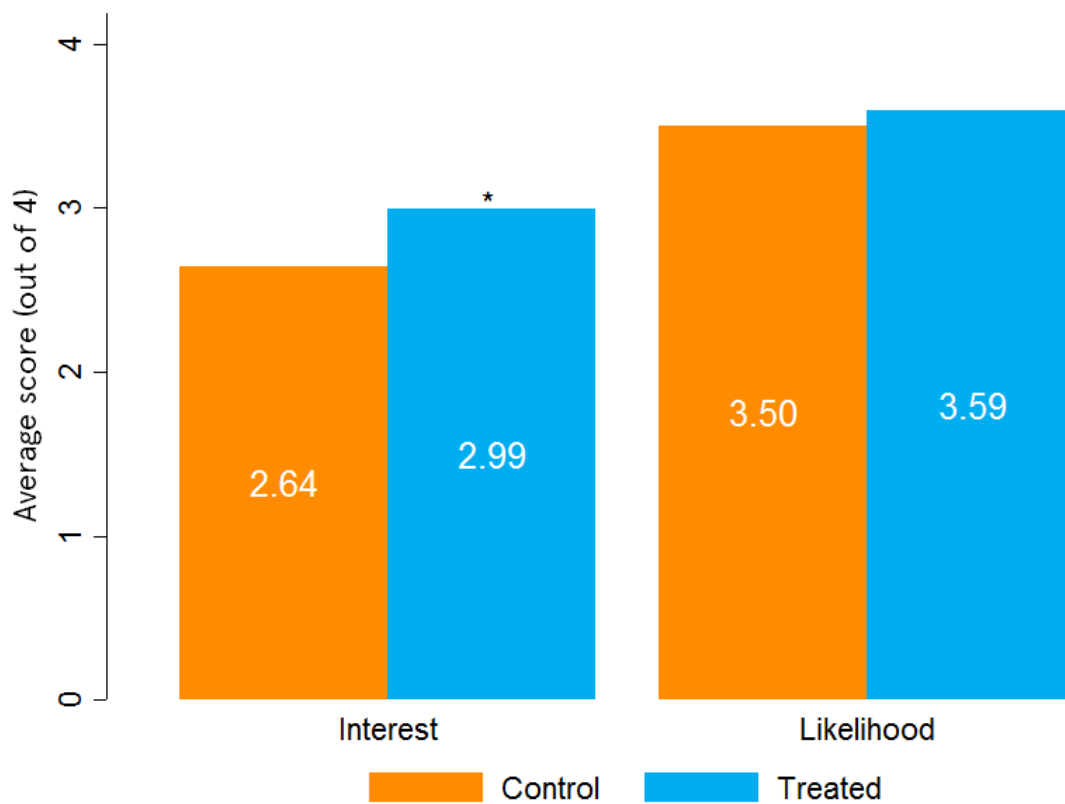
Figure 2: The front and back of the flash cards distributed to the students



In a second pilot study, we worked with sixth-form students in one school to test the impact of the information cards displayed above. From a sample of 60 students, half were randomly assigned to receive the cards, and half did not receive the cards. They were all asked a week later how likely they were to attend university and how interested they were in doing so. Figure 3 below shows the results – both are positive, although only the effect on interest is statistically significant – this is most likely due to a ‘ceiling effect’ – that most of the students in this school were definitely going to attend university even in the control group.

These results were deemed to be promising, and so we proceeded to conduct a larger scale trial.

Figure 3: Results from Pilot 2: Survey responses by students (scale = 1-4)



4.3 Aspiring Students Trial

Given the success of Pilot 2, the intervention materials for students were not changed for the main trial. Field work in Somerset had also suggested that students' parents may have posed an additional barrier to attending university, as they may also have had incorrect beliefs about the costs of, and returns to, university. A second set of cards were therefore developed to be sent to parents, which featured the same information, reflecting the change of target audience. These cards are shown by figure 4 below.

Figure 4: Fronts of cards sent to parents in Trial 1

If your child goes to university, they're likely to earn £200,000 more over their lifetime.

Tuition fees don't need to be paid until graduates are earning more than £21,000.

If parents don't earn that much, tuition fees can be halved.

Students can also get over £3000 a year that doesn't have to be paid back.

going to university?

going to university?

going to university?

Participants & Design

We worked with seven schools (N=2501) to distribute the cards to students and parents through a randomised controlled trial. Individual Students were randomly assigned to either have cards sent home to their parents, or not to. Registration groups were randomly assigned to have cards distributed to the entire class during registration. Cards delivered to students in class were placed into transparent envelopes and hand-addressed to each student individually.

At the end of the trial, in December 2014, participating students were asked to complete a survey online during the school day, facilitated by schools. This survey asked students questions about their understanding of university, how interested they were in attending university, and how likely they thought they were to do so.

4.4 Inspiring Students Trial

When compared to other parts of the country, students in Somerset tend to be less likely to go to university despite having good A-levels results. The absence of role models in students' family and peer groups that have gone to university is a possible pathway for this lack of ambition, which has been shown to be the case in other educational contexts (Wright et al, 1997). In addition to providing accurate information about the returns of higher education, an alternative way to increase interest in going to university is the use of relatable role models sharing their success story (Nguyen, 2008).

Figure 5: Talk intervention used in Trial 2



We decided to address this issue by organising a series of talks delivered by Michael Sanders to students in years 10–13. The talk emphasised the value of university and tried to dispel myths about the experience. Michael Sanders was born in Weston-Super-Mare in North Somerset and attended Marlwood School in South Gloucestershire until 2005, somewhat reflecting a shared background with the target audience. He now works as head of research in the Behavioural Insights Team and is a postdoctoral research fellow at Harvard Kennedy School. Talks were given either during normal assemblies, or replacing parts of lessons in some schools, and lasted for 15 minutes plus time for questions. The same survey was used, and the same sample, for the two studies (i.e. all students in years 10–13 from participating schools). In most schools, talks and cards were delivered in the same week, and surveys were completed six weeks later.

Because the randomised trial gives us a clear control group that did not receive the intervention and are comparable to the intervention groups that did, we are able to identify the causal impact of each of our treatments.

Outcome Measures

The two trials aimed to work on two different mechanisms – the ‘head’ (through providing information about the costs and benefits of university), and the ‘heart’ (through showing them that people like them *do* attend university and find it rewarding). Our first analysis therefore considers how students in the different treatment groups respond to questions that relate to these mechanisms;

The ‘head’ aspect of the survey posed a set of multiple-choice questions about tuition fees (how much they were), loans (how much students need to pay back, and when), and earnings after graduation (how much the average graduate is likely to earn over their life more than a non-graduate, based on evidence).

The ‘heart’ questions ask students how much they agree (one a scale of 1-5, with 5 being strongly agreeing) with the following statements:

- ◆ “University is only for wealthy individuals”
- ◆ “People who go to university meet more interesting people”
- ◆ “People who go to university have happier lives”

Initial Findings

The figures below (Fig. 6 and 7) show how each of these measures respond to our interventions.

