Education Endowment Foundation

Tutor Trust: Affordable Primary Tuition

Evaluation report and executive summary

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Independent evaluators:

Carole J Torgerson, Kerry Bell, Elizabeth Coleman, Louise Elliott, Caroline Fairhurst, Louise Gascoine, Catherine E Hewitt, David J Torgerson

Durham University

University of York

The Education Endowment Foundation (EEF) is an independent grant-making charity dedicated to breaking the link between family income and educational achievement, ensuring that children from all backgrounds can fulfil their potential and make the most of their talents.

The EEF aims to raise the attainment of children facing disadvantage by:

- identifying promising educational innovations that address the needs of disadvantaged children in primary and secondary schools in England;
- evaluating these innovations to extend and secure the evidence on what works and can be made to work at scale; and
- encouraging schools, government, charities, and others to apply evidence and adopt innovations found to be effective.

The EEF was established in 2011 by the Sutton Trust as lead charity in partnership with Impetus Trust (now part of Impetus - Private Equity Foundation) and received a founding £125m grant from the Department for Education.

Together, the EEF and Sutton Trust are the government-designated What Works Centre for improving education outcomes for school-aged children.

For more information about the EEF or this report please contact:
Danielle Mason
Head of Research

Education Endowment Foundation
9th Floor, Millbank Tower
21–24 Millbank
SW1P 4QP
p: 020 7802 1679
e: danielle.mason@eefoundation.org.uk
w: **www.educationendowmentfoundation.org.uk**

About the evaluator

The project was independently evaluated by a team from Durham University and the University of York:

Carole J. Torgerson, Kerry Bell, Elizabeth Coleman, Louise Elliott, Caroline Fairhurst, Louise Gascoine, Catherine E. Hewitt, David J. Torgerson.

The lead evaluator was Professor Carole Torgerson.

Contact details:
Professor Carole Torgerson
Professor of Education
Durham University
School of Education
Leazes Road
Durham
DH1 1TA

Email: carole.torgerson@durham.ac.uk

Tel: 0191 334 8382

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The project

The Tutor Trust is a Manchester-based charity that aims to provide affordable small group and one-to-one tuition to primary and secondary schools. It recruits and trains university students and recent graduates as paid tutors, which enables it to provide tuition at a competitive rate. This project aimed to use Tutor Trust tuition to improve the maths attainment of pupils in Year 6 (aged 10–11) who were working below age-expected levels in maths, as identified by their class teachers. Children received 12 hours of tuition, usually one hour per week for 12 weeks. Schools had flexibility over the timing of sessions and group size. The vast majority of schools opted for pupils to be tutored in groups of three, and for sessions to take place during school hours.

One hundred and five schools in Manchester and Leeds participated in this effectiveness trial from September 2016 until July 2017. Schools in the trial had twice the national average of pupils eligible for free school meals (FSM). Tuition was delivered between January and May 2017. The programme was evaluated using a randomised controlled trial design, comparing children working below age-expected levels in maths across treatment and control schools. Of a total of 4,436 Year 6 pupils, 1,290 were identified by their teachers to receive the tutoring, should their school be allocated to the intervention group. Attainment was measured using Key Stage 2 (KS2) maths scores. Observations, interviews, teacher surveys, and pupil focus groups were conducted to explore how the programme was implemented and to obtain feedback from participants. The trial was funded by the Education Endowment Foundation (EEF)

Key conclusions	
1.	Children who received tutoring from Tutor Trust made three months' additional progress compared to children in control schools. There was a 0.19 effect size benefit which was not statistically significant (95% CI -0.05 to 0.44). This finding has a high security rating.
2.	Among children eligible for free school meals, those who received tutoring made three months' additional progress compared to FSM children in control schools. The observed effect was 0.25 (95% CI -0.02 to 0.51) but not statistically significant (p = 0.06). There was also evidence that pupils of lower prior attainment tended to benefit more from the tutoring. These analyses are exploratory, but together suggest that the approach may be particularly beneficial for disadvantaged pupils.
3.	The primary result and that for the FSM subgroup were not statistically significant. This means that if the intervention has no impact then the probability that we would have observed an effect size as large as the one found is greater than 5%. However, in both cases this probability was fairly low (10% and 6%, respectively). This, combined with the effect sizes and the high security rating does give some evidence that small group tutoring led to benefits for the children in this study.
4.	Tutored pupils and their teachers consistently reported increased pupil confidence. Some extremely positive examples of tutoring were observed where productive relationships had been developed between tutors and tutees. Teachers reported that they valued the presence of an additional adult to support pupils with their maths and KS2 preparation.
5.	Good communication with tutors, particularly about the language and approaches used to teach key concepts, was a challenge for some schools. There were some weaknesses in tutors' subject knowledge for the KS2 maths curriculum, which might be mitigated by further training and testing.

EEF security rating

The primary finding has high security. This was an effectiveness trial, which tested whether the intervention worked under everyday conditions in a large number of schools. It was a well-designed randomised controlled trial and few pupils who started the trial were not included the final analysis:

three schools (3%) dropped out of the trial, and 7% of pupils randomised had missing data. There was some imbalance on Key Stage 1 maths between identified pupils, but this was not judged to reduce the security. KS1 maths was included as a covariate in the analysis, and the sample eligible for tutoring was identified prior to randomisation based on teacher judgement of attainment in Year 6.

Additional findings

Secondary analysis explored the impact of tutoring on the reading scores of identified pupils. This showed two months' additional progress in Key Stage 2 reading for those receiving tutoring (effect size of 0.14), but this result was not statistically significant (CI -0.07 to 0.34).

Five hundred of the 621 identified pupils in the intervention schools received at least one hour of tutoring (median 12 hours, range 1–14). This means that around one fifth of treatment pupils in the final analysis did not receive tutoring, but were included in the analysis on an intent-to-treat basis. This may have diluted the intervention effect slightly: a sensitivity analysis suggested that the effect was slightly larger when considering only those pupils that did receive at least one hour of tutoring (0.23, CI -0.05 to 0.51). Exploratory analysis of the relationship between the number of tuition sessions received and pupil outcomes suggested that there was a small additional benefit associated with each extra session (0.02, CI -0.005 to 0.04). There was no evidence of any 'spillover' effect from the pupils receiving tutoring to other pupils (effect size of -0.03, CI -0.23 to 0.17). There was some evidence that girls benefited from tutoring more than boys.

Effective communication between the class teacher and tutor was seen to be critical to successful delivery, particularly in terms of specific vocabulary and methods of teaching key mathematical concepts so as to maintain continuity between classroom teaching and tutoring sessions. 'Business as usual' activity in the control schools comprised a combination of whole-class teaching, TA support for individuals and small groups of students, and a variety of maths-focused interventions.

The results of this trial are consistent with previous literature. The effects here are slightly smaller than the average effect found for small group tuition in the EEF Teaching and Learning Toolkit (four months' progress), but obtained at lower cost and with fewer tuition sessions than is typical for small group tuition.

Cost

The total cost per pupil is £112, assuming 12 hours of tuition and a ratio of one tutor to three pupils (the most common arrangement in this trial). The cost of Tutor Trust is flexible and depends on a range of factors, including the tutor-to-pupil ratio selected by the school.

