

Your Life, Your Future: A Randomized Controlled Trial

Adeline Delavande
Emilia Del Bono*
Laura Fumagalli
Birgitta Rabe

ISER, University of Essex

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*Corresponding author: Emilia Del Bono, University of Essex, Institute for Social and Economic Research, Wivenhoe Park, CO43SQ, Colchester, (UK). Email: edelbono@essex.ac.uk.

1 Introduction

Since the increase in tuition fees to around £9000 a year, universities have been under renewed pressure to increase the proportion of disadvantaged students they enrol, with a target to double it by 2020. As a result, the HE sector now spends about £750 million a year on widening participation activities, including outreach activities in secondary schools. However, to date there is still very little evidence about what type of activities may deliver an increase in the participation of disadvantaged learners into HE, and also very limited scope to gather any such evidence from existing data. This is because the types of activities carried out are usually not designed or implemented in a way which allows a robust evaluation using a valid comparison group.

The aim of the study "Your Life, Your Future" is to design and evaluate school interventions that have the objective of increasing the participation of disadvantaged young people in higher education (HE). The interventions discussed in this report are closely modelled on the format and type of existing outreach activities, although they are novel in the sense that the activities made use of new resources and materials (e.g. videos or presentations). The target group consists of a sample of students in year 10 from a range of secondary schools in Essex. The focus on year 10 was decided on the basis that this is a key year for making decisions about post-16 education trajectories. A key focus of the project was to implement the interventions within a Randomized Controlled Trial (RCT) research framework, as this would allow a robust evaluation.

The study started in December 2018 and was conducted in 4 stages: (i) a scoping stage involving qualitative interviews and focus groups with students and teachers, and the design and administration of a scoping student survey in a small number of pilot schools; (ii) a design stage, consisting in the analysis of the results of the scoping survey, design of the intervention, and design of the post-intervention survey, (iii) a feasibility stage, with the implementation of the intervention in the pilot schools, and (iv) an intervention stage, including pre-intervention student survey, implementation of the intervention, post-intervention survey, and evaluation in all participating schools. Stages (i) to (iii) were conducted during the academic year 2018/19; the final phase was conducted during the academic year 2019/2020. This report describes the results of the intervention stage, i.e. the RCT.

2 The study timeline

The main stage of the study was conducted during the academic year 2019/2020. However, the *recruitment* of schools in the study started in June 2019, when Make Happen coordinators from all secondary schools participating in the National Collaborative Outreach Programme (NCOP) funded by the Office for Students (OfS) were invited to attend

a presentation describing the aim of the project and how it would be carried out.¹ Schools were invited to express an interest in the project and sign-up to receive more information. About 35 schools registered an interest, out of a potential pool of about 80 schools. In September 2019 all the schools who had expressed an interest were contacted again and asked to enrol formally in the study and distribute information to the parents of year 10 pupils, our prospective study participants. Our records indicate that 24 schools formally enrolled in the study as of the end of October 2019.

We allowed for a period of two weeks from the date in which schools distributed participant information sheets and consent forms to parents of year 10 pupils - in case any of the parents wanted to opt out - and then asked the schools to distribute the *baseline survey*. This was an on-line survey, coded using Qualtrics, which could be carried out during a typical period under teacher supervision. The survey could be accessed through the school IT facilities or iPads that were made available by the Make Happen team. Most schools chose to use their own IT facilities. All students in year 10 in each of the participating schools were invited to participate. The survey asked information about students' demographics, their socio-economic background, their expectations about post-16 education trajectories as well as questions on students' knowledge about the system of Higher Education financing, their perceptions about the returns to a degree in terms of earnings or employment opportunities, and their perceptions about other benefits or costs of attending university in terms of social life, participation to extra curricular activities and acquisition of wider range of skills.

The baseline survey was conducted by each school at different times between November 2019 and January 2020, depending on the availability of the Make Happen officers, the school coordinators and the school calendar. From the initial sample of 24 participating schools, only 16 schools implemented the survey while 8 schools dropped out of the sample. The reasons were varied, in some cases this had to do with changes in the leadership team, or the school deciding to focus their resources on other aspects of the students' educational experience (for example to offer more support to students with difficulties in the core subjects). The total number of year 10 students participating in the survey was 2,546 over a potential 3,087 (in the 16 schools which implemented the survey), for a response rate of 84.5% overall, including some double and incomplete responses. The total number of individual complete responses received was 2,397 for a response rate of 77.6%. Response rates differed across schools, ranging from 29.1% to 98.4%. An analysis of this baseline survey is available upon request.

The original study design envisaged a randomization of the intervention at the school level, i.e. the study team had originally planned to run the intervention in some schools and consider the other schools as a comparator group. This was to minimise the impact of spillovers or confounding effects between treated and control students. Following a power

¹NCOP is now known as Uni Connect.

calculation exercise that took into account the number of schools enrolled in the study by the end of October 2019, the number of forms, and students in the sample as well as the intra-class correlation in the main variables of interest, it was decided to proceed by randomizing the intervention within schools by form group in order to maximise the power to detect any significant effects of the intervention.² Specifically, it was decided to select two forms at random in each participating school as this would be logistically the most feasible option. Due to the fact that schools implemented the survey at different points in time, we adopted a block randomization approach. As soon as three or four schools completed the baseline survey, we assigned two forms to the Treatment group using a randomization algorithm which ensured balance according to a range of variables from the baseline survey. Notice that only 15 schools eventually entered the randomization protocol, as one school decided to drop out of the study soon after completing the baseline survey, see Section 3 below.