A few findings can be reported at this stage. First, providing information cards to parents did not have a particularly strong effect on students’ information or feelings about attending university. Providing information to students directly has a positive and generally significant effect on students’ understanding about attending university, as does the talk intervention. We note that the decrease in accurate information about tuition fees was a result of students being over-optimistic about this, after they received the information cards. A similar pattern of results is observed for students who received the ‘talk’ condition. Overall, cards given to students do not significantly impact upon the heart measures, while the talk has a positive and generally significant effect on these. So far, we are able to conclude that the talk, although potentially more complex an intervention, is able to significantly boost all of the measures that we care about.

Figure 6: Effect of trial interventions on students' knowledge

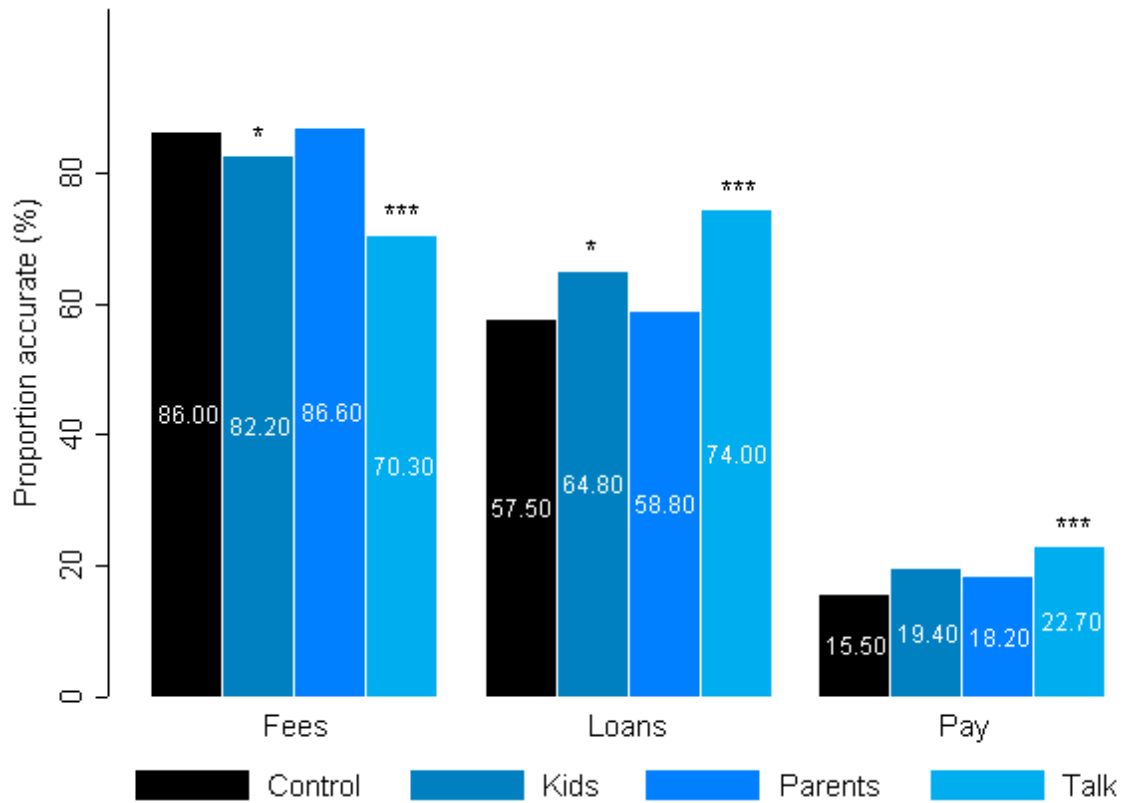
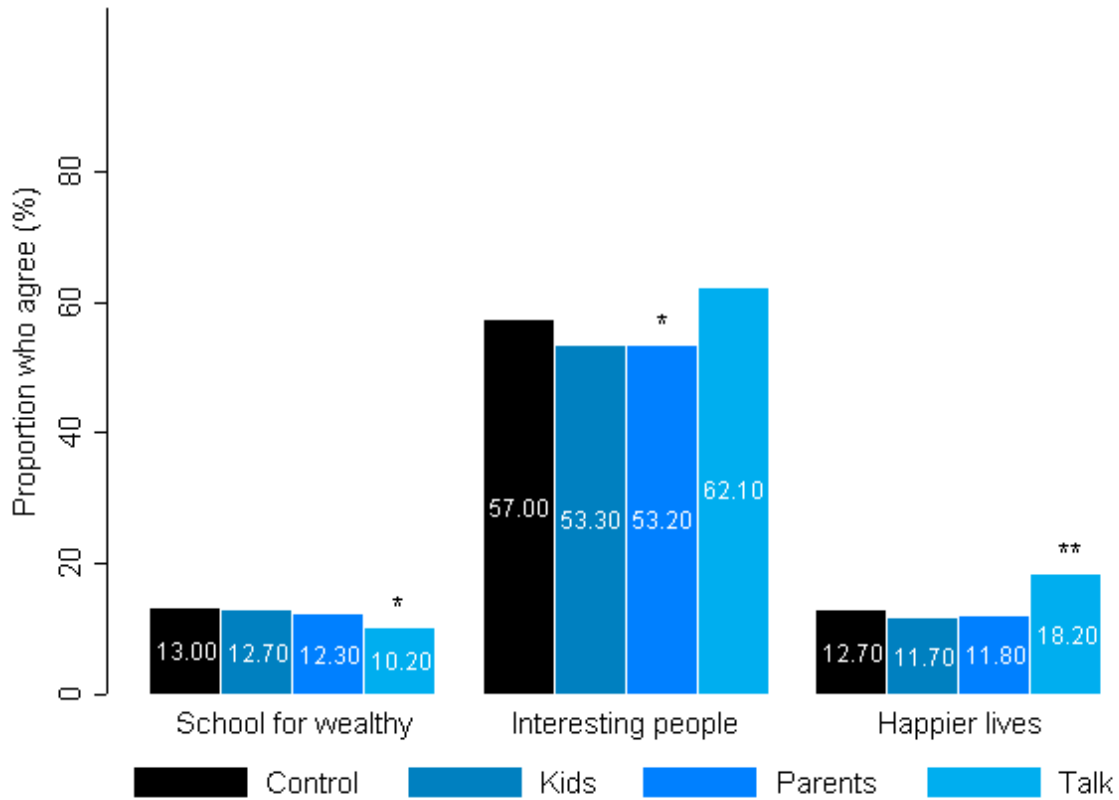
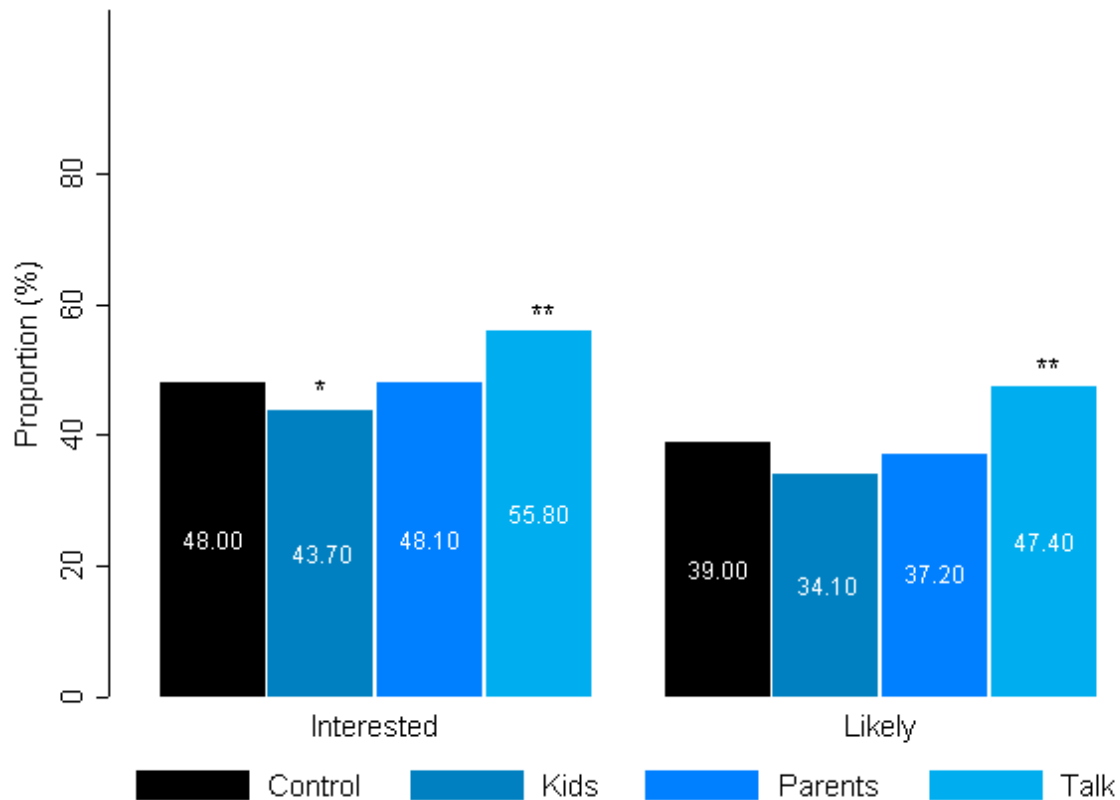