Table 1: Summary of impact on primary outcome

Outcome/ Group	Effect size (95% confidence Interval)	Estimated months' progress	EEF security rating	No. of pupils	P value	EEF cost rating
KS2 Maths	0.19 (-0.05, 0.44)	3	🔒🔒🔒🔒🔓	1,201	0.10	£££££
KS2 Maths FSM pupils	0.25 (-0.02, 0.51)	3	N/A	576	0.06	£££££

Introduction

Background evidence

Early mathematical attainment is important for subsequent achievement in mathematics and general education. Early intervention to improve mathematical attainment through targeted small group tutoring is a potentially effective way of ameliorating possible future failure in this respect. There is some evidence that interventions delivered to children in small groups can be effective. For example, a previous EEF-funded trial of small group teaching of grammar (Grammar for Writing) found a positive effect (effect size 0.25; Torgerson et al., 2014). Evidence from the EEF's Teaching and Learning Toolkit (Higgins et al., 2015) suggests that one-to-one tuition, although high in cost, can accelerate learning by up to five months (five additional months' progress). With regards to small group tuition, the Teaching and Learning Toolkit suggests a moderate impact (four months' progress) for a moderate cost when tuition is delivered by a teacher or professional educator. Teaching assistants (TAs) are often required to work with small groups of children for extra support in core subjects including mathematics. Currently, the evidence for small group tuition is limited and generally centres on lower-attaining pupils. Evidence-based guidance on the effective use of TAs in the delivery of structured interventions out of class suggests that TAs deployed in this way have a positive impact on pupil attainment (three to four months' additional progress over an academic year, with effect sizes ranging from 0.2 to 0.3; Sharples et al., 2015). In summary, evidence suggests positive effects of small group and one-to-one tuition and pupil achievement.

A previous efficacy trial of the Tutor Trust programme presented findings classified as being of low security due to limitations in the evaluative design and problems with the number of participating pupils. The impact of the Tutor Trust approach on student learning was unclear (Buchanan et al., 2015). The 2015 efficacy trial for Tutor Trust Primary listed limitations including its quasi-experimental design. Buchanan et al. (2015) also noted the importance of implementing a randomised controlled trial (RCT) in order to confidently attribute potential effects to the Tutor Trust intervention. Despite the lack of progress reported, the outcomes were not statistically significant meaning the impact of Tutor Trust was unclear and a positive effect could not be ruled out. The statistical outcomes did not reflect the positive feedback on the programme from teachers in participating schools (Buchanan et al., 2015). With this in mind, the present evaluation of the Tutor Trust programme (a two-armed cluster RCT) sought to provide valuable additional evidence of the effects of small group additional tuition provided by high quality tutors for children's mathematical attainment. This trial evaluated the intervention with a greater number of pupils (n = 4436 in 105 schools, with n = 1290 included in the primary analysis) and, therefore, estimates more accurately the impact of the intervention than the previous trial, due to increased power.

Intervention

Tutor Trust is a not-for-profit social enterprise (and a registered charity) based in Manchester offering high-quality, flexible, affordable and professional tuition. The primary aim of Tutor Trust is to provide additional support to children who are struggling in maths, English or science by way of providing tutoring sessions with a rigorously selected and trained, paid university student or recent graduate, in addition to usual teaching. Each prospective tutor completes an application form which gathers information including academic (an A is required at GCSE level in the subject a tutor wishes to tutor in) and other competencies (Tutor Trust, 2018) that were developed in partnership between Tutor Trust, Teach First, and PricewaterhouseCoopers LLP (PwC):

- creativity;
- humility, respect and empathy;
- resilience; and
- planning, organisation and problem solving.

Tutors successful after the application stage are invited to interview with at least two members of the Tutor Trust team. Tutor Trust also supports higher-attaining pupils who need to be challenged and stretched by a tutor to achieve their potential, although high-attaining pupils were not included in this evaluation. The notion of affordable tuition here is the key difference between the approach of Tutor Trust and existing evidence with regards to one-to-one and small group tuition.

Though well established in Manchester and emerging in Leeds and Liverpool, the Tutor Trust programme has not been formally evaluated for its effectiveness. We aimed to evaluate the Tutor Trust programme through a rigorous effectiveness RCT. Though the Tutor Trust provides tuition across a range of subjects, due to time and capacity constraints we evaluated the effectiveness of the Tutor Trust programme for one subject area only, specifically, mathematics, though we further assessed whether receiving tutoring in maths had any spill-over effects to attainment in English. In this evaluation pupils only received tutoring in maths in school.

A two-armed cluster randomised trial was conducted, with randomisation at the school level. In total, Year 6 classes in 105 schools were recruited to take part, accounting for just fewer than 4500 pupils; a subgroup of 1290 pupils within the Year 6 classes in these school was identified who were seen to be likely to benefit from additional tutoring. The intervention was targeted at this subgroup of Year 6 pupils who, prior to the recent changes in categorising KS2 attainment, would have been working on the borderline between level 3 and level 4 prior to their KS2 assessment. Class teachers in the 105 participating schools were asked to identify approximately twelve Year 6 pupils per school who met the criteria of working below or insecurely at age-expected levels in mathematics who they believed would benefit from extra tuition prior to randomisation. These were the pupils who were to receive the tutoring should the school be allocated to the intervention group; the rest of the class would be classed as 'non-identified' pupils. The main analyses of this trial compare the outcomes for the pupils identified prior to randomisation to receive the intervention if their school was allocated to receive Tutor Trust between the two groups. In addition to this it is considered whether there is any benefit or harm to the rest of the class (the non-identified pupils) due to the removal of this small group for tutoring. Schools were not required to target any particular groups of pupils in terms of FSM, gender, or any other demographic characteristic. The schools allocated to receive the intervention were not restricted in terms of which pupils could actually receive the tutoring; therefore, not all of the identified pupils received the intervention, although 80.5% of the pupils who received tutoring were those who were initially identified.

The protocol for implementation recommended that pupils received a minimum of twelve one-hour weekly tutoring sessions in mathematics delivered within the school, and this was mostly, but not completely, achieved (see *Sensitivity analysis: compliance to intervention* section in *Impact evaluation* chapter). In total, 500 of the 621 identified pupils in the intervention group received at least one hour of tutoring. On average, pupils received 11.7 hours of tutoring (SD 1.5, median 12, range 1–14 hours). The majority of tuition sessions took place during the school day, with pupils being withdrawn from lessons or during break/lunch time. The information gathered in the follow-up teacher survey was completed by 49 of the 51 intervention schools it was sent to (Appendix E) indicated that tutoring typically took place at a range of times and that children were withdrawn from a range of lessons. Tutor Trust stated that the intention was that pupils should not be withdrawn from maths lessons, however, the survey indicated that a small number were (four survey responses reported that pupils were withdrawn from maths lessons). Tutoring sessions took place in libraries, resource rooms and other shared spaces within the participating schools, sometimes two tutoring sessions took place in the same room. Other tuition sessions took place after school or during the Easter school holidays. Sessions were provided on a maximum ratio of one tutor to three pupils, as determined by the class teacher. However, in keeping with the Tutor Trust approach, a degree of flexibility was allowed in terms of the groupings of pupils and the tutor to tutee ratio (1:1, 1:2 or 1:3).

Tutors were either provided materials by the class teacher or they developed their own session plans under guidance from the class teachers. The aims of the tutoring sessions were determined by

individual schools in relation to the needs of the pupils in that school. A combination of different session types was observed: core content of the curriculum (the basic, key concepts), sessions in tandem with current topics being taught in class, and on KS2 tests preparation including the completion of past papers with tutors. Weekly feedback was provided to teachers by the tutors; this written 'in depth' feedback about how tutoring sessions had gone was spot checked by the Tutor Trust. The format and resources used during Tutor Trust sessions could vary substantially according to schools' requirements. The personalisation of the tuition service is considered fundamental to its success. This individual tailoring for pupils comes about through close collaboration between tutors and the classroom teachers at each school which begins with the 'introductory meeting' before any tuition takes place. Ideally a tutor-teacher two-way dialogue then continues throughout the duration of the tuition assignments to ensure that the tuition is having the desired impact and that any tweaks required to the tuition sessions are made. Information gathered in the follow-up survey and in the teacher interviews indicated that there were, at times, problems with continued and effective communication between the teachers and tutors. There were also several instances where both teachers and tutors conveyed that they did not feel this communication was 'set up' adequately at the time of commencement of tutoring.

The Tutor Trust employs a range of tutors, including qualified teachers, other professionals, current undergraduates and recent graduates. Tutors appointed by the Tutor Trust undergo a rigorous selection and training process. During the first stage of recruitment, potential tutors complete an online application form, and some are then invited to interview. Those who succeed in the interview process subsequently undergo a comprehensive training programme.