Following feedback from stage (i)-(iii) of the study and discussion with the Make Happen team, the *intervention* consisted of providing students with various pieces of information about the benefits of going to university, with a focus on: (a) the enjoyment of social life as a university student, and (b) knowledge of the system of HE financing. The information material was organized in three activities, including two one-hour school sessions and an in-person visit at the University of Essex main campus in Colchester. The school sessions were conducted by the Make Happen coordinator in the school and included interactive presentations, videos (featuring interviews with current students), and some activities - like quizzes - to conduct in class. The campus visit was led by Make Happen officers and University of Essex Student Ambassadors and included a tour of the Colchester campus, interactive presentations, and a workshop where students could plan their ideal schedule for a week of study at a chosen university. There was also a Q&A session at the end, where current undergraduate students answered questions from the participants. Only students in the two forms randomly selected to be in the treated group were invited to take part in these activities, the remaining students did not receive any additional activity, acting as a control group.

The timeline for the intervention was as follows. First, a Make Happen officer would run a session in school. The first session focused on general information about university (e.g. type of universities, duration of the courses, subjects etc.) and the benefits of applying to higher education in terms of earnings and employment opportunities, but also in relation to social life, acquisition of general skills, and activities available as a

²The original proposal had assumed that about 40 schools would participate in the study, but by October 2019 it had become clear that participation would be much lower. The team conducted new power calculation exercises showing that with a sample of 14-16 schools and a within school randomization (i.e. by form or tutor group) the study could detect changes in outcome variables, such as the probability of applying to university, of about 15% of a standard deviation with sufficient power. These calculations relied on the assumption that the response rate to the post-intervention survey would be similar to what observed for the baseline survey.

university student. Then the school would bring the students in the treated forms to the University of Essex campus in Colchester for the campus visit. Finally, the Make Happen officers would deliver a second school session focused on providing information about the system of Higher Education financing in England and discuss general tips on how to manage their money while at university.

Schools could only start delivering the intervention material after completing the baseline survey. As schools completed the baseline survey at different points in time, the intervention phase was staggered. Some schools delivered the first session in December 2019, others in the early months of 2020. By the time schools were forced to close due to the Covid-19 pandemic on March 23, 10 schools had delivered the first session in school and 7 had conducted the campus visit.

During the period of school closures most schools tried to continue to engage with students through on-line platforms. In consultation with the Make Happen team, we re-organized the intervention material in a way that could be delivered through Google Classroom. All the school sessions, and material for the campus visits were transferred onto Power Point presentations and one member of the Make Happen team provided recordings of these presentations so that they could be accessed by the students at any time. The presentations and any additional material (e.g. videos or quizzes) were made available by the Make Happen school coordinator to the students of the treated form groups. We asked students who viewed the material to record their participation in an on-line form, but this did not happen all the time, so it is not possible for us to know how many students were exposed to the intervention information after March 23 2020.

In June 2020 schools were asked to distribute a second on-line survey to all students in year 10 (both treated and control forms). The *endline* survey was very similar to the baseline survey in that it recorded information on students' expectations towards higher education and their expectations about the benefits of getting a degree. Some students had returned to school by then, but the provision was minimal and made difficult by staff absences. Therefore, the endline survey was distributed as an on-line survey and students were encouraged to take it from home. The endline survey was closed on July 17 2020, a few days before the end of the school year. We received responses from 657 students in total from 12 schools, for a response rate of 27%. Again, we experienced a lot of variation in responses, from 3% in one school to about 48% in another.

The pandemic was an unexpected event and the school closures that followed created many different issues for the study in terms of delivery. The main and most obvious impact of school closures would be to reduce the magnitude of the effects of the intervention, as only part of it was delivered face-to-face. However, school closures should not have any impact on the research design and the evaluation as both treated and controlled students were equally affected and the randomization was conducted within each school.³ The

³One could think that some schools might be able to respond better to the pandemic than others, but

other main impact of the pandemic was in terms of participation. Despite the best efforts of the study team and the Make Happen team, three additional schools disengaged from the study (bringing our final sample down to 12 schools) and only very few students took part in the endline survey. This is despite the fact that students were offered incentives to participate.⁴

3 The balancing of characteristics between treated and control groups

In this section we describe the results of the balancing exercise, i.e. we examine the characteristics of the students in the treated and control groups, and evaluate whether there were any statistically significant differences according to the information collected from the baseline survey. This is important as evidence of differences at baseline could be cause for concern in the interpretation of the effects, i.e. we would not be sure whether any increase in the perceived likelihood of applying to university was a consequence of the intervention rather than due to the fact that the treated individuals were different from those in the control group.

Tables 1 and 2 show the mean and standard deviation of basic demographic and family composition characteristics (Control variables); variables which capture potential barriers to understanding the benefits of attending university (Mediator variables); and variables which represent students' perceived expectations about their post-16 trajectories, including their perceived likelihood of applying to university (Outcome variables).⁵ We show the mean across the full sample of students responding to the baseline survey (column 1), the mean for the group of students in the control group (column 3), and the difference in the means between treated (T) and control (C) students (column 4). The p-value (column 5) indicates whether this difference is significant from a statistical point of view, the lower the p-value the more likely it is that the difference shown is statistically significant.

