Engagement-Boosting Reminders to Improve
Pupil Attendance and Engagement
Nimble Trial Protocol

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PROJECT TITLE[1]	Engagement-Boosting Reminders to Improve Pupil Attendance and Engagement: a randomised controlled trial
DEVELOPER (INSTITUTION)	The Behavioural Insights Team
EVALUATOR (INSTITUTION)	The Behavioural Insights Team
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PROTOCOL AUTHOR(S)	Yihan Xu, Giulia Tagliaferri, Rizwaan Malik, Lal Chadeesingh, Matthew Holt, Kim Bohling
TRIAL DESIGN	A 3-arm randomised controlled trial with random allocation at the pupil level
PUPIL AGE RANGE AND KEY STAGE	Secondary GCSE, 14~16 years old
NUMBER OF PUPILS[2]	5,000 (approximate)
PRIMARY OUTCOME MEASURE AND SOURCE	Pupil attendance rate in tutoring sessions (0~100%), from the tutoring partner Pearson/Bramble
SECONDARY OUTCOME MEASURE AND SOURCE	Pupil attendance rate in tutoring sessions (0~100%) among pupil premium (PP) pupils, from the tutoring partner Pearson/Bramble
EXPLORATORY OUTCOME MEASURE AND SOURCE	Tutor's average rating of pupils' engagement (0~100), from the tutoring partner Pearson/Bramble Tutor's average rating of pupils' engagement (0~100) among PP pupils, from the tutoring partner Pearson/Bramble

Protocol version history

VERSION	DATE	REASON FOR REVISION
1.1 [*latest*]		

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[1] Make sure that the project title here matches the title of the document. Please ensure that there is an identification as a randomised trial in the title as per CONSORT requirements.
[2] Replace with other population (e.g., teachers, tutors), if needed

1.0 [*original*]	5 March 2021	

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1. Study rationale and background

Research purpose: To test whether behaviourally informed reminder messages, sent directly to pupils via email, can improve their attendance and engagement in online tutoring sessions.

There is strong evidence that timely reminders are an effective way to influence key behaviours. This has been found in a range of contexts, and across a range of countries. For example, timely, behaviourally informed reminders have been shown to reduce missed hospital appointments[3], reduce missed careers appointments[4], improve school attendance[5], support medication adherence[6], and aid smoking cessation[7].

This literature also provides evidence that the specific framing of reminders is important, with previous studies showing substantial differences between differently worded reminders.

- A previous BIT study[8] demonstrated that motivation-related barriers can be influenced with carefully constructed messaging. Attendance at adult career appointments was improved by emphasising that "no one is born with a perfect career" and that "time and effort can boost your skills". This phrasing sought to help recipients believe in their own ability to progress, and significantly outperformed simple information-only reminder messages.
- A previous BIT study[9] trialled multiple message frames to reduce missed hospital appointments. The trial found that only one of the frames - in this case, emphasising the cost of missed appointments - was successful in reducing the number of missed appointments.
- A previous Harvard University study[10] trialled the impact of differently framed parental notification messages on truancy and found that notifications using a loss aversion frame (highlighting the negative incremental effects of missing school) were more effective than the standard ones.

Impact evaluation: A multi-arm (3) randomised controlled trial, randomised at the **pupil** level, with outcomes measured at the **pupil** level.

Implementation and Process Evaluation (IPE):
- Descriptive statistics measuring compliance, implementation fidelity, reach and dosage (definitions provided in the IPE section)
- Two interviews with delivery partners exploring content fidelity and intervention quality

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[3] Hallsworth M, Berry D, Sanders M, Sallis A, King D, Vlaev I, et al. (2015) Stating Appointment Costs in SMS Reminders Reduces Missed Hospital Appointments: Findings from Two Randomised Controlled Trials. PLoS ONE 10(9): e0137306. https://doi.org/10.1371/journal.pone.0137306

[4] The Behavioural Insights Team (2018) Annual Update Report 2017-18. Accessed at: https://www.bi.team/wp-content/uploads/2020/10/Annual-update-report-BIT-2017-2018-3.pdf

[5] https://www.bi.team/blogs/improving-student-attendance-through-timely-nudges/

[6] Orr, J.A. (2014). Mobile phone SMS messages can enhance healthy behaviour: A meta-analysis of randomised controlled trials. *Health Psychology Review, 9*(4), 397-416.

[7] Orr, J.A. (2014). Mobile phone SMS messages can enhance healthy behaviour: A meta-analysis of randomised controlled trials. Health Psychology Review, 9(4), 397-416.

[8] The Behavioural Insights Team (2018) Annual Update Report 2017-18. Accessed at: https://www.bi.team/wp-content/uploads/2020/10/Annual-update-report-BIT-2017-2018-3.pdf

[9] Hallsworth M, Berry D, Sanders M, Sallis A, King D, Vlaev I, et al. (2015) Stating Appointment Costs in SMS Reminders Reduces Missed Hospital Appointments: Findings from Two Randomised Controlled Trials. PLoS ONE 10(9): e0137306. https://doi.org/10.1371/journal.pone.0137306

[10] Lasky-Fink J, Robinson C, Chang H, Rogers T (2019) Using Behavioral Insights to Improve Truancy Notifications. HKS Working Paper. HKS Working Paper No. RWP19-026, August 2019, Available at SSRN: https://ssrn.com/abstract=3440376 or http://dx.doi.org/10.2139/ssrn.3440376

- 30 anonymous qualitative feedback forms from pupils addressing intervention quality and the mechanisms supporting or challenging pupil engagement

2. Intervention and implementation

In each treatment arm, pupils will receive a behaviourally informed reminder message via email, leveraging one or more behavioural insights. Both treatment arms will draw on a range of behavioural insights: a 'BI kitchen sink' approach. The key difference between the treatment arms will be in terms of framing: one treatment arm will have a neutral frame, while the other will use a 'loss aversion' frame, positioning tutoring sessions as important for catching up on missed in-person schooling - see **Table 1** for a high-level overview of the intervention, and Appendix A for the draft messages. This message is received by pupils at 8am the day before their tutoring session and is personalised with their name and their lesson time. Both the email subject line and email body will be modified.

Pupils in the control condition will receive the Tutoring Provider's business as usual (BAU) reminder message. This message is received by pupils at 8am the day before their tutoring session and the body of the message is personalised with their name. It does not include personalised information on their lesson time. An example of the BAU control message can be found in Appendix A.

In all arms of the trial, tutees are likely to access a tutoring session by opening the reminder email and clicking on the embedded link (which takes them to their 'schedule', from which they can access their sessions). However, tutees could also theoretically bookmark the page and then join tutoring sessions without opening emails.