The training programme for tutors consists of one evening training session followed by two full-day training sessions. Tutor Trust aims to run these three training sessions within the span of one week. The initial session is conducted over approximately four hours and offers the opportunity to discuss the Tutor Trust ethos as well as some of the technical aspects of working with the Trust, for example, the level of commitment required and the Trust's expectations of tutors, and safe-guarding. The second session, the first of the two full-day sessions, focuses on how to develop the tutor-tutee relationship, the welfare of the pupils, and the tutor's professional role in the school. The final session, the second of the two full-day sessions, concentrates on what makes a high quality tutoring session and how to plan for student progression. On this final day, tutors are given the opportunity to focus their training on a particular subject area—maths, English or science at KS3 and KS4—or to focus on literacy and numeracy for primary school pupils in Years 5 and 6. This training programme is delivered by former and current qualified teachers with significant classroom and school leadership experience.

Evaluation objectives

As documented in the **trial protocol** (Protocol, 2016) and **statistical analysis plan** (Fairhurst and Coleman, 2017), the primary objective of this evaluation was:

- To evaluate the effect of Tutor Trust primary tuition to help improve identified pupils' maths skills as measured on KS2 maths attainment whilst in their final year at primary school (Year 6) who were currently working insecurely at or below age-related expectations in maths and who would be receptive to tuition and benefit from this small group intervention.

The research questions were:

1. How effective is the offer of the Tutor Trust intervention compared to 'business as usual' on the KS2 mathematics attainment of Year 6 pupils who are working below or insecurely at age-expected levels in mathematics?
2. How effective is the offer of the Tutor Trust intervention compared to 'business as usual' on the KS2 language attainment (reading, grammar, punctuation and spelling—GPS) of Year 6 pupils who are working below or insecurely at age-expected levels in mathematics?

3. What impact does the offer of the Tutor Trust intervention have on the rest of the class in terms of KS2 mathematics attainment?
4. How effective is the offer of the Tutor Trust intervention compared to 'business as usual' on the KS2 mathematics attainment of Year 6 pupils who are working below or insecurely at age-expected levels in mathematics, and who are eligible for free school meals?

The research questions for the Implementation and Process Evaluation (IPE) were:

1. Do the stakeholders see benefit in Tutor Trust affordable primary tuition for pupils in Year 6 working insecurely at or below age related expectations? That is, benefit in terms of the social validity of the intervention and its ability to meet intended outcomes surrounding questions such as:
    a. How acceptable is it for all parties (teachers, pupils, tutors and the project team)?
    b. How feasible is it?
    c. How useful is it?
    d. Have the stakeholders observed impacts?
    e. Have there been any unintended consequences?
2. Has the intervention been delivered as intended?
    a. In terms of dosage and core components?
    b. Did different schools deliver the intervention in different ways, if so how?
    c. Did variation in delivery potentially moderate outcomes?
3. What outstanding features and/or good practice can be identified in relation to Tutor Trust affordable primary tuition (via observations of tutoring and discussions and surveys with schools)?
4. Were there any barriers to the implementation of Tutor Trust affordable primary tuition, or were any negative effects noted by teachers or pupils?
    a. If so, were any adaptations made to the intervention?
    b. Did adaptations (if made) potentially moderate outcomes?
5. How is 'usual practice' defined in relation to the intervention, for example:
    a. Did any compensatory activities occur in the schools randomised to the control group (information gathered via staff surveys)?

Ethics and trial registration

Ethical approval was obtained from both evaluator institutions: Durham University's School of Education Ethics Committee on 23 August 2016; and secondary ethical approval was awarded by Chair's action from Health Sciences Research Governance Committee at the University of York on 14 October 2016. All study documents, including those used in the process evaluation, were reviewed by Durham University's Ethics Committee. A protocol for the data collection in the process evaluation (including the data collection tools) was submitted as an addendum, for information, to Durham University's School of Education Ethics Committee in February 2017.

Two recruitment events were held in the summer term of 2016; one in Leeds and one in Manchester. These recruitment events comprised explanation of Tutor Trust and the tuition provided and allowed schools to ask questions pertaining to involvement in the evaluation. Members of the evaluation team attended these events alongside the Tutor Trust, gave a brief presentation about the trial design, and answered any questions raised with regards to the trial. Schools that expressed an interest in participating in the trial were asked to sign a memorandum of understanding (MOU). The MOU (see Appendix A) outlined the expectations of the developers (Tutor Trust), the evaluators (York Trials Unit, University of York, and the School of Education, Durham University) and the participating schools (those allocated to control and to intervention). Participating schools were required to complete a baseline survey (see Appendix C) prior to randomisation and, after going through an opt-out consent process

with their pupils, provide the evaluation team with pupil-level data that would enable the evaluation team to match with the National Pupil Database (NPD) with respect to outcome measures.

Trial registration number: ISRCTN90497591.

Data protection

All data was stored and processed in accordance with the Data Protection Act (1998).

Schools were informed of the data requirements at recruitment events and through the Memorandum of Understanding, see Appendix A. All parents/carers of pupils in the trial class(es) received an information sheet (Appendix B) that outlined the data schools were providing about the pupils in the trial and how it would be used. Parents/carers were given the option to withdraw their child from data sharing.

Schools provided pupil details (name, unique pupil number (UPN) and date of birth) for all pupils in the trial class(es) at baseline to allow the evaluation team to request KS1 and KS2 results and FSM status for these pupils from the National Pupil Database. Access to pupil details was limited to members of the Evaluation and Project Teams. The NPD data was used for statistical analysis and will be shared with the Department for Education, the Education Endowment Foundation (EEF), FFT Education and, potentially, in an anonymised form to the U.K. Data Archive. After agreeing to take part in the evaluation, all schools sent letters (Appendix B) to the parent/careers of the pupil in the Year 6 class to inform them that the school would be participating. This letter informed the parent/careers that their child's data would be anonymised and used by the researchers to evaluate the Tutor Trust's tuition, but also stored to possibly be used in future secondary analysis. This letter also provided the parent/careers an opportunity to opt their child out of the evaluation.

All results have been anonymised so that no school or individual pupil will be identifiable in the report or dissemination of any results.

Project team

The intervention was delivered by the Tutor Trust team (herein referred to as the delivery team):

- Nick Bent (Project Leader)
- Abigail Shapiro
- Sonja Burling
- Su Fairbairns
- Beth Farrell
- Jason Heaford
- Lewis Howell
- Sandika Mendis
- Deborah Reid
- Maria Robson
- Funmi Stewart
- Matt Wallis

The delivery team was responsible for recruiting and training the tutors, liaising with schools to arrange tuition, monitoring of tutors, and providing tutors with ongoing CPD (Continuing Professional Development) and resources.