Table 1 includes all students from the 15 schools initially included in the randomization protocol, whereas Table 2 restricts the sample to the 12 schools which remained in the study until the end and carried out the post-intervention survey. We use sampling weights to take into account that students have a different probability of being selected into the treatment. This is because the number of treated forms was fixed ex-ante ($n=2$), while the number of forms in a school could vary due to school size.⁶

this would not matter in our setting.

⁴Three students from each school were chosen at random from those answering the endline survey and were awarded an iPad of the value of £349 and a one year subscription to Microsoft Office of the value of about £60. In addition, schools received an incentive of £1000 for completing the first survey and booking the campus visit, plus an additional £1000 for promoting the second and final survey.

⁵See our report on the baseline survey for more detail on each of these variables.

⁶Not all schools divide their students into form groups (which are generally about 30 students each),

Table 1: Baseline characteristics of students, all schools included in the randomization protocol

	(1) Mean	(2) St .Dev.	(3) Control mean	(4) T-C difference	(5) p-value	(6) N
Number of Schools = 15						
Control variables						
Male	0.459	0.498	0.456	0.005	0.858	2,266
English not first language	0.067	0.251	0.069	-0.005	0.751	2,238
Whether any sibling	0.813	0.390	0.813	-0.002	0.934	2,255
Single or no parent	0.261	0.439	0.248	0.032	0.235	2,255
Home environment index	0.869	0.182	0.874	-0.014	0.209	2,210
Mother's education: A-level	0.237	0.425	0.230	0.029	0.257	1,908
Mother's education: Degree	0.331	0.471	0.342	-0.036	0.192	1,908
Mediator variables						
Diff Earnings negative or zero	0.110	0.312	0.102	0.016	0.343	2,272
Diff Earnings between 0 and 20k	0.310	0.463	0.310	0.021	0.374	2,272
Diff Earnings greater than 20k	0.352	0.478	0.357	-0.021	0.436	2,272
Diff Earnings missing	0.229	0.420	0.231	-0.016	0.526	2,272
Diff probability of working	6.151	28.856	6.288	-0.381	0.795	2,163
% corrects financing of HE (8 items)	0.499	0.217	0.497	0.003	0.841	1,998
% corrects financing of tuition fees (5 items)	0.679	0.271	0.680	-0.000	0.995	1,956
% corrects financing of maintenance costs (5 items)	0.614	0.241	0.616	-0.002	0.920	1,928
Enjoyment of Social Life	-0.848	18.698	-1.083	0.683	0.536	1,991
Enjoyment of coursework or job tasks	-1.731	19.651	-2.299	1.753	0.120	1,997
Managing finance	-4.524	24.027	-4.462	-0.206	0.900	1,991
Life skills and daily activities	0.541	17.491	0.622	-0.504	0.630	1,992
Outcome variables						
Likelihood of doing A-levels	63.253	28.821	63.511	-0.420	0.769	2,089
Likelihood of doing BTECs	43.236	24.668	43.051	0.477	0.767	2,040
Likelihood of studying full-time	50.684	28.539	51.422	-1.554	0.322	2,230
Likelihood of doing a full-time apprenticeship	28.320	24.488	27.472	1.906	0.136	2,230
Likelihood of applying to university	61.643	30.743	62.048	-1.166	0.434	2,189
Likelihood of finishing university	72.238	27.479	72.290	0.166	0.913	2,183

Note: Means, standard deviations of the reported variable, and difference between Treated and Control group with its associated p-value. A p-value less than 0.100 indicates the difference is statistically significant at 10%; a p-value of less than 0.050 indicates the effect is statistically significant at 5%; a p-value of less than 0.001 indicates the effect is statistically significant at 1%. All observations are weighted by the inverse probability of being selected in the treated group, which depends on the number of form groups by school.

Table 2: Baseline characteristics of students, all schools completing the study

	(1)	(2)	(3)	(4)	(5)	(6)
	Mean	St .Dev.	Control mean	T-C difference	p-value	N
Number of Schools = 12						
Control variables						
Male	0.446	0.497	0.448	-0.012	0.644	1,808
English not first language	0.070	0.255	0.073	-0.011	0.538	1,787
Whether any sibling	0.813	0.390	0.811	0.003	0.900	1,798
Single or no parent	0.260	0.439	0.242	0.048	0.105	1,798
Home environment index	0.871	0.184	0.878	-0.020	0.096	1,766
Mother's education: A-level	0.230	0.421	0.226	0.021	0.459	1,530
Mother's education: Degree	0.339	0.474	0.352	-0.040	0.220	1,530
Mediator variables						
Diff Earnings negative or zero	0.113	0.317	0.103	0.024	0.263	1,813
Diff Earnings between 0 and 20k	0.301	0.459	0.297	0.037	0.169	1,813
Diff Earnings greater than 20k	0.354	0.478	0.367	-0.044	0.157	1,813
Diff Earnings missing	0.232	0.422	0.234	-0.016	0.580	1,813
Diff probability of working	6.119	28.267	6.603	-1.499	0.329	1,720
% corrects financing of HE (8 items)	0.497	0.216	0.496	-0.000	0.993	1,582
% corrects financing of tuition fees (5 items)	0.673	0.270	0.676	-0.007	0.676	1,555
% corrects financing of maintenance costs (5 items)	0.610	0.242	0.618	-0.017	0.313	1,530
Enjoyment of Social Life	-0.318	18.437	-0.449	0.382	0.712	1,576
Enjoyment of coursework or job tasks	-1.298	19.504	-1.519	0.586	0.638	1,576
Managing finance	-4.108	23.925	-3.941	-0.444	0.787	1,573
Life skills and daily activities	0.942	17.286	1.393	-1.686	0.069	1,576
Outcome variables						
Likelihood of doing A-levels	63.796	28.729	64.518	-1.961	0.167	1,667
Likelihood of doing BTECs	43.388	24.788	43.304	0.204	0.909	1,628
Likelihood of studying full-time	51.793	28.833	52.665	-1.994	0.241	1,780
Likelihood of doing a full-time apprenticeship	27.810	24.767	26.837	2.274	0.116	1,780
Likelihood of applying to university	61.938	30.643	62.447	-1.534	0.371	1,746
Likelihood of finishing university	72.095	27.520	72.522	-1.120	0.452	1,741