The intervention will be delivered in two stages as follows.
1. The Tutoring Provider's technology partner (Bramble[11]) will randomly assign new pupils to one of the RCT arms through a programme embedded in their platform. (See Section 3.3 Randomisation for more details, and Section 6 Risks for how we plan to mitigate implementation risks).
2. Pupils will automatically receive the associated reminder messages for their particular RCT arm at 8am the day before their session.

Table 1. Intervention description

INTERVENTION NAME	Engagement-Boosting Reminders to Improve Pupil Attendance and Engagement
WHY (THEORY/RATIONALE)	There is strong evidence that the framing of reminders is important to their efficacy, with previous studies showing substantial differences between differently worded reminders.[12][13][14]
WHO (RECIPIENTS)	Pupils will receive the intervention messages.
WHAT (MATERIALS)	Pupils will receive one behaviourally informed reminder message each week. The messages will seek to increase pupil motivation for tutoring and to improve

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[11] Bramble is a digital technology provider that delivers online tutoring solutions to mainstream tutoring partners.
[12] Hallsworth M, Berry D, Sanders M, Sallis A, King D, Vlaev I, et al. (2015) Stating Appointment Costs in SMS Reminders Reduces Missed Hospital Appointments: Findings from Two Randomised Controlled Trials. PLoS ONE 10(9): e0137306. https://doi.org/10.1371/journal.pone.0137306
[13] The Behavioural Insights Team (2018) Annual Update Report 2017-18. Accessed at: https://www.bi.team/wp-content/uploads/2020/10/Annual-update-report-BIT-2017-2018-3.pdf
[14] Orr, J.A. (2014). Mobile phone SMS messages can enhance healthy behaviour: A meta-analysis of randomised controlled trials. *Health Psychology Review, 9*(4), 397-416.

	their attendance and engagement in lessons. The proposed draft messages can be found in Appendix A.
WHAT (PROCEDURES)	The intervention messages will be automatically sent to pupils at 8am the day before their tutoring session. This email will also contain a link to the online learning environment.
WHO (PROVIDER)	The intervention messages will be automatically delivered to pupils by Bramble, the Tutoring Provider's (Pearson) technology partner.
HOW (DELIVERY MODE)	The intervention messages will be sent in an email. Given the age of participating pupils (KS4), this will typically be their school email, though in some cases it may be a personal email account.
WHERE (LOCATION)	Pupils will receive the intervention materials wherever they happen to be at 8am the day before their tutoring session, and can read the message at a time of their choosing.
WHEN & HOW MUCH (DOSAGE)	Pupils will receive a single intervention message each week, at 8am the day before their tutoring session is scheduled.
TAILORING (ADAPTATION)	The reminder messages will be personalised with the pupil's name. They may also be personalised with the pupil's lesson time, and the name of their tutor. Both the subject line and the main body of the reminder email will be personalised.

3. Impact evaluation

3.1 Research questions

- **RQ1:** The primary research question is to investigate whether sending secondary GCSE pupils behaviourally-informed reminders **_increases their attendance_** at tutoring sessions.
- **RQ2:** The secondary research question is to investigate whether sending secondary GCSE pupils on Pupil Premium (PP) behaviourally-informed reminders **_increases their attendance_** at tutoring sessions.
- **RQ3** (exploratory analysis)**:** To investigate whether sending secondary GCSE pupils behaviourally-informed reminders **_increases their engagement level_** during tutoring sessions _as measured by_ **_tutor's engagement ratings of pupils (both overall and among PP pupils specifically)_**.

3.2 Design, participants and outcome measures

Table 2: Trial design and outcomes

Trial design, including number of arms		3-arm RCT, randomised at pupil level
Participants	inclusion criteria	Secondary GCSE pupils who will be taking tutoring sessions with our tutoring partner Pearson during the trial period
	exclusion criteria	Primary pupils, given that many primary pupils do not have their own email address to receive the intervention (their parents will typically receive the reminder instead); Secondary pupils who have started their first tutoring session before the trial launch date, i.e. March 10th.
	target number	5,000
Unit of randomisation		Pupil
Stratification variables (if applicable)		N/A
Primary outcome	variable	Pupil attendance rate for tutoring sessions, expressed as a proportion of sessions attended divided by sessions scheduled[15] (0-100)
	measure (instrument, scale, source)	The proportion (expressed as a percentage) of tutoring sessions attended by each pupil out of those scheduled by Pearson This outcome data will be provided by Pearson's technology partner Bramble.
	direct measure or proxy?	Direct measure
	time of collection	End of trial (July 31st)
	adjusting for multiple comparisons?	Yes, 3 comparisons (3-arm design, stemming from comparing all treatment groups against the control

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[15] Pearson sells packages of 15 sessions - this means that, practically speaking, the denominator will always be 15.

		group and against each other) using Benjamini-Hochberg correction[16].
Exploratory outcome	**variable(s)**	Tutor's average rating of pupil engagement during tutoring sessions
	measure (instrument, scale, source)	The rating for each tutoring session is given by Tutors on a 100-point scale（0 = minimum engagement, 100 = maximum engagement, with a 10-point interval) after each session. We will be averaging these scores across sessions to get a single score per pupil. This outcome data will also be provided by Pearson's technology partner Bramble. See more details under the exploratory analysis section
	time of collection	End of trial (July 31st)
	adjusting for multiple comparisons?	Yes, 3 comparisons (for the 3-arm design, stemming from comparing all treatment groups against the control group and against each other) using Benjamini-Hochberg correction[17].

3.3 Randomisation

- Bramble will conduct the randomisation with a briefing from BIT.
- Bramble will design a programme for the rolling randomisation (AKA trickle randomisation) and will assign each eligible pupil into one of the trial arms when they register their account, starting from March 10th.
- Bramble have delivered 56 million minutes of online tutoring, and specialise in generating in-depth insights on their tutoring using advanced analytics (e.g. searchable video recordings and AI transcription). We are confident that they have the technical expertise to conduct randomisation.
- Nevertheless, ahead of launching, BIT will instruct a developer external to Bramble to quality assure the programme written by Bramble. Other risk mitigation strategies are listed in the risk section.
- Bramble will use rolling randomisation to assign pupils into one of the trial arms. Rolling randomisation refers to the process that as each pupil signs up on Pearson's tutoring sessions via Bramble, they will be randomly assigned to one of the trial arms based on their unique Bramble IDs.
- Rolling randomisation will be applied to newly signed up pupils, starting from the trial launch (March 10th).
- Bramble will generate a random number from a vector c (0, 1, 2) for each unique pupil ID, and each number corresponds to a treatment arm. For example, 0 corresponds to the control group, and 1 the first treatment group, etc.