The independent evaluation was conducted by researchers from Durham University and the University of York:

- Professor Carole Torgerson (Durham University School of Education), PI and Quality Assurer (IPE)
- Dr Kerry Bell (York Trials Unit, University of York), Trial Manager and Process Evaluator
- Elizabeth Coleman (York Trials Unit, University of York), Statistician
- Louise Elliott (York Trials Unit, University of York), Data Management
- Caroline Fairhurst (York Trials Unit, University of York), Statistician and Co-Investigator
- Imogen Fountain (York Trials Unit, University of York), Trial Support Officer
- Dr Louise Gascoine (Durham University, School of Education and York Trials Unit, University of York), Trial Coordinator and lead Process Evaluator
- Professor Catherine Hewitt (York Trials Unit, University of York), Senior Statistician and Co-Investigator
- Professor David Torgerson (York Trials Unit, University of York). Contractual PI and Methodologist

Methods

Trial design

Trial type and number of arms		**Two-arm cluster randomised controlled effectiveness trial**
Unit of randomisation		School-level, via minimisation
Minimisation variables		- Location (2 levels; Leeds or Manchester) - Number of pupils on roll (2 levels; <340 or ≥340) - Percentage of pupils eligible for free school meals (2 levels; <27% or ≥27%) - Percentage of pupils working at or above age-expected level (2 levels; <87% or ≥87%, later <65% or ≥65%, see [*Methods, Randomisation* section])
Primary outcome	variable	KS2 maths score
	measure (instrument, scale)	Scaled score in range of 80–120
Secondary outcome(s)	variable(s)	KS2 English score in reading and GPS
	measure(s) (instrument, scale)	Scaled score in range of 80–120

A two-armed pragmatic ('real world') cluster randomised trial of 105 primary schools was conducted. A pragmatic design was chosen to reflect as closely as possible the implementation of the programme in 'real life'. All schools were randomly allocated to receive either the intervention or to continue business as usual in the academic year 2016/2017. Prior to randomisation, class teachers at all participating schools were asked to identify approximately 12 (ideally, minimum 6, maximum 15) Year 6 pupils who they felt would benefit from the intervention in the academic year 2016/2017. Teachers were asked to target pupils who were working insecurely at or below age-related expectations in maths and who they believed would be receptive to small group tuition. The children in the primary schools randomised to the intervention group received the intervention in Year 6 during 2016/2017. Tuition for Intervention group schools was set at a flat fee of £1,000 for 12 pupils to each receive 12 hours of tuition. Any additional tuition (either tuition for additional pupils or additional hours for the same pupils) was charged at a flat rate of £15 per hour. The cost of Tutor Trust under usual circumstances (outside of the evaluation) depends on the tutor to pupil ratio selected by the school. For a ratio of 1:3 the hourly rate is £28 per hour, for 1:2 a rate of £23 per hour and for 1:1 a rate of £20 per hour. This rate has been frozen by the Tutor Trust for three years and has been available to all schools that it works with. Non-contact time required for planning, preparation, and assessment (if tutors are not provided with all tutoring materials by the school) is charged at an additional £9 per hour. Tuition for Looked after Children (LAC) is charged by the Tutor Trust at £18 per hour (always on a 1:1 basis) and an additional £7.50 per hour for non-contact time. Control schools were not offered any tuition in the academic year 2016/2017. All schools participating in the trial were offered a 25% discount on the Tutor Trust's standard rates for any type of tuition they wanted for Year 6 pupils in the academic year after the trial (2017/2018). Although some flexibility was offered to schools in terms of the tutor to pupil ratio, some stipulations had to be made in terms of the number of hours of tuition to ensure the intervention was comparable across schools. In usual practice outside the constraints of a trial, Tutor Trust allows schools to guide the number and durations of sessions it takes up. For the present trial it was agreed that a minimum number of 12 hours tuition per pupil was appropriate, with schools having the option to buy extra tuition if they wished. A package of 12 one-hour weekly sessions was suggested to schools

as the delivery model and indeed many schools opted for this model. Some schools, however, opted to deliver the intervention over a shorter number of weeks with longer sessions to better suit their timetable. Additionally, some schools opted to run the sessions in a 'summer school' format over the Easter break. This is discussed in further detail as part of the process evaluation.

The trial was designed, conducted and reported to CONSORT standards (Schulz et al., 2010) in order to minimise all potential threats to internal validity, such as selection bias and a range of post randomisation bias (Cook et al., 1979; Shadish et al., 2002; Torgerson and Torgerson, 2008). In this way, unbiased estimates of the impact of the intervention were provided.

Participant selection

The evaluation team supported the Tutor Trust in recruiting primary schools in the Leeds and Greater Manchester areas. The focus on these areas was linked to the Tutor Trust working with Manchester University and the University of Leeds in order to recruit student tutors. Tutor Trust operated from two bases (one in Manchester and one in Leeds) throughout the duration of the trial.

The recruitment of schools was undertaken by Tutor Trust by preferentially targeting schools with high proportions of pupils eligible for free school meals and high proportions of children achieving level 3 or an insecure level 4 in maths in KS2 according to the previous level system. At the pupil level, all schools were asked to select Year 6 pupils for tuition before randomisation (approximately 12 pupils per school) who were working below or insecurely at age-related expectations. In order for schools to be eligible to take part in the evaluation and to receive the intervention, a memorandum of understanding (Appendix A) was put in place with the schools which specified:

- enthusiasm for the project and for their own professional learning;
- willingness to identify all eligible pupils using pre-specified criteria;
- provision of school characteristics and baseline data about pupils in Years 5 and 6;
- willingness to allow random allocation to the intervention in the 2016/2017 academic year;
- willingness to identify approximately 12 current Year 5 pupils in June 2016 to receive the intervention (or at the latest by the Autumn half-term when the pupils are in Year 6);
- willingness to implement the intervention throughout the academic year 2016/2017;
- willingness to implement the intervention only to those identified;
- agreement to be in the independent evaluation;
- willingness to follow the guidance provided by the researchers;
- provision of a designated space for tuition sessions for pupils;
- provision of pupil data to allow the research team to link KS1 and KS2 data for all Year 6 pupils (2016/2017) from the National Pupil Database; and
- willingness to pay the (highly subsidised) costs of the intervention.

In addition to the memorandum of understanding signed by the school's headteacher, opt-out consent was also sought from parents/carers regarding the sharing of pupil data. Schools informed parents/carers of pupils about the study by means of a letter provided by the evaluation team (Appendix B). Parents/carers then had the option of opting their child out of the evaluation by returning to the school an opt-out slip (Appendix B). After this consent process had been completed, schools sent a list of names, unique pupil numbers (UPNs) and baseline data for all pupils in Year 6 (in 2016/2017) who did not return an opt-out form to their school.

Given the age of the pupils it was deemed appropriate for headteachers or Year 6 teachers to act in *loco parentis* to give written consent for pupils' involvement in focus groups. The evaluation team also sought informed verbal consent from pupils before they participated in focus groups (an age-appropriate ethically reviewed information sheet was provided to the pupils before the focus groups commenced).

The recruitment strategy focused on recruitment events held in Manchester and Leeds; these were jointly delivered by both the Tutor Trust team and the evaluation team. The purpose of the events was

to inform schools about the project (including information about the intervention, pupil eligibility criteria, data requirements, and design of the evaluation) and to invite them to complete a memorandum of understanding (Appendix A). Tutor Trust was primarily responsible for the recruitment and used a number of techniques to contact schools and invite them to the events including postal invitation and direct emails or phone calls (where possible to the headteacher or alternatively a general school email address).

Outcome measures

KS2 standard assessment tests (SATs) scores in maths and English (reading, grammar, punctuation and spelling—GPS), which are mandatory national tests, were used as the outcome measures in this trial, with maths being the primary outcome and English being a secondary outcome. KS1 scores (from tests undertaken in the academic year 2012/2013) were used as measures of prior attainment in these subjects. Results were obtained through the national pupil database (NPD). Schools were asked to provide name, unique pupil number (UPN), date of birth (DOB) for all pupils in the class at baseline. This data was used to request KS1 and KS2 results for these pupils from the NPD.

Results of the KS2 tests are available as both a 'raw score' and a 'scaled score'. Scaled scores, from 80 to 120, ensure that results are directly comparable year on year; a scaled score of 100 will always represent the 'national standard'.[1] Within the analysis the scaled scores were used, however summaries of the raw scores can also be found. Raw scores were obtained from the NPD for maths and GPS, however the reading score was not available. There is a published conversion table for which the scaled scores can be converted back to raw scores; this was done for the reading score.[2] The KS2 tests were administered as routine within the summer term of the academic year 2016/2017; teachers do not have access to the test prior to administration and hence there was no potential risk of bias due to 'teaching to the test'. Given that these papers are marked by external assessors the outcome assessment was naturally blinded.