Note: Means, standard deviations of the reported variable, and difference between Treated and Control group with its associated p-value. A p-value less than 0.100 indicates the difference is statistically significant at 10%; a p-value of less than 0.050 indicates the effect is statistically significant at 5%; a p-value of less than 0.001 indicates the effect is statistically significant at 1%. All observations are weighted by the inverse probability of being selected in the treated group, which depends on the number of form groups by school.

The tables show clearly that the sample is balanced across treated and control groups, i.e. we see no significant difference in any of the variables shown (all the p-values are well above the standard threshold of 0.05). This is what we expect to see on the total sample of schools in Table 1, as the randomization was carried out by considering the data from the baseline survey by blocks (i.e. groups of schools - we constructed a total of 5 blocks) and assigning students to treated and control groups in a way that would balance all the observed variables in each block.⁷ It is however also reassuring to see this for the sample of schools which completed the post-intervention survey in July 2020. Here we only have 12 schools, but again the characteristics of the students at baseline shown in Table 2 appear to be balanced. The only potential issue we notice is that there seem to be a relatively large difference in the number of students coming from single parent families and in the home index indicator between the treated and control group, with evidence that the treated group was slightly more disadvantaged. This difference does not appear to be statistically significant, but might be still indicative of a slight imbalance and we expect that this would attenuate any positive effects of the intervention.

4 Attrition

In this section we consider the issue of attrition, i.e. we analyse whether the probability of replying to the post-intervention survey depends on individual characteristics and - most importantly - whether it was different for students in the treated *vs.* control group. This is important to ensure that the results we will discuss later on are not a function of drop-out rates from the study, but can be confidently attributed to the intervention. All the results in this section apply to the sample of 12 schools which participated to the study until the end of the academic year, i.e. we consider here attrition of *students* in the sample conditional on the school continuing to participate. Overall, we observe 552 students who reply to the post-intervention survey out of a sample of 1813 respondents to the baseline survey (considering only the 12 schools which participate until the end of the study), for a response rate of 30.5%.

Tables 3 and 4 report the effect of the treatment on the probability of replying to the post-intervention survey after controlling for individual characteristics and the value at baseline of each of the variables shown. As we can see there is no evidence that treatment status affected student dropout and this is true when controlling for all the outcome variables at baseline or each of the mediating factors.

some schools have a different structure, with small tutor groups. We take these features into account in the randomization by selecting about 60 students in all the schools, and always keep students from the same tutor groups either in the treated or control groups.

⁷We received few additional replies to the survey even after the randomization was performed, and there was missing information on form group at baseline which we then added to the data later on. So, in theory we could see some unbalances ex-post.

An example of one of the regressions whose results are reported in Table 3 is shown in Table A.1 in the Appendix. Here we run a regression in which the dependent variable is equal to 1 if the student replied to the post-intervention survey and 0 otherwise on the indicator variable for treatment (column 1). The coefficient on the variable treatment is -0.013 and not statistically significant. Then we add to the regression some of the individual characteristics we observe (our Control variables). We notice that male students and students coming from more advantaged families - i.e. families where the home environment index is higher - have a lower probability to reply to the post-intervention survey. We also control (in all our regression) for the randomization block, to take into account that students completed the baseline survey at different points in time. Students in block 2 have a lower probability to reply to the final survey than students in block 1 (omitted group). However, none of these differences affects the effect of treatment on the probability of dropout.⁸

Next (column 3) we control for the value of the outcome variable - in this case the perceived likelihood of doing A-levels - and then we interact this with the randomization block (column 4). There is a positive effect of the outcome variable on the probability to reply to the post-intervention survey, but this is small and again it does not affect the coefficient on treatment status. Overall, this analysis suggests that dropout from the baseline to the post-intervention survey is a function of some individual characteristics which we can control for, but it is not related to participation to the intervention.

Table 3: Effect of attrition on main outcomes

	Estimate	st. err.	p-value	N
Likelihood of doing A-levels	-0.018	0.049	0.707	1,408
Likelihood of doing BTECs	-0.021	0.048	0.670	1,386
Likelihood of studying full-time	-0.009	0.048	0.845	1,487
Likelihood of doing a full-time apprenticeship	-0.010	0.047	0.842	1,487
Likelihood of applying to university	-0.011	0.049	0.816	1,465
Likelihood of finishing university	-0.011	0.049	0.821	1,462

Note: Point estimate and standard error of the effect of treatment status on the probability to reply to the post-intervention survey. A p-value less than 0.100 indicates the difference is statistically significant at 10%; a p-value of less than 0.050 indicates the effect is statistically significant at 5%; a p-value of less than 0.001 indicates the effect is statistically significant at 1%. All observations are weighted by the inverse probability of being selected in the treated group, which depends on the number of form groups by school. The standard errors take into account of clustering by form group.