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[16] Benjamini, Yoav, and Yosef Hochberg. "Controlling the False Discovery Rate: A Practical and Powerful Approach to Multiple Testing." Journal of the Royal Statistical Society. Series B (Methodological) 57, no. 1 (1995): 289-300.
[17] Benjamini, Yoav, and Yosef Hochberg. "Controlling the False Discovery Rate: A Practical and Powerful Approach to Multiple Testing." Journal of the Royal Statistical Society. Series B (Methodological) 57, no. 1 (1995): 289-300.

- Because of sizeable number of trial participants (~5,000), for the law of large numbers[18] there will be roughly the same number of pupils in each trial arm - that is, roughly the same number of pupils will be allocated to control, treatment 1 and treatment 2.
- BIT analysts will only receive anonymised data from Bramble and Pearson for analysis. Analysts at BIT will not be blinded to group allocation when doing the analysis (we will know to which arm each pupil in the dataset was allocated to).
- As Bramble will be running and implementing the randomisation, Pearson will be blind to randomisation.

3.4 Power calculations

Assumptions. We conducted power calculations to estimate the **minimum detectable effect size** given the estimated sample size, desired significance level, desired statistical power, baseline level, and significance level adjusted for multiple comparison, see **Table 3a** and **Table 4b**.

Substantive effect size. Given the scope of this project, the evidence base for our intervention materials, the light-touch design of the intervention, and the baseline attendance rate (provided by Pearson), we assessed that a 5 percentage point increase in pupil attendance rate would constitute a substantive effect size and we also confirmed with Pearson this would be considered a meaningful effect size.

Sample size. Based on conversations with the EEF in Feb 2021, EEF expects Pearson to reach about 5,000 pupils   from March 10th (the forecasted start of the trial period) until the end of the academic year   .

FSM/PP status. Unfortunately, Bramble does not collect data on pupils' FSM status. However, it can provide information about pupils on Pupil Premium (PP). We were informed by EEF that the current proportion of PP pupils among those already receiving tutoring by Pearson is 25% (accurate as of data submission of 26/02/21).

Baseline level. We had different estimates of baseline attendance rate, and we did sensitivity analysis to calculate the most plausible range of MDES (see Table 3a and Table 3b). These are based on three scenarios:
  A. Mean attendance and standard deviation as provided by Bramble on 25/02 (mean 71%, standard deviation 39%[19]) — Likely to be the upper bound of actual SD.
  B. Mean attendance and standard deviation as provided by another tutoring partner[20] (mean 80%, standard deviation 28%)
  C. Mean attendance and standard deviation as provided by EEF for Pearson on 26/02 (mean 67%, standard deviation 21%) — Likely to be the lower bound of actual SD, as this was computed using data aggregated at the school level, and not pupil level data.

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[18] Read more here: https://en.wikipedia.org/wiki/Law_of_large_numbers

[19] Provided by Bramble on Feb 25th 2021. Bramble caveats these numbers with the following: "*School closures wreaked all sorts of scheduling havoc with schools having to get consent for home tutoring etc. As such, there were a number of missed sessions which may well be subsequently rearranged. Together, this is probably depressing the mean for attendance and dispersing the standard deviation – in both cases in a somewhat unrepresentative manner.*"

[20] This specific tutoring partner was the only one that could provide us with disaggregated (pupil-session level) data on attendance, so had been able to compute mean attendance and stdev. The EEF is sighted of the identity of this tutoring provider.

MDES Calculation. In line with BIT's standard practice, we use a Benjamini-Hochberg correction to perform multiple comparison adjustments (MCA) (more details provided in the analytical section). We plan to conduct the adjustment separately for primary and secondary analysis. Since it is not possible to apply the Benjamini-Hochberg correction before analysing the actual data, the standard BIT procedure is to perform (1) an uncorrected calculation, which provides an upper bound on power, and (2) a calculation using the Bonferroni correction, which provides a lower bound. Power using the Benjamini-Hochberg correction will lie between these two bounds.

Estimated MDES. Our calculations indicate that an RCT **with up to 3 arms** is sufficiently powered to detect the minimum effect size we expect to achieve (5 percentage points) for the whole sample (primary analysis), even after adjusting for MCA using the more conservative Bonferroni method.

A 3-arm design, however, may not be powered to detect the minimum meaningful effect size for pupils in the Pupil Premium group if the SD of the attendance rate was at the upper bound as estimated by Bramble.[21]

Trade-offs and final choice. Based on the sensitivity analysis for MDES, we designed this trial as a 3-arm trial. This was based on four key considerations:

1. We are well-powered for a 3-arm design for the primary analysis in all scenarios.
2. We are afraid that the scenario based on the EEF data is a bit too optimistic. In particular, we think that the low standard deviation may be a byproduct of using data at the aggregated level. With aggregated data, our understanding is this SD only captures the variance across schools, while fictitiously imposes a variance of 0 across pupils within schools.
3. We believe that the most likely scenario is somewhere between A) Mean attendance and standard deviation as provided by Bramble on 25/02, and B) Mean attendance and standard deviation as provided by Action Tutoring (Table 3b). In both cases, we are not powered in the secondary analysis with a 3-arm trial, and may even not be powered for a 2-arm trial *in the more pessimistic scenario.*
4. The high uncertainty around these numbers led us to think that it is not worth sacrificing testing one additional arm in exchange for the possibility of being powered in the secondary analysis.

We shared these considerations with the EEF and they approved our recommendation of proceeding with a 3-arm trial (conversations dated 26/02/21).

Table 3a: Preliminary data and assumptions for MDES Calculation

	OVERALL	PP subgroup
Baseline Assumed control group attendance rate	**Mean:** 67%~80% **SD:** 21% ~39%	
Minimum meaningful effect size	5 percentage points (Cohen's d = 0.1)	
Alpha	0.05	
Power	0.80	
% of pupils in the PP group	25%	

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[21] Before receiving mean attendance and SD from Bramble, we had also explored the option of running a 4-arm RCT, adjusting for a smaller number of comparisons (interventions against BAU only) with the EEF. The EEF steer was to favour a design that was well powered in the secondary analysis as well (as there is particular interest in outcomes for Pupil Premium students) and in which we could also test the effectiveness of each arm against each other. Hence, we omitted the 4-arm version in this protocol.