Sample size

In a previous EEF trial of 'Grammar for Writing' an effect size of 0.25 of a standard deviation (SD) was observed for small group teaching (Torgerson et al., 2014). This difference was obtained over a relatively small time period (in the summer period after KS2 tests and the first term of Year 7).

From this study we assumed a pre- and post-test correlation of 0.67 between the KS1 and the KS2 scores. Second, we assumed an intra-cluster correlation coefficient between pupils of 0.19[3] and an average of 12 pupils per school. With 50 intervention and 50 control schools, we had 80% power to detect an effect size of 0.21 and over 90% power to detect an effect size of 0.25.

An ICC of 0.19 is potentially higher than we might anticipate; the EFF estimates the ICC for KS2 maths total score among schools in England to be 0.126 (calculated using data from the NPD 2013/2014 academic year with special schools and small schools excluded). Using this ICC in the sample size calculation, under otherwise identical assumptions, we had a minimum detectable effect size (MDES) of 0.18 with 80% power with 50 intervention and 50 control schools, and of 0.16 with 80% power with 70 intervention and 80 control schools. Using an ICC of 0.19 is therefore conservative.

[1] https://www.gov.uk/guidance/scaled-scores

[2] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/624645/2017_KS2_scaled_score_conversion_tables.pdf

[3] Based on ICC observed in Every Child Counts (ECC) evaluation; Torgerson, C., Wiggins, A., Torgerson, D., Ainsworth, H., Barmby, H., Hewitt, C., Jones, K., Hendry, V., Askew, M. & Bland, M. (2011) 'Every child counts: The independent evaluation', London: Department for Education. As explained in text, this was selected as a conservative estimate of the likely ICC in this trial given that the intervention targets lower achievers.

The final number of schools randomised into the trial was 105 (intervention 52; control 53), with 1290 identified pupils. With this number, assuming an ICC of 0.19 and a pre-post test correlation of 0.67, we had 80% power to detect an effect size of approximately 0.21 between the two arms. Alternatively assuming an ICC of 0.126 as the EEF suggests, the detectable effect size at 80% power is 0.18.

If we assume that the average percentage of identified pupils eligible for FSM was 14.8%, then, ceteris paribus with an ICC of 0.19, we would have 80% power to detect an effect size of approximately 0.33 between the identified pupils eligible for FSM in the two arms.

Randomisation

Schools were recruited by Tutor Trust. In order to be randomised, schools were required to sign a memorandum of understanding, complete a school information and current practices survey, provide pupil details for NPD linkage, and identify the 12 target pupils. Once these had been completed, a York Trials Unit statistician, Elizabeth Coleman, used MinimPY (Saghaei and Saghaei, 2011), a dedicated computer program, to randomise schools to the intervention group or to the control group. Schools were randomised on a real-time basis in small batches when they had provided all relevant data to enable effective set-up of the tutoring programme. Naïve minimisation with base probability 1.0 was conducted, that is, 1:1 deterministic minimisation. Minimisation is a form of dynamic allocation which assigns, in this scenario, schools to one group or another based on an algorithm which maintains the best balance on the minimisation factors (listed below). This process is predictable in that the allocation of a school can be worked out if the characteristics of that school, plus the characteristics and allocation of all schools entered previously, is known; therefore, a random element can be introduced which means that schools are allocated to the group which would maintain the best balance with a certain (high but less than one) probability, or to the other group. This aids non-predictability, and therefore avoids possible subversion of the randomisation. However, a random element was not required here, and naïve minimisation was deemed to be sufficient as the allocations were conducted in batches, rather than prospectively one by one. Predictability was therefore not a concern and hence a random element was not required. Minimisation using school characteristics and demographic information was undertaken to ensure the groups were balanced.

Minimisation included the following as factors:

- location (two levels; Leeds or Manchester);
- number of pupils on roll in the whole school in the academic year 2016/2017 (two levels; <340 or ≥340);
- percentage of pupils currently eligible for FSM in the whole school in the academic year 2016/2017 (two levels; <27% or ≥27%); and
- percentage of Year 6 pupils achieving below age-related expectations in KS2 maths in previous academic year (2015/2016; two levels, initially <87% or ≥87%, later <65% or ≥65%).

Please note that geographical location is not listed as a minimisation factor in the protocol, but is in the statistical analysis plan, where this difference is noted. Cut-off values for the levels for all factors except location were chosen based on historic data from a previous and similar EEF trial, Affordable Online Maths Tuition (Torgerson et al., 2016), conducted in 64 primary schools in the U.K. Historic data from the previous academic year was obtained from the involved schools and used for the randomisation process. The median number of pupils on roll in the Third Space Learning (TSL) trial was 339.5, so 340 was used as the cut off value. The median percentage of pupils receiving free school meals was 27%. For the KS2 achievement a median for the TSL trial was 86.5% so 87% was used; however, after randomising 34 schools to receive Tutor Trust, around a third of the total number randomised, it became apparent that this level was too high for the schools participating in this evaluation as only one school had more than 87% of its pupils achieving level 4 or above. Therefore, the cut-point was reduced to 65% which was the median of the 34 that had been randomised to date.

Statistical analysis

Analysis was conducted in Stata v15 (StataCorp., 2017) using the principles of intention to treat—including all schools and pupils in the groups to which they were randomised irrespective of whether or not they actually received the intervention. Statistical significance was assessed using two-sided statistical tests at the 5% significance level unless otherwise stated. The (approximately) 12 Year 6 pupils identified in each school were included in the primary analysis where data were available.

Regression based methods of analysis were used. Estimates of effect with 95% confidence intervals (CIs) and p-values are provided alongside results as appropriate. Effect sizes were calculated based on the adjusted mean difference between the intervention and control group and the total variance, both obtained from the multi-level model using equations (19) and (20) given in Hedges (2007) for cluster randomised designs analysed via multi-level models and allowing for unequal cluster sizes. A detailed statistical analysis plan (SAP) was produced alongside the trial protocol and is available via the EEF website (Fairhurst and Coleman, 2017).

School and pupil characteristics and measures of prior attainment are summarised descriptively by randomised group both as randomised and as analysed in the primary analysis (for identified pupils). Additionally, a comparison of non-identified pupils as at randomisation will be presented by randomised group. No formal statistical comparisons will be undertaken. The Hedges' g effect size for the difference between the intervention and control group in terms of prior attainment is presented with an associated 95% confidence interval.

Primary analysis

The primary outcome measure was the scaled score in KS2 mathematics test. Secondary outcomes were scaled scores in reading and grammar, punctuation and spelling (GPS). The range of scaled scores available for each KS2 test is as follows:

- 80 is the lowest scaled score that can be awarded;
- 120 is the highest scaled score;
- a pupil awarded a scaled score of 100 or more has met the expected standard in each test; and
- a pupil awarded a scaled score of 99 or less has not met the expected standard in the test.

In the SAP, we stated that raw test scores would not be available via the NPD; however, they were for maths and GPS, but not for reading scores. The scaled reading scores were converted to raw scores using the conversion table published at:
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/624645/2017_KS2_scaled_score_conversion_tables.pdf.

Unadjusted raw and scaled outcome scores are summarised by arm for KS2 maths, English GPS, and English reading.