⁸This is due to the fact that one of the schools which was included in block 2 dropped out of the study.

Table 4: Effect of attrition on mediators

	Estimate	st. err.	p-value	N
Diff probability of working	0.012	0.059	0.841	1,004
% corrects financing of HE (8 items)	0.021	0.059	0.722	1,004
% corrects academic trajectories to HE (8 items)	0.012	0.059	0.844	1,003
% corrects financing of tuition fees (5 items)	0.006	0.060	0.923	1,004
% corrects financing of maintenance costs (5 items)	0.010	0.059	0.871	1,004
Enjoyment of Social Life	0.011	0.059	0.856	1,004
Enjoyment of coursework or job tasks	0.012	0.059	0.844	1,004
Managing finance	0.009	0.057	0.871	1,004
Life skills and daily activities	0.010	0.058	0.863	1,004
Diff Earnings negative or zero	0.012	0.057	0.835	1,004
Diff Earnings between 0 and 20k	0.010	0.059	0.863	1,004
Diff Earnings greater than 20k	0.005	0.058	0.933	1,004
Diff Earnings greater than 20k	0.011	0.060	0.860	1,004

Note: Point estimate and standard error of the effect of treatment status on the probability to reply to the post-intervention survey. A p-value less than 0.100 indicates the difference is statistically significant at 10%; a p-value of less than 0.050 indicates the effect is statistically significant at 5%; a p-value of less than 0.001 indicates the effect is statistically significant at 1%. All observations are weighted by the inverse probability of being selected in the treated group, which depends on the number of form groups by school. The standard errors take into account of clustering by form group.

5 Effects of the intervention

In this section we consider the effects of the intervention on the main outcomes and mediators. We do so by looking at the relationship between the value of each of these variables at the time of the final survey and the treatment status while controlling for individual baseline characteristics, including the initial (i.e. at baseline) value of the dependent variable. We are obviously restricted here to the sample of students which reply to both the baseline and the post-intervention survey, i.e. 552 observations.⁹

Table 5 shows the coefficient of the treatment variable for the main outcomes. As we can see, the effects mainly go in the expected direction, i.e. we see an increase in the perceived likelihood of doing A-levels or BTECs compared to the control group. Focusing on the effect on the probability to apply to university, we see this is about 2.1 percentage points, which represents 3.4% of the overall mean and about 6.6% of the standard deviation of the main variable in the total sample (see Table 2). It is however only a relatively small effect, and it is not statistically significant at the conventional level, i.e. it is indistinguishable from zero. Similarly, we do not detect any significant impact of the intervention on any of the other outcomes.

We next explore in more detail the effect of the intervention on the variables that were

⁹This is the total sample that replies to both surveys, but in our analysis we will have a smaller number of observations as in some cases the variables used are missing.

the direct target of the intervention, i.e. the mediators. Here Table 6 shows that the intervention did not seem to have an impact on students’ perceptions of the pecuniary returns to a degree - in terms of earnings and probability of employment - but it did have an impact on the students’ understanding of the system of HE financing, which was substantially improved after the intervention. However, we also see a negative and statistical significant effect on the variable “Managing finance”, which represents how students perceive the financial aspects of attending university. Here the negative coefficient shows that the intervention has made students more anxious about their finances, perhaps an unintended consequence of their better understanding of issues around university fees and debt.

Table A.2 in Appendix shows our results in more detail. Here we start with a model where the perceived likelihood of applying to university at the end of the school year is regressed on a 0/1 variable for the treatment and the baseline value of the dependent variable (column 1). The coefficient of 0.691 on the baseline variable shows that there is a significant and substantial persistence in expectations about higher education over time, as we would expect. The treatment variable has a very small coefficient however and is not statistically significant. In column 2 we add variables which reflect the way in which the randomization was performed (i.e. by blocks of schools) and which partly capture the fact that different schools finished the baseline surveys at a different time. Then in column 3 and 4 we add some of the characteristics of the sample at baseline. As we can see, the effect of the intervention becomes larger. A possible explanation for this change in the size of the coefficient is that since the treated group was on average slightly more disadvantaged than the control group, controlling for baseline characteristics gives us a better indication of the potential size of the treatment effect.

Table 5: Effects of the intervention on outcomes

	Estimate	st. err.	p-value	N
Likelihood of doing A-levels	0.181	2.177	0.934	472
Likelihood of doing BTECs	1.745	2.260	0.444	459
Likelihood of studying full-time	-0.742	1.773	0.678	501
Likelihood of doing a full-time apprenticeship	-0.509	1.207	0.675	501
Likelihood of applying to university	2.094	2.007	0.302	487
Likelihood of finishing university	1.375	1.385	0.326	486

Note: Effect of treatment on dependent variable shown and its associated p-value. A p-value less than 0.100 indicates the difference is statistically significant at 10%; a p-value of less than 0.050 indicates the effect is statistically significant at 5%; a p-value of less than 0.001 indicates the effect is statistically significant at 1%. All observations are weighted by the inverse probability of being selected in the treated group, which depends on the number of form groups by school. The standard errors take into account of clustering by form group.