Figure 7: Effect of trial interventions on students' beliefs about University



The main outcomes of interest are students' survey responses indicating whether they were interested in attending university and how likely they thought it was that they would attend. Responses are collected on a 1-5 scale, with 5 being very interested/likely and 1 being not interested/very unlikely. These are reclassified as a binary Yes or No question, with scores of 4 and 5 (likely/interested and very likely/interested) measured as "Yes" and other scores as "No" – these results are shown in Figure 8, below.

Figure 8: Effect of interventions on students' interest in and likelihood of attending University



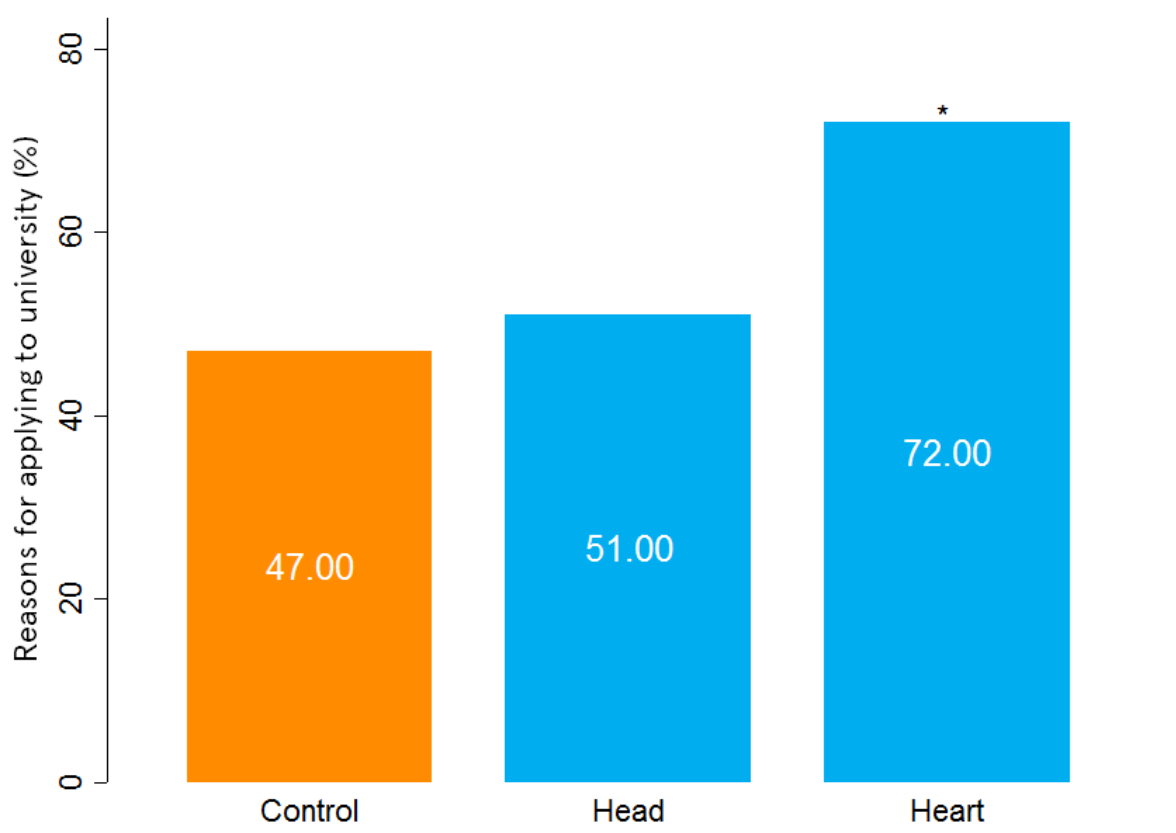
As these figures show, we have some quite surprising results. First, providing parents with information cards did not have a significant effect on students' interest in attending university or their likelihood of doing so. Second, and most surprisingly, giving the same information to students is associated with a *lower* rate of interest in applying, and a *lower* reported likelihood of doing so. This result, although interesting, was unintended. Third, students who received the talk were significantly more interested and likely in attending university.

Interpretation of Findings

These findings cast an interesting light on our prior hypothesis that students' decisions not to attend were based on a lack of financial information. We consider that there are two likely explanations for this finding – one, that students' prior beliefs about the financial aspect of attending university were unduly optimistic, and so our information treatment has made them more pessimistic about them, or two, that students' thinking about university with their head miss out on feeling the emotional pull of university.