The difference in maths attainment between pupils originally identified to receive the tutoring (the 'identified' pupils) in the intervention group and the control group (regardless of whether or not they received the tutoring) was compared using a linear mixed model with scaled KS2 maths score as the outcome variable at the pupil level. Group allocation, achieved KS1 maths score, and the minimisation factors (number of pupils on roll, percentage of pupils eligible for FSM, percentage of Year 6 pupils working at or above age-expected levels and location) were included as fixed effects in the model. The continuous variables that were dichotomised to use as factors in the minimisation were included in their continuous form in the model. Adjustment was made for clustering at the school level by including 'school' as a random effect within the model and robust standard errors were

specified to account for possible heteroscedasticity. The model equation for this analysis is provided below (please see the Statistical Analysis Plan, Fairhurst and Coleman, 2017, for more information).

$$Y_{ij} = \beta_0 + \beta_1 x_{ij} + \beta_2 w_i + \beta_3 y_i + \beta_4 z_i + \beta_5 I_{Li} + \beta_6 I_{Ai} + u_{ij}\gamma_i + \varepsilon_{ij}$$

Y_{ij} = response of the j-th member of cluster (school) i, *i=1,…,m, j=1,…,n_i*

m = number of clusters (schools)

n_i = size of cluster (school) i

x_{ij} = KS1 maths score for j-th member of cluster (school) i

w_i = number of pupils on roll for cluster (school) i

y_i = percentage of pupils currently eligible for FSM in cluster (school) i

z_i = percentage of pupils working at or above age-expected levels within cluster (school) i

I_{Li} = indicator variable for location of cluster (school) i (0 = Leeds, 1 = Manchester)

I_{Ai} = indicator variable for group allocation of cluster (school) i (0 = Control, 1 = Intervention)

β_0, β_1, β_2, β_3, β_4, β_5, β_6 = fixed effect parameters

u_{ij} = random effect for j-th member of cluster (school) i

γ_i = random effect parameter

εij = residual error term for j-th member of cluster (school) i

The normality of the standardised residuals was checked using a QQ-plot.

Sensitivity analysis: missing data

All missing data at baseline and outcome is summarised and reasons for missing data is explored. To explore the impact of missing data on the primary analysis, multiple imputation by chained equations was used. Covariate and outcome data were predicted by a model including all variables in the primary analysis model (group allocation, achieved KS1 maths score, number of pupils on roll, percentage of pupils eligible for FSM, percentage of Year 6 pupils working at or above age-expected levels, location and school). A 'burn-in' of ten was used, which means that the first ten iterations of the imputation are not used to allow the iterations to converge to a stationary distribution, and 20 imputed datasets subsequently were created. The primary analysis was re-run on the multiply-imputed datasets, and Rubin's rules were used to combine the estimates.

Sensitivity analysis: compliance to intervention

The amount of tuition received by the pupil was recorded (number of sessions and ratio of tutor to pupils in their group). The effect of non-compliance and number of sessions received was explored using Complier Average Causal Effect (CACE) analysis, using a two-stage least squares instrumental variable (IV) approach, with randomised group as the IV, using the ivregress command in Stata (https://www.stata.com/manuals13/rivregress.pdf). This allows an unbiased estimate of the tutoring effects upon children who were randomised to receive the tutoring and actually received it.

Compliance was defined in three ways, in three separate analyses:

I. receiving nine (75% of recommended number of sessions) or more hours of tuition (primary compliance analysis);
II. receiving at least one tuition session; and

III. in a continuous form as the number of hours of tuition received.

Secondary analysis

The primary ITT model was repeated, but adjusting only for group allocation and prior attainment (KS1 maths score) as fixed effects, and school as a random effect.

A secondary analysis as described for the primary outcome but using the KS2 scaled score for English as the outcome measure, and controlling for KS1 English score, was conducted to assess for any spill-over effects in achievement from having received tutoring in maths. This was done for both GPS and reading.

The proportion of identified pupils achieving the expected national standard in maths, reading and GPS (a scaled score of 100 or more) was analysed using mixed-effect logistic regression at the pupil level controlling for KS1 score and the minimisation factors as described for the primary analysis, with adjustment made for clustering at the school by including it as a random effect.

Subgroup analysis

The effect of the intervention on participating pupils who have ever been eligible for FSM was assessed both via the inclusion of an interaction term between ever FSM status (using the variable EVERFSM_6_P from the NPD) and allocation in the primary analysis model, and by repeating the primary analysis in the subgroup of pupils who have ever been eligible for FSM. Please note that the published statistical analysis plan states that the variable EVERFSM_ALL would be used for this analysis; however, this was changed to EVERFSM_6_P for the final analysis to reflect the most recent EEF guidance on analysis of its trials.

The primary analysis was repeated including an interaction term between baseline KS1 score and allocation to see if there was any evidence of a differential effect by baseline KS1 scores. Additionally, an interaction term between KS1 maths, gender and allocation was included in the primary analysis model to test for evidence of a differential effect by gender. Statistical significance for the interactions was set at a less stringent level of 0.1 as this trial is not powered to detect interactions.

Additional analysis

We repeated the primary analysis for pupils in the class who were not selected as suitable for inclusion in the intervention to see if there was evidence of any ‘spill over’ effects of tutoring on the performance of children not being tutored. We might have expected some positive effect due to the classroom teacher having more time to give to the non-tutored pupils (the pupils not in the intervention), but there is also the potential for a negative impact if teachers have to spend extra time catching up pupils who might have missed a lesson due to receiving tutoring as part of the intervention.

The intra-cluster correlation coefficient (ICC) was estimated and a 95% confidence interval (CI) presented for the primary outcome, KS2 scaled maths, associated with school for both the data used in the primary analysis, and for those not included in the primary analysis (non-identified pupils). It was also calculated for KS2 scaled reading and scaled GPS for identified pupils. The pair-wise correlation for continuous KS1 and KS2 maths results was calculated using Pearson’s correlation coefficient for the identified pupils.

Implementation and process evaluation

In line with EEF guidance, the aim of this implementation and process evaluation (IPE) was to generate and analyse ‘data to examine how an intervention is put into practice, how it operates to achieve its intended outcomes and the factors that influence these processes’ (Humphrey et al., 2016). The IPE in this evaluation sought to explore and develop an understanding of the intervention delivery (including

its fidelity, quality, and identifying elements of successful delivery) in relation to the intervention specification as described (prior to implementation) by the project team (Tutor Trust).

Research questions and approach

Members of the evaluation team involved with the process evaluation were Louise Gascoine (LG), Kerry Bell (KB) and Carole Torgerson (CT). The delivery team (Tutor Trust) assisted in communication with schools and the facilitation of some aspects of the process evaluation data collection (for example, forwarding observation information sheets and consent forms to tutors and distributing trainer surveys), but they were not directly involved in the collection of the data itself (other than when they were interviewed directly).

The IPE took place across a selection of participating schools for the duration of the evaluation (school year 2016/2017); it ran concurrently alongside the impact evaluation, used a range of approaches, and was cross-sectional and mixed-method in nature. The research questions that the IPE sought to answer were as follows:

1. Do the stakeholders see benefit in Tutor Trust affordable primary tuition for pupils in Year 6 working insecurely at or below age related expectations?
    a. I.e., the social validity of the intervention and its ability to meet intended outcomes: How acceptable is it for all parties (teachers, pupils, tutors and the project team)? How feasible is it? How useful is it? Have the stakeholders observed impacts? Have there been any unintended consequences?
2. Has the intervention been delivered as intended, in terms of dosage and core components?
    a. Did different schools deliver the intervention in different ways, if so how? Did variation in delivery potentially moderate outcomes?
3. What outstanding features and/or good practice can be identified in relation to Tutor Trust affordable primary tuition (via observations of tutoring and discussions and surveys with schools)?
4. Were there any barriers to the implementation of Tutor Trust affordable primary tuition, or were any negative effects noted by teachers or pupils?
    a. If so, were any adaptations made to the intervention? Did adaptations (if made) potentially moderate outcomes?
5. How is usual practice defined in relation to the intervention, for example:
    a. Did any compensatory activities occur in the schools randomised to the control group (information gathered via staff surveys)?

Data collection methods adopted within the IPE comprised a combination of surveys, interviews, observations, and focus groups, employed at different stages seeking to engage with a variety of stakeholders. The main stakeholders were pupils (intervention schools only), teachers, tutors, and the Tutor Trust itself (including the directors of Tutor Trust and those employed to deliver training for tutors). Quality assurance was undertaken during all stages of the IPE: planning, data collection, and in the interpretation of the process evaluation.