Table 6: Effects of the intervention on mediators

	Estimate	st. err.	p-value	N
Diff Earnings negative or zero	-0.019	0.029	0.520	532
Diff Earnings between 0 and 20k	-0.041	0.041	0.322	532
Diff Earnings greater than 20k	0.081	0.049	0.110	532
Diff Earnings missing	-0.019	0.030	0.520	532
Diff probability of working	1.519	2.259	0.505	482
% corrects financing of HE (8 items)	0.100	0.022	0.000	414
% corrects financing of tuition fees (5 items)	0.025	0.021	0.250	403
% corrects financing of maintenance costs (5 items)	0.027	0.021	0.203	397
Enjoyment of Social Life	0.545	1.338	0.686	422
Enjoyment of coursework or job tasks	0.016	1.376	0.991	421
Managing finance	-4.277	1.700	0.015	421
Life skills and daily activities	1.905	1.410	0.183	422

Note: Effect of treatment on dependent variable shown and its associated p-value. A p-value less than 0.100 indicates the difference is statistically significant at 10%; a p-value of less than 0.050 indicates the effect is statistically significant at 5%; a p-value of less than 0.001 indicates the effect is statistically significant at 1%. All observations are weighted by the inverse probability of being selected in the treated group, which depends on the number of form groups by school. The standard errors take into account of clustering by form group.

6 Effects by mother's education

It is possible that the effects we estimate on the overall sample hide significant differences by subgroups. In particular, we are interested to see whether the intervention might have had an effect on more disadvantaged students or from low SES families. Our indicator for SES is the education of the mother, and we distinguish between students whose mother does not have a degree from those where the mother has a degree, as this was the most significant aspect related to a variety of educational aspirations as identified by our baseline report.

Table 7 reports the results of this analysis. Here we have two sets of estimates, the first set (columns 1-3) represents the effect of the intervention on students from low SES families, its standard error and p-value; the second set represent the difference between the effect on students from low SES and those from high SES families (column 4-6). As we can see for the main outcomes, we can detect a negative and statistically significant effect of the intervention on the perceived likelihood of doing a full-time apprenticeship, and a positive and statistically significant effect on the perceived likelihood of finishing university or obtaining a degree. The effect on the perceived likelihood of applying to university is larger for this group at 4.6 although not statistically significant.

Table 7: Effects by mother’s education on outcomes

	Mother w/out Degree			Interaction Effect			N
	Estimate	st. err.	p-value	Estimate	st. err.	p-value	
Likelihood of doing A-levels	0.914	2.785	0.744	-1.064	4.686	0.821	432
Likelihood of doing BTECs	0.207	3.160	0.948	3.697	5.671	0.518	423
Likelihood of studying full-time	2.841	2.594	0.279	-5.683	3.878	0.150	453
Likelihood of doing a full-time apprenticeship	-4.445	1.563	0.007	9.419	2.384	0.000	453
Likelihood of applying to university	4.621	3.218	0.158	-4.201	4.383	0.343	439
Likelihood of finishing university	3.607	1.841	0.056	0.973	2.937	0.742	438

Note: Effect of treatment on dependent variable shown and its associated p-value. A p-value less than 0.100 indicates the difference is statistically significant at 10%; a p-value of less than 0.050 indicates the effect is statistically significant at 5%; a p-value of less than 0.001 indicates the effect is statistically significant at 1%. All observations are weighted by the inverse probability of being selected in the treated group, which depends on the number of form groups by school. The standard errors take into account of clustering by form group.

Table 8: Effects by mother’s education on mediators

	Mother w/out Degree			Interaction Effect			N
	Estimate	st. err.	p-value	Estimate	st. err.	p-value	
Diff Earnings negative or zero	0.006	0.030	0.829	-0.052	0.042	0.216	483
Diff Earnings between 0 and 20k	-0.030	0.062	0.630	-0.044	0.093	0.635	483
Diff Earnings greater than 20k	0.067	0.073	0.362	-0.028	0.113	0.807	483
Diff Earnings missing	-0.043	0.039	0.283	0.121	0.079	0.129	483
Diff probability of working	0.813	3.358	0.810	1.597	6.037	0.793	435
% corrects financing of HE (8 items)	0.091	0.027	0.002	0.007	0.053	0.893	378
% corrects financing of tuition fees (5 items)	0.063	0.024	0.011	-0.115	0.053	0.034	367
% corrects financing of maintenance costs (5 items)	0.048	0.029	0.109	-0.061	0.045	0.178	360
Enjoyment of Social Life	3.037	1.698	0.080	-6.584	3.886	0.097	382
Enjoyment of coursework or job tasks	-0.136	1.548	0.930	0.102	3.392	0.976	381
Managing finance	-4.908	2.777	0.084	2.310	3.962	0.563	381
Life skills and daily activities	4.418	1.404	0.003	-6.628	2.738	0.019	382

Note: Effect of treatment on dependent variable shown and its associated p-value. A p-value less than 0.100 indicates the difference is statistically significant at 10%; a p-value of less than 0.050 indicates the effect is statistically significant at 5%; a p-value of less than 0.001 indicates the effect is statistically significant at 1%. All observations are weighted by the inverse probability of being selected in the treated group, which depends on the number of form groups by school. The standard errors take into account of clustering by form group.