Perhaps even more interestingly, our talk intervention created a statistically significant increase in students' interest in attending university, as well as their perceived likelihood of applying. This combination of interventions allows us to take an "instrumental variables" approach to our analysis, and to test our hypothesis that improving people's information about university is less effective than improving their feelings about university¹. These results, shown in the figure below, are striking – finding no significant effect overall of information on student's application decisions, but a strong effect of students having more positive feelings about university.

Figure 9: Estimated effects of speaking to the head or the heart about University

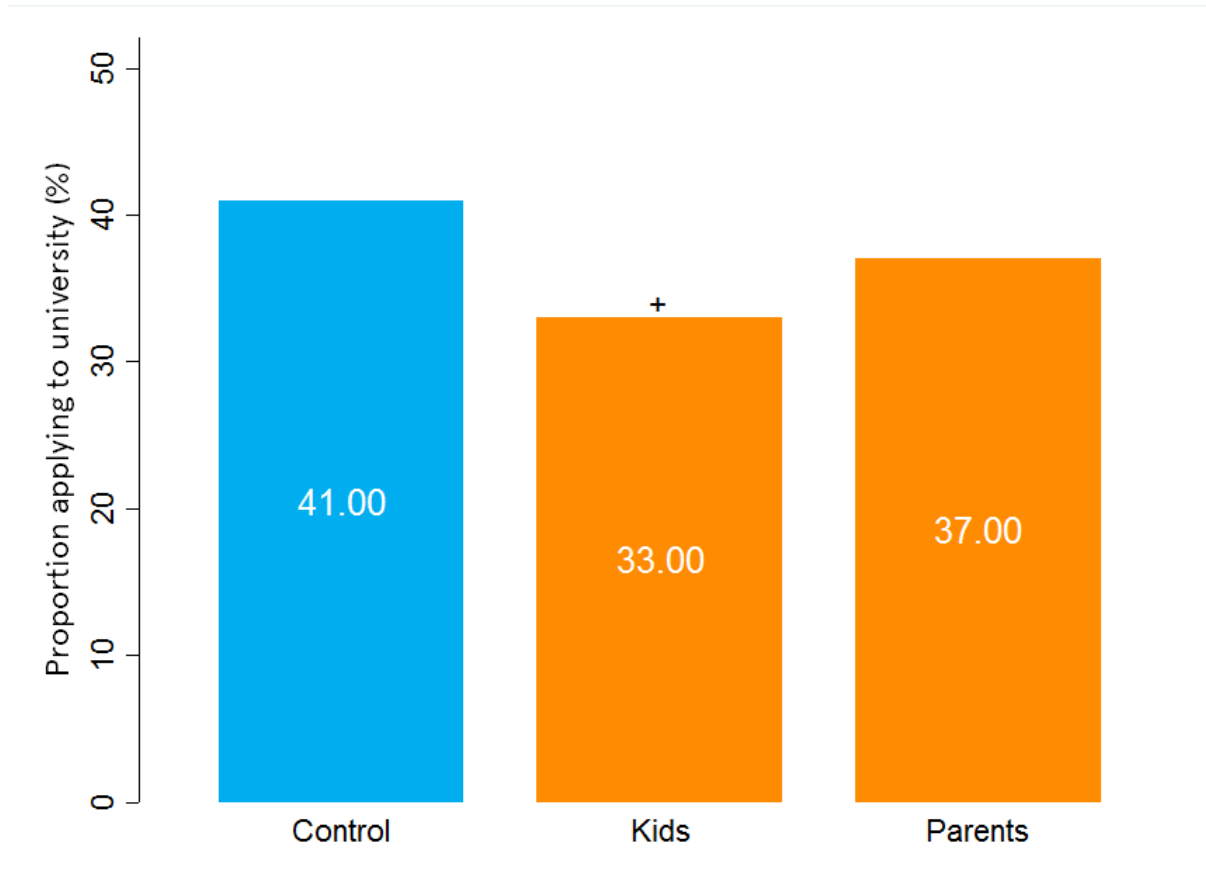


Finally for this section, we note that our current results are based on survey data. Using surveys in this way allows for the intervention to be delivered and evaluated more cheaply and more quickly than the use of harder outcome measures, but is not without its problems. Thankfully, one school was able to provide UCAS application data, which were merged with data on treatment assignment for both of the cards interventions (note that this school did not receive the talk treatment). As can be seen from the figure below, the pattern of results is the

¹ Here we code head and heart questions into a single measure each by aggregating scores across the three questions, normalized on a 0-1 scale.

same as that found in the survey responses, with the information cards resulting in a smaller proportion of students applying to university – however due to small sample sizes this is not statistically significant at conventional levels.

Figure 10: Effects of treatments on UCAS Applications



From the results of our two pilots and our two trials we can offer some conclusions.

First, missing information does not seem to be as major a factor in university application decisions as was initially (and widely) thought. Given the scarcity of other information presented on the cards, it is quite unlikely that something other than the information is driving these results.

Second, and most importantly for our practical purposes, we find that the emotional and social aspects of attending university have considerable power at driving student aspirations. Although the specific intervention here may not be easily scaled, talks from former students or other aspirational figures should be considered as an intervention more widely and schools could look to recruit successful alumni for this purpose – although we would argue that this intervention could also be brought to scale.

Section 5: Virtual Learning Platform

As mentioned previously, students felt feedback from teachers to be inconsistent, both in its regularity and its content. In addition, teachers felt there was a lack of awareness among students about the amount of effort exerted by teachers. Some teachers also mentioned that although there were many virtual learning platforms on the market, these were, by and large, underused by teachers because they were thought of as being too complicated.

In light of this information, the Behavioural Insights Team invested in the development of the Somerset Challenge Virtual Learning Platform (VLP). This platform was designed with two main purposes in mind - to provide teachers with a convenient and easy to use vehicle for delivering homework and feedback, and also to test ways of standardising feedback and inducing reciprocity among students.

Both teachers and students were provided unique login details to access their own personal VLP accounts. Teacher accounts had three functions: create homework, mark homework, and complete progress reports. The progress reports (shown in Figure 11) involved choosing weekly indicator arrows depicting whether each individual student did progress, did not progress, or stayed the same as before. There was also space to provide written feedback.

Figure 11: Progress Reporting on the VLP



Teachers were provided with 'How-To' guides, as well as video tutorials, to help them navigate the VLP. In addition, they were encouraged to contact BIT directly if they had any problems with the platform. Regular phone calls were arranged with participating schools to run through any questions they might have or to resolve any issues that they encountered.

5.1 VLP Trial 1: Feedback Trial

Objective

The aim of this trial was twofold. Firstly, this trial involved assessing the validity and reliability of the VLP, both for use in schools and for running randomised controlled trials. Depending on its success, we intended to roll it out in further trials, amend it or decide not to bring it forward.

Secondly, and specifically in relation to this trial, we aimed to test whether different ways of presenting feedback influenced student effort and performance in Somerset secondary schools. This approach to feedback was based on the behavioural literature which emphasises that consistent and standardised feedback can have a positive impact on people's subsequent performance.