Sampling

As per the trial protocol, 15 schools were visited for IPE data collection (see Table 2: Process evaluation data collection methods). The sampling strategy was purposive and included schools with a range of characteristics from both Leeds and Manchester. A pragmatic approach to school visits was adopted, considering school characteristics alongside the availability of the schools to host a visit, the availability of the evaluation team, the geographical proximity of schools to each other to allow multiple visits in one day, and the tutoring schedules for intervention schools. In arranging the school visits for 15 schools, in the first instance we contacted a total of 15 schools that were identified as meeting the above criteria. All bar one of the schools contacted by the researchers were happy and able to take part in the

IPE; one school was not able to participate as we were unable to schedule a visit at a mutually convenient time. We then contacted another school (total n contacted = 16) with a similar profile that was happy to participate and we could schedule a visit at a mutually convenient time.

The sample of 15 schools in the IPE had an average size of 359.2, the average FSM was 25.8% and the average number of pupils working at or above age expected level was 67.7%. Therefore, this sample is similar to the whole sample recruited into the trial (total average size 355.8, FSM 28.3%, and working at or above expected levels 62.4%).

Multiple data collection methods were employed in the IPE with different groups of stakeholders in order to maximise the scope and breadth of the IPE and to allow the evaluators to synthesise the findings of the IPE alongside the impact evaluation. With this in mind, the IPE was designed to explore as many aspects of the intervention as possible within the given timescale (that is, from recruitment of tutors through to the delivery of the intervention and the views of all involved).

Fidelity

Fidelity was explored in relation to the description of the Tutor Trust intervention as set out in the trial protocol (Protocol., 2016). To summarise, the intervention was stated as comprising:

- tuition for students in Year 6 identified as working insecurely at or below age related expectations in maths—schools were asked to identify students based purely on academic need and the pupils' willingness to engage in tutoring;
- tuition requirements—a minimum of 12 one-hour tutoring sessions in maths that were to be delivered in school; and
- tuition in groups of a maximum ratio of 1 tutor to 3 students (1:1; 1:2 or 1:3—ratio to be determined by individual schools).

Fidelity to the intervention (how closely schools and tutors had adhered to the intervention as outlined above) was measured using a range of approaches and at pupil, tutor, and school level:

- observations of tutoring sessions—tutor and pupil level;
- online questionnaires—teacher/school level (they were completed by a mixture of classroom teachers and school leaders); and
- interviews—tutor and school level.

In addition to exploring fidelity, the process evaluation also sought to determine the efficacy (from stakeholders' perspectives) and feasibility of Tutor Trust affordable primary tuition, alongside exploring what usual practice would be for the pupils targeted in the intervention (those working insecurely at or below age related expectations).

Data collection

Data were collected in the IPE in three main stages:

1. **pre-implementation**—to establish baseline practice in all participating schools (control and intervention);
2. **during implementation**—to explore what Tutor Trust affordable primary maths tutoring looked like in practice within the participating intervention schools, including observations of tutoring as well as teacher, pupil, and tutor interviews/focus groups; and
3. **post-implementation** after the intervention period—to establish stakeholder opinion at the end of the intervention period (post-implementation teacher questionnaires, developer interviews, and trainer interviews).

Table 2 outlines all of the methods used in the process evaluation, the number of data points for each method, who collected the data, when it was collected, which stage of the IPE (as listed above) it contributed to and which research questions are directly linked to the data collected. Copies of all data

collection tools can be found in Appendix C. Data collected during the implementation (stage 2 as above) was collected in a total of 15 schools (as described under sampling). The intended sample size for the IPE was 15 schools, therefore references to intended sample for school visit data collection (tutor observations, teacher interviews, pupil focus groups) in Table 2 refer to the number of individuals or groups of individuals we intended to talk to and/or observe.

Table 2: Process evaluation data collection methods

IPE stage	What	Sampling Strategy (and unit)	Sampling n (intended)	n (actual)	Format	Who	When	IPE research Question	Additional information
1	School briefing meetings (pre evaluation, at the recruitment state)	At least one in each centre (Leeds and Manchester) (Meeting)	2	2	Short presentation in addition to developer presentation	DT with KB or LG	June/ July 2016	3	-
	Pre-randomisation usual practice survey	At least one teacher from each school (control and intervention) (Teacher/head teacher)	All schools recruited with MOU signed (n =106)	105	Online survey (Qualtrics) or Excel survey	KB, LG	Summer Term 2016	5 and 5a	Online (Qualtrics) and offline versions (in MS Excel) of the survey were available for participants to complete and return to the evaluation team.
	Observation of interviews with prospective tutors (Leeds)	Availability to attend a morning or afternoon of interviews (Interview)	4	4	Structured observation	LG and KB	Oct 2016	3	The opportunity arose to see more interviews and the researchers felt it a valuable opportunity to see a greater variety of prospective tutors interviewed within the time frame that we had.
	Tutor training (day B training)	Observe at least one of each training session provided for tutors (Training session)	1	1	Structured observation	LG and KB	Oct 2016	3	-
	Maths specific training		1	1	Structured observation	LG and CT	Nov 2016	3	-

IPE stage	What	Sampling Strategy (and unit)	Sampling n (intended)	n (actual)	Format	Who	When	IPE research Question	Additional information
2	Additional maths CPD session (half day)	No strategy at outset as this was additional training	0	1	Observation (pre-determined schedule not available due to timings)	CT	Feb 2017	3, 5	This additional CPD was such that we were not aware of it at the planning stage, but one member of the team was able to attend when informed about it.
	Tutoring session observations	Observe at least one tutoring session in 15% of the schools (Tutoring sessions)	15	17	Structured observation	LG, KB, CT	Feb -June 2017	1, 1a, 2, 2a, 3, 4, 4a	The different ways in which intervention schools had divided up their tutoring sessions meant that we often observed more than one session in a visit, especially if sessions were shorter (e.g. 2 x 30 or 45 minute sessions). 1 tutor was unavoidably observed twice due to their working in more than one intervention school.
	Tutor interviews	Interview tutors at each of the 15 school visits (Interviews)	15	18	Interview with pre-determined questions to guide	LG and KB	Feb – June 2017	1, 1a, 2, 2a, 3, 4, 4a	If tutors had been observed twice (as above) they were not formally interviewed twice but if they had additional comments about tutoring in the second school that they were observed in these were recorded. At some schools tandem tutoring sessions were observed so more than one tutor was interviewed simultaneously.

IPE stage	What	Sampling Strategy (and unit)	Sampling n (intended)	n (actual)	Format	Who	When	IPE research Question	Additional information
	Teacher interviews (intervention schools only)	Interview teachers on each of the 5 full visits (Interviews)	5	5	Interview with pre-determined questions to guide	LG and KB	Feb – June 2017	1, 1a, 2, 2a, 3, 4, 4a	It wasn't always possible to audio record these due to the settings in some schools in which they took place (e.g. too much background noise in some cases). Detailed notes were taken and the information analysed from these notes was included in the analysis.
	Pupil focus groups	Conduct pupil focus groups at each of the 5 full visits (Focus group session)	5 (4–6 students)	5 focus groups of 4–6 students .	Pre-determined schedule to guide	LG and KB	Feb – June 2017	1, 1a, 2, 2a, 3, 4, 4a	5–7 pupils in each focus group, intervention schools only
3	Teacher surveys (Year 6 teachers and school leaders)	Both control and intervention schools	Link sent to all 105 schools	49 (int); 35 (control)	Online survey (Qualtrics)	LG, KB, CT	Post-intervention June/ July 2017	1, 1a, 2, 2a, 3, 4, 4a, 5, 5a	In the intervention sample there were 49 responses from 44 schools. Some schools chose for a Year 6 class teacher and a member of the school leadership team to complete the follow up survey, the responses were recorded electronically via Qualtrics or returned by email to the evaluation team.