Number of all pupils	Intervention (n per arm)	2,500 (2-arm) **1,666 (3-arm)**	625 (2-arm) **416 (3-arm)**
	Control	2,500 (2-arm) **1,666 (3-arm)**	**625** (2-arm) **416 (3-arm)**
	Total	5,000	1,250
Software used for calculations		RStudio1.2 & R 3.6.0 Selective R packages: data.table,dplyr, plyr, psych, xlsx, gmodels TREX(developed by BIT)	

Table 3b: MDES estimates

No. of arms	A) Data as provided by **Bramble** on 25 Feb 2021 Mean attendance = 71% SD = 39% % PP = 25%		B) Data as provided by **other tutoring partner** Mean attendance = 80% SD = 28% % PP = 25%		C) Data as provided by **EEF** on 26 Feb 2021 Mean attendance = 67% SD = 21% % PP = 25%	
	Before MCA *(No correction, MDES lower bound)*	**After MCA** *(Bonferroni correction, 3 comparisons, MDES upper bound)*	**Before MCA** *(No correction, MDES lower bound)*	**After MCA** *(Bonferroni correction, 3 comparisons, MDES upper bound)*	**Before MCA** *(No correction, MDES lower bound)*	**After MCA** *(Bonferroni correction, 3 comparisons, MDES upper bound)*
Primary analysis - all pupils						
2	3.1		2.2		1.7	
3	3.8	4.4	2.7	3.1	2.0	2.4
Secondary analysis - PP subgroup (25%)						
2	6.2		4.4		3.3	
3	7.6	8.8	5.4	6.3	4.1	4.7

Note: MDES expressed in percentage points (absolute changes of a percentage). Since it is not possible to apply the Benjamini-Hochberg correction before having the actual data, the standard BIT procedure is to perform (1) an uncorrected calculation, which provides an upper bound on power and an MDES lower bound, and (2) a calculation using the Bonferroni correction, which provides a lower bound and an MDES upper bound. Power using the Benjamini-Hochberg correction will lie between these two bounds. Green shading represents options that give an MDES=<5ppt ; red shading represents options that give an MDES>5ppt.

4. Impact analysis

Table 4: Summary of impact analysis

RQ	Sample	Dependent Variable	Independent variable	Control variable	Analytical method	Interpretation
RQ1 (Prim.)	All secondary GCSE pupils with suitable tutoring start date	Attendance (% from 0-100)	Treatment assignment	Pupils[22]: whether PP; year group; main subject of tutoring; fortnight of randomisation [23]	OLS linear regression	The intervention affects attendance rate by X percentage points.
RQ2 (Sec.)	All PP secondary GCSE pupils with suitable tutoring start date	Attendance (% from 0-100)	Treatment assignment	Same as for RQ1, excluding whether PP	OLS linear regression	The intervention affects attendance rate by X percentage points.
RQ3 (Expl.)	All secondary GCSE pupils with suitable tutoring start date	Average tutor rating of pupil engagement (measured by a 0-100 point scale)	Treatment assignment	Pupils: whether PP; year group; main subject of tutoring; fortnight of randomisation [24]	OLS linear regression	The intervention changes the avg engagement rating by X.X in absolute terms, or by XX per cent in relative terms.
	All PP secondary GCSE pupils with suitable tutoring start date	Average tutor rating of pupil engagement (measured by a 0-100 point scale)	Treatment assignment	Same as for RQ1, excluding whether PP	OLS linear regression	The intervention changes the avg engagement rating by X.X in absolute terms, or by XX per cent in relative terms.

Notes: A suitable tutoring starting date is defined as no sooner than March 10th.

4.1 Analytical approaches

● Primary analysis will be Intention to Treat (ITT). A CACE analysis is considered beyond scope for this nimble trial, considering the complexities associated with CACE analysis in multi-arm trials.[25]

● The only covariates used in the analysis model will be pupils' year group, their main subject, whether they belong to the premium pupil group, and a set of dummies for fortnight of randomisation, as listed in Table 4. We chose those covariates as they could potentially influence the outcomes (e.g. older pupils might have a higher attendance rate as the timeline of GCSE exams is more salient and imminent to them; pupils starting sessions in March may be more   motivated than pupils starting off later in the term, if they have more time to improve before the end of the term), thus controlling for them will increase the precision of our estimates. This approach is consistent with the analytical approach for the other two trials commissioned by EEF and run by BIT on the topic.

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[22] Unfortunately Bramble does not collect pupils' gender. As Pearson is a new provider, this will be the first tutoring experience with Pearson. For this reason, we are unable to control for previous attendance in tutoring sessions in our models.

[23] Extra dummies for missing data will also be included - see the risk section for more details.

[24] Extra dummies for missing data will also be included - see the risk section for more details.

[25] The identifying assumptions for the CACE parameter for the single treatment-control group design do not easily generalise to the multi-armed context. For more details, see Schochet, P.Z. (2017) Multi-armed RCTs: A design-based framework (2017–4027). Washington, DC: U.S. Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance, Analytic Technical Assistance and Development.

- In line with BIT's standard practice, we will use a Benjamini-Hochberg correction to perform MCA. We plan to conduct the adjustment separately for primary and secondary analysis. Compared to the Bonferroni correction, that focuses on the familywise error rate, the Benjamini-Hochberg focuses on false discovery rate - basically it penalises more the statistical significance of results that seem more significant, and less results that were statistically less significant to begin with. As a result, it is less extreme than Bonferroni.[26]
- The Risk Section includes details for how we will deal with missing data and how we will check empirically for balance/randomisation failure/non-random attrition.

4.2 Primary analysis

We will evaluate the effect of the intervention on attendance using the following OLS linear probability regression model:

$$Y_i = \alpha + \beta_T Treatment_i + \beta_C Covariates_i; \; \epsilon_i \sim N(0, \sigma^2)$$

- Y_i is the outcome of interest (attendance rate [percentage 0-100]) for each pupil$i$. Analysis will use the raw form of the outcome data (i.e. not transformed or scaled).
    We will create the primary outcome and secondary using the following formula:
- Attendance rate in tutoring sessions for pupil$_i$ =
$$100 \times Total \; No. \, of \; sessions \; attended \; by \; pupil_i /$$

$$Total \; No. \, of \; scheduled \; sessions \; for \; pupil_i$$

- $Treatment_i$ is a dummy variable indicating which treatment group participants were assigned to (0 = Control group, 1 = Treatment 1 group, 2 = Treatment 2 group, etc).
- $Covariates_i$ [27]
    - whether PP =1 if PP; 0 otherwise;
    - year group: a set of dummies, one for each year group
    - main subject of tutoring: a set of dummies, one for each subject of tutoring
    - fortnight of randomisation: a set dummy, one for each 2-week period from the launch of the trial (*fortnightX=1 if pupil starts tutoring sessions within that fortnight, 0 otherwise*).
- ε_i is the heteroskedasticity-consistent robust standard error term for each pupil$i$

4.3 Secondary analysis

In line with the other two trials commissioned by EEF on attendance within the National Tutoring Programme, secondary analysis will focus on attendance among pupils eligible for Pupil Premium.

We will repeat the primary outcome analysis while restricting the sample to pupils eligible for Pupil Premium, and we will omit PP status as a covariate.