This intervention included three arms:

Arm	Description
Control (written feedback)	Teachers were asked to write regular feedback for students which was then shown to students when they logged in to the VLP.
Dynamic feedback	Teachers were asked to indicate each week whether each student's performance had got better, worse, or stayed the same. This was then displayed to students each week along with any written feedback provided by the teacher.
Dynamic feedback + trends	Participants in this condition were presented with an indication of their progress that week along with the previous number of weeks' progress and any written feedback provided by the teacher.

Design

This trial was designed as an individually randomised trial stratified, or blocked, at the class level, to ensure that students in each class were allocated equally between the conditions. Participants (students at Somerset secondary schools) were randomly assigned to one of three conditions as per the table above.

All conditions were administered through the VLP. We requested that teachers set and correct as much homework as possible on the platform during this trial. This also intrinsically involved student participation in completing their homework via the platform when this homework had been set natively on the platform rather than uploaded.

As well as allowing automatic data gathering with minimal effort on the part of the school, this system was designed to allow randomisation of any element of the process to make testing possible.

Outcome Measure

The outcome measures are in line with the objectives of the Somerset Challenge. The primary outcome measures are:

1. Grades as measured by the end of term tests.
2. Connection to the school, measured by standard social capital metrics, which we use as a proxy for students' engagement in their studies.

Participants

Participants in the trial are students at secondary schools in Somerset partaking in the Somerset Challenge. These schools had the opportunity to sign up to this particular trial, of which 11 had done so and had completed memoranda of understanding by 01/09/2014. However only three schools engaged with the trial.

Within these schools, teachers selected into using the platform, and so there is a risk of selection bias occurring (with more enthusiastic or technically savvy teachers behaving differently to the general population).

All pupils within participating schools aged 11-18 were in principle eligible to take part in the study.

Trial issues

This trial faced teething problems common to many new technologies. Teachers found that the platform, although straightforward to use, was sometimes slow and unresponsive. This was likely due to demand for the server on which the platform was hosted being higher than anticipated for a number of reasons, as well as the rapid development time of the platform itself, leading to some redundancy.

Although the trial itself has not produced useful results due to a lack of sample size, we have learned a great deal from feedback from schools and teachers. The platform in its current form will be available to Somerset schools indefinitely, and we will be working to develop more robust and easier to use version of the platform for future trials.

5.2 VLP Trial 2: Building reciprocity

Objective

Our aim was to test whether interventions focused on increasing transparency and improving reciprocity would boost student performance and engagement in Somerset schools. Specifically, transparency refers to providing information on the amount of effort exerted by teachers to students when completing their homework, and reciprocity refers to encouraging students to consider the work teachers put into teaching in order to induce conditional cooperation.

Design

This trial was designed as an individually randomised trial stratified, or blocked, at the class level. Participants (students at Somerset secondary schools), were randomly assigned to one of three conditions:

Arm	Description
Control	Business as usual
Transparency	Students asked how long they think their teachers spend preparing a lesson, followed by the actual showing them the actual time spent on such activities
Transparency and reciprocity	In addition to the above students are asked to reflect on why they think their teacher exerts this effort and to write a paragraph giving details.

As with the first VLP trial, described above, all conditions were administered through the VLP. We requested that teachers set and correct as much homework as possible on the platform during this trial. This also intrinsically involved student participation in completing their homework via the platform.

As well as allowing automatic data gathering with minimal effort on the part of the school, this system was designed to allow randomisation of any element of the process to make testing possible.

Figure 12: Teacher Time survey tool (1)

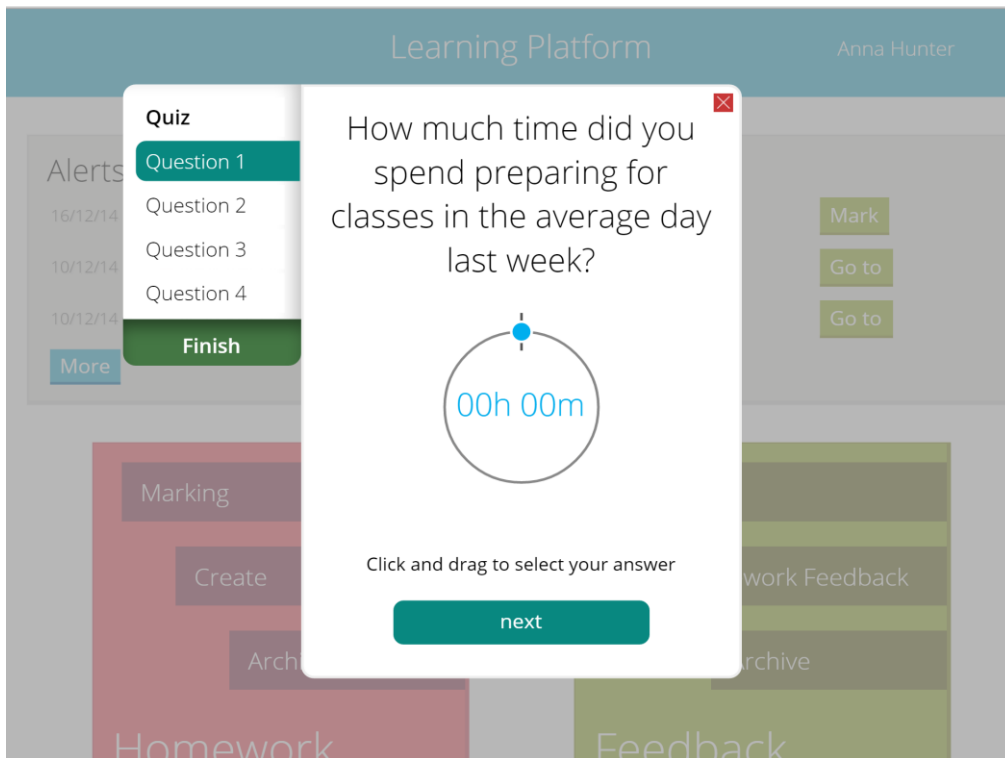
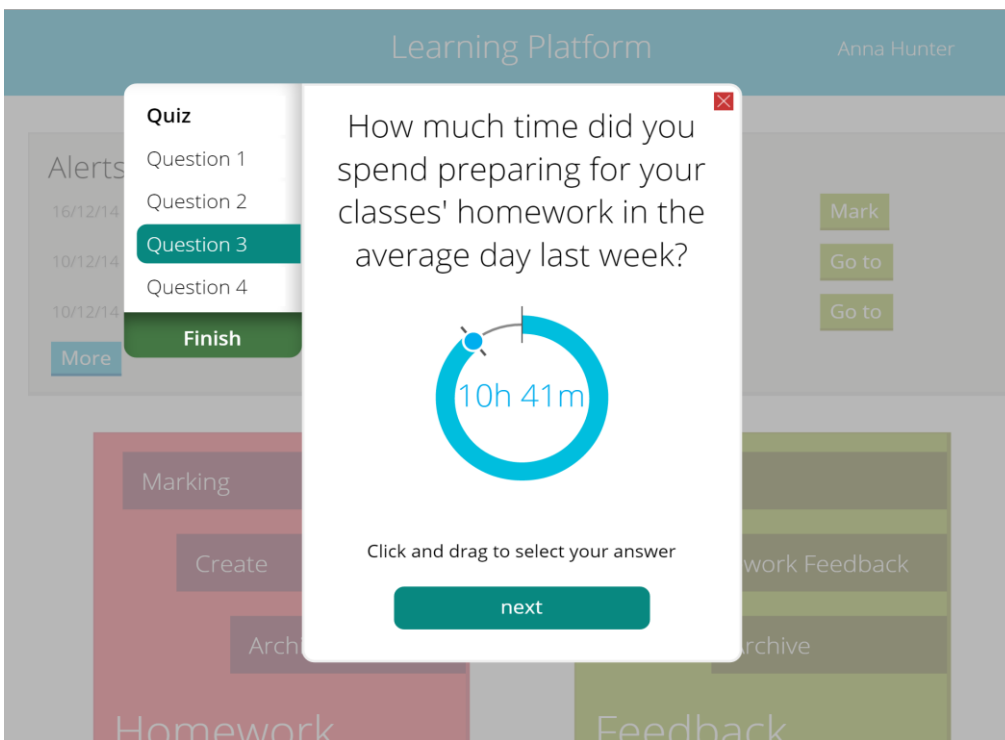