In terms of the mediating factors, Table 8 shows once again that the intervention had its most significant impact on students’ understanding of the system of HE financing. Interestingly though, we see that it had a positive and significant effect also on low SES students’ perceptions about the value of university in terms of acquisition of life skills and (to a lesser extent) social life.

Overall these results show two things. First, they tell us that the intervention had

most of its impact on the aspects which the programme wanted to emphasise, i.e. the understanding of the system of HE financing and the non-pecuniary aspects of attending university. Second, it seems that the effects are particularly strong on low SES students, who benefit most.

7 Subsample of schools that participated in the campus visit

Given that the intervention was disrupted due to school closure in March 2020, we also run our analysis on the subsample of 7 schools that were able to carry out the campus visit in person. It is possible that the effects are larger for this group of students as they had a more personal experience and received a more intense intervention. On the other hand it is also possible that these students received the intervention earlier on, and if the effects fade with time we might expect a weaker impact.

Tables 9 and 10 show the results on the main outcomes and mediators, respectively. As we can see, there are no significant differences compared to the main analysis presented in section 5. Once again we do not see any significant effect on the outcomes, although effect sizes are again in the expected direction and sometimes substantially larger than for the full sample (e.g. see the coefficient for the perceived likelihood of doing A-levels). In terms of the mediators, we see most of the effects operating through students' understanding of the system of HE financing, with negative repercussion for their perception of the management of finance while at university. There is indication of a positive effect on perceptions of earning gains (significant at the 10% level), but no sign that this group of students experienced a significant increase in their perception of the non-pecuniary benefits of going to university, which what we would have expected.

Table 9: Effects on outcomes, subsample with campus visit

	Estimate	st. err.	p-value	N
Likelihood of doing A-levels	2.648	2.415	0.281	345
Likelihood of doing BTECs	0.803	2.121	0.707	339
Likelihood of studying full-time	0.956	1.975	0.632	365
Likelihood of doing a full-time apprenticeship	-1.322	1.429	0.361	365
Likelihood of applying to university	2.837	2.488	0.262	360
Likelihood of finishing university	1.365	1.619	0.405	359

Note: Effect of treatment on dependent variable shown and its associated p-value. A p-value less than 0.100 indicates the difference is statistically significant at 10%; a p-value of less than 0.050 indicates the effect is statistically significant at 5%; a p-value of less than 0.001 indicates the effect is statistically significant at 1%. All observations are weighted by the inverse probability of being selected in the treated group, which depends on the number of form groups by school. The standard errors take into account of clustering by form group.

Table 10: Effects on mediators, subsample with campus visit

	Estimate	st. err.	p-value	N
Diff Earnings negative or zero	-0.005	0.039	0.907	386
Diff Earnings between 0 and 20k	-0.044	0.048	0.369	386
Diff Earnings greater than 20k	0.110	0.058	0.067	386
Diff Earnings missing	-0.065	0.027	0.023	386
Diff probability of working	-0.206	2.930	0.944	357
% corrects financing of HE (8 items)	0.118	0.024	0.000	325
% corrects financing of tuition fees (5 items)	0.013	0.025	0.616	315
% corrects financing of maintenance costs (5 items)	0.029	0.023	0.229	314
Enjoyment of Social Life	0.233	1.410	0.870	327
Enjoyment of coursework or job tasks	-0.456	1.528	0.767	327
Managing finance	-5.429	1.909	0.008	324
Life skills and daily activities	1.103	1.681	0.516	326

Note: Effect of treatment on dependent variable shown and its associated p-value. A p-value less than 0.100 indicates the difference is statistically significant at 10%; a p-value of less than 0.050 indicates the effect is statistically significant at 5%; a p-value of less than 0.001 indicates the effect is statistically significant at 1%. All observations are weighted by the inverse probability of being selected in the treated group, which depends on the number of form groups by school. The standard errors take into account of clustering by form group.

8 Discussion

During the academic year 2019/20, several secondary schools in Essex took part in the Your Life, Your Future study. The aim of the study was to investigate how year 10

students make decisions about their future in education, what are the factors that influence these decisions, and how these vary by socio-economic status. Following a baseline survey conducted in the Autumn of 2019, students from two randomly chosen forms in each school received an information intervention in order to remove perceived barriers preventing access to Higher Education. A follow-up survey took place in the summer of 2020 to capture any changes in student’s knowledge and attitudes towards university studies after the intervention.

Unfortunately, the delivery of the intervention was disrupted by school closures caused by the COVID-19 pandemic. This meant that only some students received a face-to-face intervention, while others were able to access information about the costs and benefits of Higher Education only through on-line material. In addition to this, several schools dropped out of the study as a consequence of the difficulties created by school closures. While these are significant challenges for the study and the analysis presented here, they do not invalidate the research design and do not impede an evaluation of the intervention. The reason is that the randomization of the students into a treated and control group was done within schools, and it remains robust to selective school dropout due to the pandemic.

The main issue we are confronted with is that response rates to the follow-up survey were substantially below what could have been expected on the basis of the baseline survey (which achieved a response rate of 84.5%), with an achieved rate of 27%. Although, our analysis of the data shows that there was no significant attrition of students according to assignment to the treatment, the small sample size achieved means that the intervention would have to generate very large effects for us to identify them with enough statistical precision.