4.4 Exploratory analysis

We envisage two exploratory analyses for this trial:

- ITT on pupils' average engagement across classes
- ITT on pupils' average engagement across classes - PP subgroup

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[26] AGAP (Evidence in Governance and Politics) provides a good summary of the two methods here: https://egap.org/resource/10-things-to-know-about-multiple-comparisons/
[27] Extra dummies for missing data will also be included - see the risk section for more details.

The interventions were designed to increase attendance through boosting pupils' engagement. In the primary and secondary analysis we focus on attendance for two reasons (i) attendance is collected automatically by the platform (eg. is equivalent to administrative data, therefore not susceptible to missingness) (ii) consistency with the other two trials commissioned by EEF within the national Tutoring Programme.

In the exploratory analysis, we turn to a measure of engagement - pupils' average engagement score across classes, as rated by tutors at the end of each class. This will be computed as follows:

- Tutor's average rating of engagement over n tutoring sessions for pupil$_i$ =

$$100 \times (\sum_{j=1}^{n} \ Rating_i)/ Total \ number \ of \ sessions \ scheduled \ n$$

- Before computing tutor's average rating of engagement for a given pupil$_i$, we will impute engagement = 0 for tutoring sessions that the pupil has missed[28]. In the final report, we will explicitly reference i) what percentage of sessions were imputed across treatment and control ii) the raw (no imputation) mean engagement value across trial arms.
- Tutors' rating will take values from 0 to 100 in increments   of 10. A picture of what the scale looks like for tutors is available in Appendix B. After the imputation the average rating will range 0-100, continuous.
- Differently to attendance, engagement is not automatically recorded by the platform - it is assessed by tutors. Reporting this rating is not compulsory, however Pearson's online portal for the tutor nudges them to complete this rating at the end of each lesson, and they are reminded in their portal to complete it if they don't fill it in immediately.[29] Tutors are not aware of the trial, so there is no risk that the reporting is influenced by this. We will only include ratings for attended sessions when they are available i.e. we will exclude from the calculation sessions that a pupil attended but there is no rating. In the final report, we will explicitly reference what percentage of attended sessions have a missing value across treatment and control. If this percentage exceeded 10% for one or more arms, we will impute the average score of the pupil from sessions when it was filled out, instead of omitting the data point.
- The relative high risk of missing values, and the potential noise associated with these measures (a rating of 60% may mean different things to different tutors) drove our decision to have engagement as exploratory analysis.
- The regression model will follow the same specification as for the primary analysis.
- We will conduct a second exploratory analysis with engagement as an outcome, restricting the sample to PPs (mimicking the secondary analysis).

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[28]If we excluded these sessions from the calculation, we would risk breaking the randomisation. - For example, we could end up in a situation in which treatment increases attendance and engagement, but the pupils with the largest increase in attendance also have the lowest engagement. We would then have more observations of low engagement in the treatment group but similar pupils in the control group would not be observed; this may lead us to wrongly infer that the intervention reduced engagement.

[29] Guidance for tutors on how to leave ratings available on Pearsons' website here:
https://about.bramble.io/help/cue-ratings-explained.html

5. Implementation and process evaluation

5.1 Research questions

1. What proportion of pupils were sent reminders? (Compliance)
2. What proportion of pupils were sent the correct reminder and were the reminders sent in their intended format? (Fidelity)
3. How many reminders were sent to each pupil? (Dosage)
4. How did pupils experience the reminders and tutoring sessions? (Quality)
5. What were the barriers and facilitators to pupil engagement? (Mechanisms)

5.2 Research methods

Table 5: **IPE methods overview** *(adapt as necessary)*

Research methods	Data collection methods	Participants/ data sources (type, number)	Data analysis methods	Research questions addressed
Qualitative	Semi-structured interview	2 x provider staff	Thematic Analysis	2. Fidelity 4. Quality 5. Mechanisms
Qualitative	Feedback form	30 x pupil forms	Thematic Analysis	2. Fidelity 4. Quality 5. Mechanisms
Quantitative	Descriptive statistics from provider	-proportion of pupils who were sent messages -proportion of intended reminders sent -total number of pupils who were sent messages -average number of reminders sent -within session metrics (see quantitative methods)	Descriptive analysis	1.Compliance 2. Fidelity 3. Dosage

Quantitative Methods:

- Compliance and implementation fidelity will not be measured quantitatively as they are assumed to be 100% barring human error.
- Reach will be measured quantitatively through the total number of pupils who were sent reminders
- Dosage will be measured quantitatively through the average number of reminders sent

Descriptive statistics such as mean and standard deviation will be presented for compliance, fidelity, reach, dosage and quality and we will collect these data from delivery partners (where feasible).

Ideally, we would also conduct analysis on email open rates to better understand dosage and reach, but the trial would have needed to be delayed 1-2 weeks for Bramble to build that functionality. We prioritised an on-time launch with longer intervention time over collecting this data.

As stated in section 2, tutees are likely to access a tutoring session by opening the reminder email and clicking on the embedded link. However, tutees could also bookmark the page and then access tutoring sessions without opening emails. Therefore, attendance does not necessarily mean emails were opened, and non-attendance does not necessarily mean emails were not opened.

If there is a treatment effect on attendance, this will have been caused by the intervention. However, we will not be able to say for certain that there were therefore more email opens or click-throughs in the treatment group(s), because attendance does not have to be achieved this way. It is worth noting that the intervention email subject lines are modified and therefore it is possible that these alone could drive a treatment effect, even if tutees attended tutorials without opening the emails.

Qualitative Methods:

- Content fidelity will be measured qualitatively through interviews with delivery partners to ensure intended reminder content was intact. Furthermore the interviews will capture any human error that may have affected compliance and implementation fidelity.
- Quality will be measured qualitatively through interviews with delivery partners and through pupil feedback forms focusing on their experiences of the intervention and reported outcomes
- Mechanisms will be measured qualitatively through anonymous pupil feedback forms focusing on the barriers and facilitators to engagement and the drivers of reminder quality

Provider Interviews: We will conduct semi-structured interviews with one member of staff each from Bramble and Pearson. The interviews will be conducted using Google Hangouts and will last around 30 minutes. We will liaise with each provider to identify the most appropriate staff member per organisation. From Bramble, this will be a staff member who was closely involved with setting up the randomisation and scheduling the messages, and from Pearson, this will be the Project Management for their tutoring under the National Tutoring Programme. Interviews will focus on the intervention setup, aims of the intervention and barriers and facilitators to successful delivery. Topic guides will be developed using the research questions and in collaboration with the intervention team.