Figure 13: Teacher Time Survey tool (2)



Outcome Measure

The outcome measures are in line with the objectives of the Somerset Challenge. The primary outcome measures are:

1. Grades as measured by the end of term synoptic tests
2. Connection to the school, measured by standard social capital metrics

Participants

The same participants were included as above in the first VLP trials (i.e. students in years 7-13 from participating schools).

Randomisation

Randomisation was conducted at the individual student level. Students in participating classes were randomly assigned to receive either the control condition, the transparency condition or the transparency and reciprocity condition.

Randomisation was blocked at the classroom level to allow for secondary analysis of teacher effects and to improve statistical power. In 50% of classes, two thirds of students receive one treatment or the other. In 25% of classes a third of students receive one treatment or another, and in 25% of classes 100% of students receive either the transparency or the reciprocity condition (i.e. there is no control individuals in these classes).

Trial Issues

As with the feedback trial, the same issues emerged in relation to the VLP. As before, although the trial itself has not produced useful results, we have learned a great deal from feedback from schools and teachers who interacted with the VLP. The platform in its current form will be available to Somerset schools indefinitely, and we will be working to develop more robust and easier to use version of the platform for future trials.

Section 6: Teacher Trials

The primary goal of the following trials is to help begin to understand how to improve student outcomes by focusing on teachers. For the first year of our work with Somerset Challenge we focused on two areas related specifically to teachers: recruiting the best teachers for Somerset, and testing which motivational levers are most effective for teachers.

6.1 Teacher Recruitment Trial²

Overview

Much of the evidence on teacher recruitment and retention paints a bleak picture. The quality of graduates who enter the teaching profession – as measured by academic attainment – has decreased over time in much of the developed world (Hoxby and Leigh 2004), although recent efforts by groups such as Teach First, have gone some way to addressing this. Retention of teachers is a generalised problem but turnover for young teachers is particularly high – regional studies show turnover rates in the first two to three years that range from 15% to 30% (Hammer et al. 2005; Guarino, Santibañez, and Daley 2006). Unfortunately, the teachers most likely to leave are either those with the highest ability or those placed in hard-to-staff schools, often defined as schools with a high proportion of disadvantaged youth or rural schools (Guarino, Santibañez, and Daley 2006).

The challenge of recruiting quality teachers for urban disadvantaged young people is widely discussed both in policy and academic environments. However, there has been less emphasis on rural schools. Indeed, recruitment of new teachers to rural or semi-urban schools poses a different set of challenges. Not only are young teachers often drawn to large urban centres for lifestyle reasons, but also there is no equivalent large-scale recruitment channel that targets schools in which students are not under a poverty line, but may be disadvantaged in other ways, including social isolation, lack of access to extra-curricular resources, and limited exposure to academic role models. In Somerset specifically, anecdotal evidence suggests that schools often post job adverts that receive zero or very limited interest particularly for STEM (Science, Technology, Engineering and Mathematics) teachers. Although recruiting teachers is a general problem, it is acknowledged to be especially difficult in rural and coastal communities, and in areas further away from universities – all of which are the case in Somerset.

² A huge thank you to Justine for coordinating the adverts and to the following schools for participating: Fairlands Middle School, Kingsmead School, The Castle School, Ansford Academy, Bishop Fox's School, King Alfred's School, King Arthur's School, Preston School, Crispin School, Wadham School, Stanchester Academy, Robert Blake Science College, and Westfield Academy.

These trials aim to devise and evaluate ways to recruit more teachers to rural schools in Somerset, while also studying what type of teacher is most able to meet the demands of working in a rural school. That is, a successful recruitment initiative not only attracts larger numbers of applicants, but the kind of applicants that are most likely to perform well as teachers and stay for more than one year.

Design

This project involved two trials: one via a newsletter to Teach First Ambassadors (graduates of Teach First), and another via email to student teachers in Exeter University. Our goal was to vary job adverts to see what would seem most attractive, without changing job descriptions or job specifics in any way. The variants were based on the following themes:

- ◆ *The Pro-social Message* emphasized the social impact of working as a teacher in Somerset, asking teachers if they were ready to make a difference.
- ◆ *The Challenge Message* emphasised the challenge of being a teacher, asking participants if they were up for the challenge in Somerset.

Traditionally, a lot of advertisements attracting bright young people to the teaching profession have been geared towards emphasising the pro-social nature of teaching. Here we seek to test whether it is true that young people who have already signed up to being teachers are attracted by the pro-social side of teaching, or whether there is an additional element of attraction when teaching adverts make the skills and challenge of this job more salient. We hypothesise that the “challenge” frame will motivate participants to consider the additional development and learning that they will achieve, something that is increasingly important for talented youth at the beginning of their career.

The actual job adverts included the following text:

Arm	Text
Pro-Social	<p>Are you ready to make a difference?</p> <p>If you're the kind of person that is committed to improving the lives of children, you're just the person Somerset is looking for.</p> <p>Schools in Somerset are recruiting teachers right now. Learn more here.</p>
Challenge	<p>Are you up for the challenge?</p> <p>If you're the kind of person that has the skills and dedication to thrive in challenging environments, you're just the person Somerset is looking for.</p> <p>Schools in Somerset are recruiting teachers right now. Learn more here.</p>

Outcomes Measures

We collected short-term outcome measures through click through rates (CTRs) for each of the email variants. This allowed us to compare the two trial arms to each other as well as to baseline rates. For part of our sample, we will also be able to collect some additional information on demographics of those who clicked through³.