Keeping these caveats in mind, we find that the intervention increased students’ perceived likelihood of obtaining A-level qualifications and applying for university and a corresponding reduction in the perceived likelihood of choosing the apprenticeship route. However, the magnitude of the effects is modest in magnitude and is not statistically significant in general, although we find evidence that these effects are stronger for students coming from lower SES families, here represented by the level of educational qualification of the mother (with and without degree).

In terms of the factors which can explain these changes in students’ aspirations towards Higher Education, we consider the monetary and non-monetary costs and benefits of a university degree. In particular, the intervention provided information on the system of Higher Education financing in England with a view to make students aware of the support available. We see that the intervention significantly improved the students’ understanding of the financing of their higher education studies. At the same time though, it made them more aware of the issues involved and, perhaps as a consequences of this, treated students generally expressed more anxiety about managing their finances. It follows that it is

important to be aware that providing students with information about the system of fees, loans and debt repayment comes with a potential cost and will not necessarily lead to widen access to Higher Education.

Another focus of the intervention was to emphasise the non-monetary benefits of Higher Education, including the enjoyment of social life and the accumulation of new skills and experiences. We do not find any significant effect of the intervention on these aspects overall, but looking specifically at students whose mothers do not have a degree, we see some larger and statistically significant effects both on the perceived benefits of university in terms of enjoyment of social life and on the perceived value of life skills potentially gained. These effects were not particularly large however, and clearly did not have a strong impact on overall educational expectations. This would seem to suggest that focusing on the non-monetary benefits of attending university might not be a very fruitful route for interventions aimed at reducing barriers to higher education.

A Appendix

Table A.1: Probability to reply to the post-intervention survey: Likelihood of applying to university

	(1)	(2)	(3)	(4)
Treatment assignment	-0.013 (0.055)	-0.013 (0.048)	-0.009 (0.049)	-0.011 (0.049)
Male		-0.098*** (0.024)	-0.089*** (0.026)	-0.088*** (0.025)
English not first language		-0.022 (0.061)	-0.038 (0.059)	-0.038 (0.058)
Whether any sibling		-0.040 (0.044)	-0.041 (0.043)	-0.043 (0.042)
Single or no parent		-0.116*** (0.025)	-0.117*** (0.026)	-0.118*** (0.026)
Home environment index		0.171*** (0.063)	0.136* (0.068)	0.129* (0.067)
Mother's education: GCSE or below		-0.059 (0.039)	-0.034 (0.036)	-0.034 (0.036)
Mother's education: A-level		-0.025 (0.046)	-0.013 (0.042)	-0.011 (0.040)
Block=2		-0.187*** (0.062)	-0.192*** (0.065)	-0.107 (0.095)
Block=3		-0.068 (0.065)	-0.073 (0.067)	-0.168 (0.117)
Block=4		0.052 (0.093)	0.056 (0.092)	-0.044 (0.121)
Block=5		-0.026 (0.067)	-0.033 (0.069)	-0.036 (0.105)
Likelihood of applying to university			0.001** (0.000)	0.001 (0.001)
Block=2 × Likelihood of applying to university				-0.001 (0.001)
Block=3 × Likelihood of applying to university				0.002 (0.002)
Block=4 × Likelihood of applying to university				0.002 (0.001)
Block=5 × Likelihood of applying to university				0.000 (0.001)
Constant	0.314*** (0.023)	0.348*** (0.098)	0.282*** (0.099)	0.326*** (0.112)
Observations	1813	1501	1465	1465

Note: Excluded categories: Mother's education: degree or above, female, English is main language, no siblings. All models include weights to account for the probability of being in the treatment. The likelihood of studying A-levels is asked to respondents who reported a non-zero likelihood of studying full-time. Symbols: * indicates the effect is statistically significant at 10%; ** indicates the effect is statistically significant at 5%; *** indicates the effect is statistically significant at 1%.

Table A.2: Effects of the intervention on: Likelihood of applying to university

	(1)	(2)	(3)	(4)
Treatment assignment	0.915 (2.811)	0.902 (2.110)	1.578 (2.115)	2.094 (2.007)
Likelihood of applying to university	0.691*** (0.024)	0.685*** (0.027)	0.677*** (0.026)	0.658*** (0.028)
Block=2		-13.938*** (4.186)	15.387*** (4.418)	15.496*** (4.180)
Block=3		1.897 (3.197)	1.016 (3.239)	-0.346 (3.164)
Block=4		2.180 (3.169)	1.171 (3.037)	0.253 (2.863)
Block=5		-5.259* (2.850)	-6.059** (2.857)	-6.960** (2.624)
Single or no parent			-2.898 (3.248)	-3.252 (2.878)
Home environment index			0.261 (6.491)	-0.816 (6.677)
Male				-1.676 (2.163)
English not first language				6.429 (4.099)
Whether any siblings				0.034 (2.433)
Mother's education: GCSEs or below				-4.951* (2.515)
Mother's education: A level				-2.247 (2.423)
Constant	20.374*** (1.980)	21.376*** (2.443)	22.843*** (6.766)	28.526*** (6.887)
Observations	498	498	495	487

Note: Excluded categories: Mother's education: degree or above, female, English is main language, no siblings. All models include weights to account for the probability of being in the treatment. The likelihood of studying A-levels is asked to respondents who reported a non-zero likelihood of studying full-time. Symbols: * indicates the effect is statistically significant at 10%; ** indicates the effect is statistically significant at 5%; *** indicates the effect is statistically significant at 1%.