Pupil Feedback Forms: We will develop feedback forms that ask pupils to comment on specific messages they have received, and ensure forms are approved by the EEF. The feedback forms will collect open text responses across 1. message delivery, 2. message content, 3. message outcomes, 4. experience of tutoring sessions and 5. suggestions for improvement. 30 pupils will be purposively selected based on which arm they were randomised to, as well as whether they had high or low engagement scores. Engagement score thresholds will be defined prior to trial launch and in collaboration with Pearson/Bramble. The forms will take 10 minutes to complete and will be distributed to the pupils by Bramble/Pearson who will be provided with a sampling frame with agreed sampling criteria to guide purposeful recruitment. A more specific distribution strategy will be finalised with Bramble/Pearson; however we envision a staggered distribution across the 15 week period.

5.3 Analysis

Interviews and free text from the feedback forms will be transcribed and analysed in NVIVO. We will conduct a thematic analysis using Braun & Clarke's[30] six-step approach, which involves coding the transcripts and identifying emerging themes. Themes will undergo a further round of classifying and will be sorted into high-level themes and sub-themes.

We will use the predetermined topics of the interview and feedback forms to interrogate the data. During the analytical process a balance will be maintaining a balance between deduction (using existing knowledge and the research questions to guide the analysis) and induction (allowing concepts and ways of interpreting experience to emerge from the data). We will mitigate researcher bias by using the interrater reliability checker on NVIVO, ensuring multiple researchers are coding the transcripts in the same way. Furthermore, verbatim participant quotations and case examples will be used to provide evidence and exemplify the theme(s) discussed in the paragraph before the quotation. If used in reporting, quotations will be selected by the qualitative researchers who conduct the data analysis, by considering multiple factors including how well they exemplify the theme(s) discussed.

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[30] Virginia Braun & Victoria Clarke (2006) Using thematic analysis in psychology, Qualitative Research in Psychology, 3:2, 77-101, DOI: 10.1191/1478088706qp063oa

6. Risks

Table 6: **Risk register**

Risk	Likelihood of occurring	Magnitude of impact	Strategy to mitigate risk	Responsible party	Timeframe (if applicable)
Intervention may backfire, causing reduced attendance	Low	Low	Where possible, the intervention materials will incorporate concepts that have been successful in similar settings in the past. The intervention materials will go through a rigorous internal QA process that will try to identify any likely causes of a backfire. We will conduct interim analysis to check for a backfire effect of the loss aversion/negative framing intervention arm. This is because whilst this framing has proved effective in other contexts, we acknowledge that this context (pandemic, catch-up) is unique and believe that interim analysis is proportionate and feasible in this case. The interim analysis be characterised by the following: 1- INCLUSION CRITERIA. Bramble will provide a data pull after the first group of kids entering the trial on March 10th had 7 classes scheduled. This means that by week 7 of the trial (generally pupils have one session each week), the data pull will include pupils with 7 classes and pupils with a lower number of classes scheduled (say 2 or 3). We will compute interim attendance for these pupils over the classes scheduled over the period following the formula provided in the analysis section (but the denominator may vary across pupils) 2 - ANALYSIS. We will analyse the interim data following the analysis specified for the primary analysis (same regression, same controls). The main coefficient of interest would be the one for the intervention kitchen sink with negative framing. 3- DEFINING A BACKFIRE. Given the low sample size and the implications on power, we favour a definition of backfire that focuses on effect size rather than statistical significance. We will define the intervention as backfiring if the point estimate of the coefficient for the negative framing is negative and larger than 10 ppt in absolute value.	Intervention development team	Trial period

			4 - RESULTING ACTIONS. If this circumstance arises, Bramble will i) change the randomisation mechanism so to allocate all new pupils either to control or treatment 1 (kitchen sink with neutral framing), with 50% prob; ii) update messages to be sent to pupils already allocated to the negative framing arm by changing them to neutral framing..		
Randomisation failure[31]	Low	High	Ensure that the Tutoring Partner and their technology partner, Bramble, are fully briefed on the requirements for the randomisation procedure. BIT's inhouse web developers will quality assure the randomisation code to see if the algorithm of rolling randomisation works as intended. Bramble to provide weekly updates on counts in each arm -- both to ensure the rolling randomisation is still happening but also to monitor for any major arm imbalances that might signal that randomisation is not happening correctly. Assess imbalance between intervention and control groups at baseline as recommended by EEF (cross-tabulation for categorical variables or means/sd for continuous variables). The cross tabulation will include the pupil as described in Table 4. All regressions control for these available covariates so as to i) control for any imbalance we may find ii) improve power.	Intervention development team; Evaluation team	Pre-trial; During trial; Analysis period
Imbalance due to differential attrition	Low	High	This item is described under 'missing data' below.	Evaluation team	Analysis period
Missing data	Low	Medium	Missingness of primary and secondary outcome: we will assess if this happens as a function of the treatment by regressing a dummy outcome_missing on treatment variable. If there isn't a statistically significant relationship between outcome missingness and treatment assignment, we will exclude from the analysis observations with missing	Evaluation team	Analysis period

			outcomes. If treatment significantly affects missingness, we will use a weighting strategy as coarsened exact matching to address missingness not-at-random. Missingness of covariates: we will assess if any covariate is missing for more than 5% of the obs. If so, we will drop the covariate from the analysis. For variables with missingness <5% of cases, we will replace the missing value with an extra category flagging the missingness (eg. if Pupil Premium is missing, we will use two dummy variables to control for Pupil Premium in the primary analysis, one that takes value 1 if 'Pupil Premium' and 0 otherwise, one taking value 1 if 'missing Pupil Premium', 0 otherwise)		
Risk of bias in developer-led trials	Low	Low	The risk is minimised by having a second independent analyst analysing the trial under blind allocation of treatment groups Registration of the trial, and the completion of this document and transparency about the project all act to minimise risk of bias.	Intervention development team	Beginning of trial
Low uptake of feedback forms (IPE)	Medium	Medium	30 forms should be manageable across the sampling criteria due to the large sample size and duration of the trial. If we are struggling to meet sampling criteria, we can relax the engagement score criteria.	Research Team	Weekly

7. Timeline

Table 7: Timeline

Dates	Activity	Staff responsible/ leading
W/C 1st Mar	Finalising intervention materials	BIT
10th March	Rolling randomisation for new pupils is active	Bramble
10th March	Launch trial	BIT / Pearson / Bramble
Mar - July	Monitoring trial Rolling randomisation by Bramble and ongoing monitoring by BIT IPE interviews & pupil feedback	BIT / Pearson / Bramble
End of July	BIT receives anonymised data from Bramble	Bramble
August	BIT starts analysing the data	BIT
End of September	BIT sends results to EEF	BIT

8. Ethics and registration

All BIT trials need to have been through BIT's internal research ethics process. This trial was assessed as being Low Risk. On all dimensions barring two, the trial is determined to have minimal ethical risks. This is a light-touch intervention that is being delivered within an existing reminder email, in an existing tutoring context, with no personal data being collected on pupils.