³ In future work we would also seek to consider medium-term outcomes: Medium-term outcome measures would examine the number and characteristics of job applicants. The main characteristics we would focus on are: ability and academic background (as measured by their degree classification and a ranking of the university from which they completed their first degree), pro-social motivation (as measured by survey and games such as a dictator game) and risk aversion (as measured by validated risk-aversion questions). Pro-social motivation and risk aversion would be collected by asking job applicants to participate in exercises online. Characteristics such as demographics and ability/academic background will be collected through their CVs.

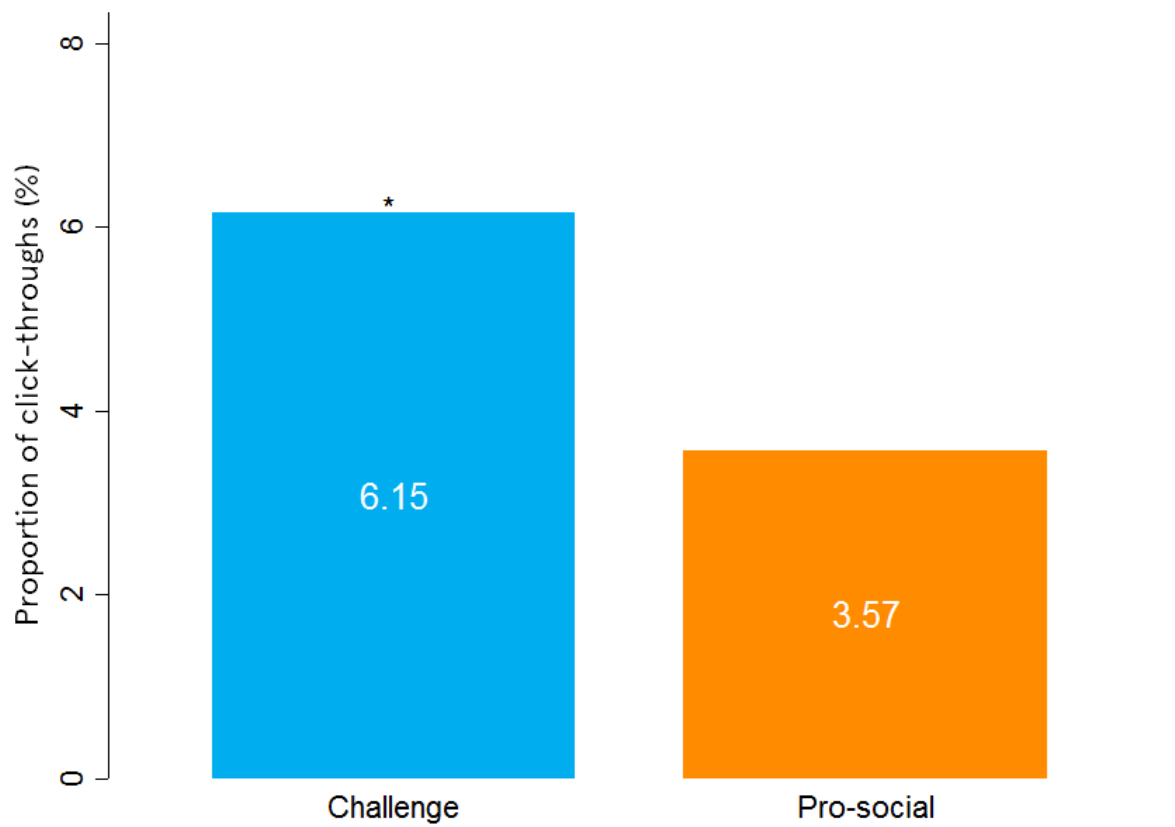
Participants

Participants included 1,009 Teach First Ambassadors (individuals who have completed the Teach First program), and 268 Exeter student teachers.

Initial Results

We found that when the teaching vacancy was presented as a challenge, people were more likely to click through to the vacancy itself, rather than when it was presented as a pro-social thing to do. In the graph below, you can see that 3.57% of people in the *pro-social* arm clicked through to the vacancy page, while 6.15% in the *challenge* arm did so. As a comparison, click through rates of approximately 1-3% are considered successful in other job adverts in this environment.

Figure 14: Click-through rates for Teacher Recruitment Trial Arms



Initial Interpretation of Findings

This trial found that changing wording for a teacher vacancy advert slightly can have large effects on how many people are interested in this position. In absolute numbers, our “challenge” variation attracted an additional 15 potential candidates to the page, compared to the pro-social message. Yet, already, the click-through

rate on the pro-social message was high compared to the rates on other job adverts using similar outreach methods. This suggests that direct advertising can be effective, in general, and that zero-cost interventions to improve messages can have large impacts on the number of interested candidates.

In future work, we'd like to understand what works best at getting the *right* applicants interested in positions, and then – more importantly – what type of message gets them to apply and commit to a position in a rural school. We hypothesise that the ideal applicant pool is already highly motivated by social impact and already pro-social, by nature, and so job adverts that highlight other aspects of their intrinsic motivation may be more effective. What we don't know, yet, is whether the same type of advert that increases interests is also the same type of advert that gets people to perform well on the job. In future work, we hope to marry these two questions.

6.2 Teacher Motivation Trial

This trial has just been completed and preliminary results are particularly interesting.

Teachers often describe their interest in teaching as pro-socially motivated, and this correlation is backed up by recent survey research. Interestingly, while teachers are found to be more pro-socially motivated at the beginning of their career, there is some evidence that this pro-social motivation slowly dissipates over time (Buurman et al. 2012).

The purpose of the following trial was to test ways to retain teacher motivation and effort, by making the pro-social nature of a teacher's work more salient. Drawing on existing evidence, the trial considered different levers for enhancing motivation. Specifically, the trial sent emails to all primary and secondary school teachers in Somerset. This involved a total pool of 9,499 teachers.

Design

The trial randomly assigned teachers to one of the following trial arms:

The self-persuasion arm asked teachers to help create material for new potential recruits that describes their own experience as teachers and the value that they see in being a teacher. It also thanked them for the hard work they have completed so far in the term.

The 'Ben' arm asked a former student to write down how he viewed the value of his former teachers' work and the impact it has had on their life. This information was then passed on to the teachers randomly assigned to this treatment group. The email also thanked them for the hard work they have completed so far in the term.

The 'Lucy' arm asked a student teacher to write about what she was excited about, regarding being a teacher. This information was then be passed on to the teachers randomly assigned to this treatment group. The email also thanked them for the hard work they have completed so far in the term.

The 'Thanks' arm was a note of thanks from the Somerset Challenge, thanking teachers for the hard work they had completed so far.

Figure 15: 'Thanks' arm email content

It's the half-way point of the year! Thank you for all your hard work, so far. Below you will find some resources to support you and our community.