The first dimension in which the risk is identified as not Low is linked to the age and setting of the participants. Pupils involved in the trial may receive the intervention messages whilst at home and not in a formal setting (such as a school). However, the messages will be embedded in a routine reminder email, and we believe there are minimal ethical concerns to pupils receiving this. The messages themselves will be rigorously internally reviewed to ensure that they do not contain any potentially sensitive phrasing that could cause harm or upset to the recipients.

The second dimension in which the risk is identified as not Low relates to the nature of the data being collected. No personal data is being collected on pupils involved in the Impact Evaluation, and no personal data will be collected on pupils involved in the IPE (the level of questioning in the feedback forms will not lead to identification of pupils). However, personal, individual-level data will be collected for 1-2 employees from Pearson and Bramble that were involved in the delivery of the intervention - this will be for the purpose of conducting interviews as part of the IPE. There is an ethical concern around confidentiality, particularly because of the power dynamic between the employees and the Tutoring Provider/Technology Partner, their employers. All personal, individual-level data collected will be treated with the strictest confidence by BIT, unless safeguarding or whistleblowing concerns are raised during the interview and require disclosure in line with any applicable laws and procedures on data protection and safeguarding that BIT must comply with. Reporting outputs will contain anonymised quotes and case examples which will not be able to be traced back to specific individuals. BIT has implemented appropriate measures to ensure secure storage and handling of Personal Data, including obtaining a Cyber Essentials Plus certification and developing a comprehensive Data Handling Protocol. We are registered with the UK ICO under the terms of the Data Protection Act 2018. We are confident that our processes will ensure that the interviewee's employer will not be able to link our findings to a particular employee.

The following table highlights in orange where the current trial falls in terms of risk for different dimensions:

Table 8: Ethics risk matrix

Dimension	Low risk	Medium risk	High risk
Research methods	Standard research methods commonly applied within the substantive area of the research.	Standard research methods that may not have been applied within a particular substance area and that may prove controversial or be sensitive.	Non-standard research methods that may be highly controversial or sensitive.
Participants	Non-vulnerable adults (i.e. 18 years+ in England & Wales or as stated in applicable national legislation).	Children without vulnerable characteristics in a regular setting (school/youth club).	Individuals from vulnerable groups (e.g. refugees) or are children outside regular settings or do not have legal

			capacity within the meaning of the Mental Capacity Act 2005 or relevant national legislation. (NB: any research with the latter group requires approval via an additional legally mandated process.)
Subject matter	Research relates to a politically and socially uncontroversial area, such as recycling.	Research relates to an issue of some contention but is relatively light-touch	Research relates to a highly-contentious, potentially currently debated or partisan issue
Nature of data	Aggregate anonymous data or data on non-contentious topics (e.g. recycling behaviour) or routinely collected admin data.	Individual-level data not routinely collected.	Individual-level, highly sensitive or special category data routinely or not routinely collected. Also, criminal offence data
Legal exposure	The legal framework in which we are operating is clear. If the project is in a foreign country: we have worked in this country and a similar context before and know the legal requirements.	The legal situation with respect to any aspect (data collection, participant group, intervention) is unclear.	The legal situation with respect to any aspect (data collection, participant group, intervention) is controversial or problematic.
Unknown unknowns	BIT has run a similar project in this domain before	BIT has some experience in the domain, but certain aspects of the project are new to BIT.	BIT has no prior experience in this policy domain.

This trial does not alert participants to the fact that they are taking part in a trial. All participating pupils agreed to an initial Privacy Notice covering the NTP that referenced their possible involvement in Reach & Engagement RCTs. Pupils in the control group will still have access to a BAU reminder message delivered by the Tutoring Provider.

Before launching the trial, BIT will register it at the Open Science Framework (osf.io). BIT will ensure the trial registry is updated with outcomes at the end of the project.

9. Data protection[32]

No personal data on pupils is being collected as part of this study.
- For the Impact Evaluation, the rolling randomisation process will be completed by Bramble, with no need for BIT to have access to personal data. At the end of the project, Bramble will send an encrypted anonymised dataset to BIT, with the following fields: anonymised pupil ID, PP status (Y/N), year group, RCT allocation (e.g. Arm 1, Arm 2, Arm 3,), date of session, attendance (Y/N), engagement rating, main tutoring subject, proportion of words spoken by the pupil. We have performed a risk assessment analysis and concluded that we do not consider these data to be personal.
- For the IPE, Pearson and Bramble will lead the recruitment of pupils to complete the pupil feedback forms. BIT will not collect personal data in the pupil feedback forms, and the level of questioning in these forms will not be sufficient to identify pupils.

As part of the IPE, personal data will be collected for 1-2 employees at Pearson and Bramble who were directly involved in the delivery of the intervention.
- For these employees, we will collect their names and email addresses for the purpose of recruitment for interviews.

All personal data collected as part of the study will be treated with the strictest confidence by BIT and processed only in accordance with the requirements of the GDPR and the Data Protection Act 2018. BIT will not use any personal data in any report arising from this project. BIT is collecting and processing personal data solely for the purposes of proper delivery, management and evaluation of the project.

See Appendix C for more information.

LEGITIMATE INTERESTS: Our lawful basis for processing personal data is legitimate interests (as per Article 6 (1) (f) of the GDPR) and we have considered that participants' interests and fundamental rights do not override those legitimate interests.

Please see Appendix C for more information.

We are not collecting any personal special category data.

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[32] Please see the Data Protection Statement for EEF Evaluations.

10. Appendices

Appendix A. Intervention materials

Example reminder messages. To be confirmed. Finalised message content will be provided in the final report.

Arm	Week 1	Week 2	Week 3	Week 4….15
Arm 1: Control / Business as usual	Subject: Reminder: you have a tutoring session tomorrow	Subject: Reminder: you have a tutoring session tomorrow	Subject: Reminder: you have a tutoring session tomorrow	
	Hi [pupil name], This is just a quick reminder that you have a tutoring session tomorrow. Click below to see your schedule and join the session tomorrow.	Hi [pupil name], This is just a quick reminder that you have a tutoring session tomorrow. Click below to see your schedule and join the session tomorrow.	Hi [pupil name], This is just a quick reminder that you have a tutoring session tomorrow. Click below to see your schedule and join the session tomorrow.	
Arm 2: BI 'kitchen sink' with neutral framing	Subject: [pupil name], your first tutoring session is at [time] tomorrow	Subject: [pupil name], your second tutoring session at [time] tomorrow	Subject: [pupil name], your tutoring place is booked for [time] tomorrow	
	[pupil name], your first tutoring session is tomorrow. Put a reminder in your phone now so you don't forget! Click below to see your schedule and join the session at [time] tomorrow.	Hi [pupil name]. You are one of 250,000 pupils benefitting from having a tutor like [tutor name] this year - make the most of it! Click below to see your schedule and join the session at [time] tomorrow.	[pupil name], [tutor name] can help you with the topics you find tricky. Write down at least one question you have for [tutor name] tomorrow. Click below to see your schedule and join the session at [time] tomorrow.	
Arm 3: BI 'kitchen sink' with loss aversion framing	Subject: [pupil name], your tutoring sessions to help you catch up start at [time] tomorrow	Subject: [pupil name], you're on your way to catching up! Next tutoring session is [time] tomorrow	Subject: [pupil name], your tutoring place is booked for [time] tomorrow	
	[pupil name], you've missed out on months of in-person lessons, but your school have set you up with 15 tutoring sessions to help you catch up. It's your first session tomorrow. Good luck! Click below to see your schedule and join the session at [time] tomorrow.	Hi [pupil name]. You are one of 250,000 pupils catching up with a tutor like [tutor name] this year - make the most of it! Click below to see your schedule and join the session at [time] tomorrow.	[pupil name], [tutor name] can help you with the topics you didn't get the chance to cover in-person in school. Write down at least one question you have for [tutor name] tomorrow. Click below to see your schedule and join the session at [time] tomorrow.	

Illustration of the control condition
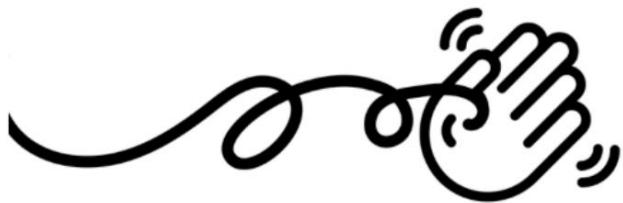

Session reminder

Hey Will!

This is just a quick reminder that you have a tutoring session tomorrow. Click below to see your schedule and join the session tomorrow.

[View your schedule]

If you are unable to open the link by clicking the button above, just paste the following URL into the address bar of your browser:

Appendix B. Pupils' engagement rating, as it appears to tutors

Ratings

How engaged was the student during this session?

Student A	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
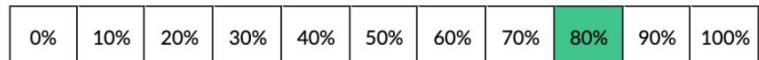
Appendix C. Additional data protection information

1. Legal bases for data processing

LEGITIMATE INTERESTS: Our lawful basis for processing **personal** data is legitimate interests (as per Article 6 (1) (f) of the GDPR) and we have considered that participants' interests and fundamental rights do not override those legitimate interests.

It is necessary in BIT's 'legitimate interests' to process the personal data identified above in order to deliver a meaningful RCT that has been commissioned by EEF (commercial interests). The research project fulfils BIT's core business aims including undertaking research, evaluation and information activities in sectors that will deliver social impact. This project has broader societal benefits; it tests the effectiveness of interventions designed to increase pupils' engagement with the National Tutoring Programme - an initiative designed to help address the adverse consequences of COVID-19-related school closures for children's education, especially disadvantaged children.

2. Our approach to GDPR compliance

BIT is minimising the collection of personal data wherever possible in this project. We are collecting individual-level data on pupils for the impact evaluation. However, we have performed a risk assessment analysis and concluded that we do not consider these data to be personal.

We will, however, need to collect personal data from 1-2 Tutoring Provider employees involved in the delivery of the intervention as part of the IPE. These staff will be sent an information sheet and a privacy notice prior to the interview, which explains what personal data we are collecting and why, our legal basis for doing so, who will have access to the data, our data security arrangements and our plans for data retention. We have appointed a Data Protection Officer (DPO) who is responsible for overseeing questions in relation to this privacy notice. The privacy notice contains the DPO's contact details, and informs the reader of their legal rights, including the right to make a complaint at any time to the Information Commissioner's Office (ICO), the UK supervisory authority for data protection issues (www.ico.org.uk). The privacy policy asks these employees to make sure the details they provide are accurate and up to date, and to let us know about any changes as soon as possible.

As stated above, all personal data collected as part of the study will be treated with the strictest confidence by BIT and processed only in accordance with the requirements of the GDPR and the Data Protection Act 2018. BIT will not use any personal data in any report arising from this project. BIT is collecting and processing personal data solely for the purposes of proper delivery, management and evaluation of the project.

2.1. Data security

We take reasonable steps to protect personal information and follow procedures designed to minimise unauthorised access, alteration, loss or disclosure of personal information.

Taking into account the state of the art, the costs of implementation and the nature, scope, context and purposes of processing as well as the risk of varying likelihood and severity for the rights and freedoms of natural persons, we implement appropriate technical and organisational measures to ensure a level of security appropriate to the risk of processing.

We ensure that those who have permanent or regular access to personal data, or that are involved in the processing of personal data, are trained and informed of their rights and responsibilities when processing personal data. We provide such access on a need-to-know

basis, and have measures in place which are designed to remove that access once it is no longer required.

Physical personal devices used by BIT are encrypted to protect personal data.

We have put in place procedures to deal with any suspected personal data breach and will notify participants and any applicable regulator of a breach where we are legally required to do so.

2.2. All parties with access to the data

The personal data that BIT collects will be accessed by a limited number of researchers and advisors in BIT's team working on this project.

BIT may disclose information to third parties in connection with the purposes of processing personal data set out in the privacy notices. These third parties may include:

- other companies in BIT's group [that are based within the United Kingdom];

- regulators, law enforcement bodies and the courts, in order to comply with applicable laws and regulations, assist with regulatory enquiries, and cooperate with court mandated processes, including the conduct of litigation;

- suppliers, research assistants and sub-contractors who may process information on behalf of BIT. These third parties are known as data processors and when we use them we have contractual terms and policies and procedures in place to ensure that personal data is protected. This does not always mean that they will have access to information that will directly identify individuals as we will share anonymised or pseudonymised data only wherever possible. We remain responsible for personal information as the controller; and

- any third party to whom we are proposing to sell or transfer some or all of our business or assets.

We may also disclose personal information if required by law, or to protect or defend ourselves or others against illegal or harmful activities, or as part of a reorganisation or restructuring of our organisations.

2.3. Data retention

We will not retain any personal data longer than it is needed to deliver, manage and evaluate the project. The anticipated date of deletion of personal data is October 2021.

3. Data processing roles

For the personal data we collect (about intervention tutors via the intervention website): Behavioural Insights Ltd (the legal name of Behavioural Insights Team (BIT)) is the controller and is responsible for the personal data.

As noted in the section above, we may share personal data with a limited number of trusted data processors solely for the purposes of supporting the delivery, management and evaluation of the project. This will be detailed in the privacy notice on our intervention website.

It will not be necessary to archive any personal data from this project.