Best wishes,

Simon Faull, Director of the Somerset Challenge

[For resources on improving your classroom, click here.](#)

[To support the Somerset Community Foundation, click here.](#)

Outcome Measures

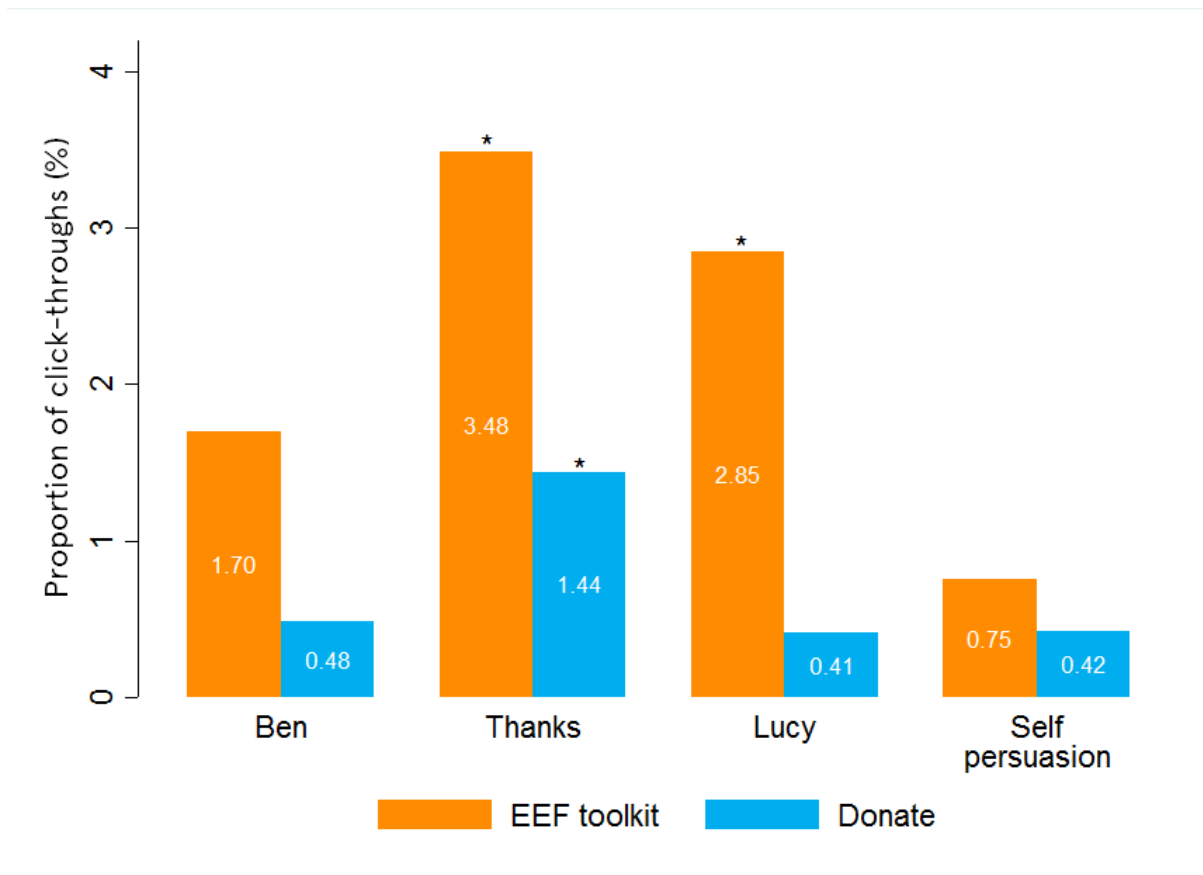
We measured the impact of the trial by studying changes in teacher behaviour on two axes: interest in improving teaching and pro-social behaviour. These emails encouraged participants to take action on two things:

1. Motivation in relation to teaching - measured by click-through rates for a link which stated "For resources on improving your classroom, click here." This led them to the EEF toolkit.
2. Pro-social giving - Measured by click-through rates for a link which stated "To support the Somerset Community Foundation, click here." This led them to a JustGiving donation page for the Somerset Community Foundation. This measure was chosen as a proxy for motivation for helping young people in their local area.

Initial Results

Findings from this trial are depicted in the graph below. We found two of the variations, a simple thank you note and a message from a student teacher, to be most effective at encouraging teachers to improve their teaching by clicking on the link to the Education Endowment Foundation. When we looked at the impact of the variations on improving pro-social behaviour, again we found the simple thank you note to be most effective.

Figure 16: Click-Through Rates for Teacher Motivation Trial Arms



Initial Interpretation of Findings

Results indicate that the simple acknowledgment of a teacher’s hard work from a fellow educator (the Director of the Somerset Challenge), can help motivate teachers to learn more about how to improve their knowledge and skills, and even show more pro-social behaviour than alternative messages. This result is somewhat counterintuitive – additional levers that make the pro-social nature of teaching more salient are not only ineffective at boosting results, they make the entire message less effective in this trial. The explanation may lie in a common behavioural insight – sometimes, the simplest call to action is often the most

effective. A second potential explanation may lie in the power of the personal – it's possible that a message that feels like a direct email from another educator, without any frills, seems more personal than a message that also quotes a peer or student that teachers may not know personally.

The results suggest that further research in this area is necessary. Moving forward, we are particularly interested in exploring whether the messenger – who signs the email – makes a difference in improving outcomes, and are also interested in seeing how this initial proxy for motivation affects actual student and teacher outcomes.

Section 7: Future directions

Overall, the first twelve months of BIT's partnership with the Somerset have been a success. Although not every trial has been a success, and not every intervention has led to an increase in outcomes of interest, a great deal has been learned that can be taken forward in the future.

- ◆ Although information about the returns to education may be helpful, the social and emotional side of university attendance shouldn't be overlooked.
- ◆ Further work is needed on our virtual learning platform. However, our initial field research suggests that there remain considerable barriers to reciprocity between teachers and students.
- ◆ Teachers' motivation for their profession is more strongly influenced by just being thanked than we might expect. They are also quite responsive to messages from younger teachers, reminding them of why they joined the profession in the first place.
- ◆ Although historically messaging around teacher recruitment has revolved around emphasising the pro-social elements of the profession, some graduates, such as those in our studies, may be more influenced by messages emphasising the "challenge" associated with the role.

We can also begin to think about future directions for this work. In particular, the next phase of this work should focus on:

- ◆ Inducing reciprocity between teachers and students, either through the virtual learning platform, or through other means.
- ◆ Further investigating the "power of thanks", delivered at a timely juncture for motivating teachers, as well as the messenger in such interactions.
- ◆ Developing new and possibly more intensive ways of connecting teachers to younger selves, perhaps through more formal, but light touch, mentoring.
- ◆ Working with schools and charities to provide a more scalable way of delivering aspirational messages to young people.
- ◆ Developing our initial recruitment findings to test larger scale trials with harder outcomes, including final teacher recruitment, retention, and performance.

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