IPE stage	What	Sampling Strategy (and unit)	Sampling n (intended)	n (actual)	Format	Who	When	IPE research Question	Additional information
	Co-founders/ Tutor Trust staff interview	Interview at least one of the founding members	At least 1	1	Interview with pre-determined questions to guide	KB and LG	July 2017	1, 1a, 2, 2a, 3, 4	One of the co-founders of Tutor Trust participated in this interview
	Trainer survey	Survey sent to trainers via Tutor Trust staff, we requested that it was sent to trainers that we had observed training with but it was circulated more widely.	3 (we observed 3 trainers, the survey link was sent out by Tutor Trust to 5 trainers)	5	Online survey (Qualtrics)	LG, KB, CT	July 2017	1, 1a, 3, 4	The survey was distributed to trainers via the Tutor Trust

Stage one (pre-implementation)

The IPE at the pre-implementation stage (see Table 2) was two-fold: it focused on observing the processes of recruitment and the training of tutors, as well as establishing what usual (baseline) practice with respect to mathematics teaching looked like in all trial schools (control and intervention). Methods and sampling strategies were selected to maximise the information available to the evaluators in the time available before the intervention began, whilst also minimising the burden for schools. The evaluation team did not interview schools already using experienced tutors due to time constraints.

Interviews for prospective tutors and the subsequent training that successful candidates received were observed. In order to appreciate the breadth of the training provided for new tutors, mathematics-specific training was observed in conjunction with other training—including initial training and subject-specific training for primary maths. In order to accurately capture and appraise the training provided for tutors, training observation frameworks were informed by information provided by the developers and the observation frameworks were shared (for comment) prior to observations taking place. No changes were made to the observation frameworks after sharing these with the developers.

A baseline survey was sent to the headteachers of all schools who signed an MOU (n = 106) in order to establish usual (or baseline) practice and schools' perceived intentions of how they would use the Tutor Trust tuition should they be allocated to the intervention group (i.e., what ratio of tutor to pupil they would use, the timing of commencement of the intervention, and the planned duration of receipt). A response was received from 105 schools. One school did not return the baseline survey and was excluded from the trial due to the inability to randomise them without the completion of the survey. This withdrawal was not related to the trial. In terms of establishing baseline practice, the survey focused on the identified group of pupils that would be targeted for the tuition and explored baseline approaches to mathematics teaching across all evaluation schools. Establishing the baseline of usual practice, prior to randomisation, allowed us to make comparisons and see what changes became apparent in practice in trial schools over the course of the trial.

Stage two (during implementation)

Process evaluation work during the intervention period sought to address questions around what the intervention looked like. Multiple data collection methods were employed across a selection of schools in both Leeds and Manchester throughout the intervention period. In total 15 of the total schools in the sample were visited.

- Participation registers were used to track the attendance of the identified pupils at their tutoring sessions and to record the tutor to pupil ratio of the sessions. These were used to explore the efficacy of the intervention and the continuity of the intervention for the targeted pupils;
- Student focus groups were held with groups of 5–7 students to explore pupil views of the tutoring that they received. Focus groups centred on the extent of the enjoyment of tutoring sessions, the pupil-tutor relationship, how pupils felt that the tutoring had helped them, and what they might like to change (if anything);
- Post-randomisation teacher interviews in a selection of the intervention schools during the intervention period were carried out. These interviews were used to gather opinion and suggestions around the implementation and success of Tutor Trust tutoring. The interviews were conducted with a mixture of Year 6 teachers (majority), headteachers, and deputy headteachers within the intervention schools —the school suggested staff who had been most involved with Tutor Trust and the targeted students during the trial period.
- The delivery of tuition was observed to explore how implementation may have been interpreted differently in different settings and with different pupils.

With permission from participants, interviews and focus groups were audiotaped for ease of transcription. Audio data were stored securely and anonymously in accordance with the Data Protection Act (1998).

Stage three (post-implementation)

Process evaluation data collection in the post-intervention period focused on collecting survey data from all schools and interviewing the developer (Tutor Trust) to gather their thoughts about the trial period. School surveys were distributed (online link) to all participating schools (intervention and control). These surveys, in conjunction with pre-randomisation baseline surveys, were used to explore potential changes in practice over the course of the trial. They comprised:

- a developer interview; and
- a trainer online survey.

Quality assurance

The majority of the observations were carried out by two members of the team (LG and KB). By way of quality assurance, LG and KB completed two observations together at the beginning of the data collection period to establish agreement between observers. A third member of the team (CT) quality-assured the observations of the two main observers (at visits in Leeds and Manchester). There was a high level of agreement in both narrative commentary within the observation schedules and in the opinions of the overall quality of both the training and tuition observed (across all of the observations that were double-observed).

Costs

Intervention costs

Data on costs was collected directly from the Director of the Tutor Trust. The only direct monetary cost associated with the intervention was the cost to schools for the provision of tuition. The cost of the intervention during the evaluation and the proportion of the cost subsidised by the EEF are described. Due to successful fundraising, the Tutor Trust anticipate[4] being able to provide the same package of tuition delivered in the evaluation for a lower price in future academic years. These projections of future costs are also reported in the section about cost.

Time costs

Data regarding the time involved at the school level to facilitate the intervention were collected directly from school heads or Year 6 teachers via the end of trial survey.

[4] This information was gathered in an interview with one of the founders of Tutor Trust at the end of the intervention period.

Timeline

Table 3: Timeline

Date	Activity
Nov 2015	Project start date
June 2016	Protocol development and ethics
July 2016	Recruitment of schools
July 2016	Observations of school briefing meetings
Autumn 2016	Recruitment of tutors
Autumn 2016	Observations of interviews with prospective tutors
Autumn 2016	Tutor training
Autumn 2016	Observations of tutor training
Autumn 2016	Interviews with trainers
Autumn 2016	Interviews with founders/ TT staff
Autumn 2016	Baseline data collection (teacher surveys and pupil data)
Autumn 2016	Randomisation
Oct 2016–Jan 2016	Commencement of intervention
Spring/Summer 2017	Observations of tutoring sessions
Spring/Summer 2017	Interviews with tutors
Spring/Summer 2017	Interviews with class teachers
Summer 2017	NPD data requested
Feb 2018 onwards	Analysis and report writing
Apr 2018	Draft report
July 2018	Final report
End July 2018	Project end date

Impact evaluation

Participant flow including losses and exclusions

A total of 629 schools were contacted to take part in the Tutor Trust evaluation, 412 across Greater Manchester and 217 across Leeds. Many schools did not respond but 34% replied to decline the invitation to take part in the trial. A total of 106 schools (16.9% of those approached) returned a signed MOU and 105 were randomised into the trial, since one school did not provide baseline data. Of these, 53 were randomised to the control arm and 52 to the intervention arm. The randomised schools varied in size from 136 to 741 pupils (mean 356, SD 131.2).

Each school was asked to identify approximately 12 Year 6 pupils working insecurely at, or below, age related expectations in maths; 1290 pupils were identified across 103 schools: 621 from 51 intervention schools, and 669 from the 52 control schools. The mean number of children identified was 12.2 (SD 2.7, range 6 to 25) in intervention schools, and 12.9 (SD 6.6, range 9 to 59) in control schools. Two schools did not identify participants to receive the tuition prior to randomisation; one subsequently allocated to intervention and one to control. Some pupils in the intervention school did receive tutoring, however, it was decided against including these as 'identified pupils' as we cannot be sure they were strictly selected prior to the school's knowledge of their random allocation. Since the primary analysis was conducted on identified pupils, all pupils in the Year 6 classes of these two schools were excluded from the primary analysis but were included in the analysis of the non-identified pupils.

Figure 1 shows a flow diagram of pupil and schools through the trial. One intervention school formally withdrew from the intervention, after randomisation but before tuition had begun, but allowed the pupils' data to be requested from the NPD; thus were still included in analysis. All other schools completed the trial, and data on 4436 pupils from 105 schools was sent to be matched with the National Pupil Database (NPD). Matching was achieved for 4269 pupils (96.2%) across all 105 schools.

Figure 1: Participant flow diagram reflecting primary analysis for identified pupils

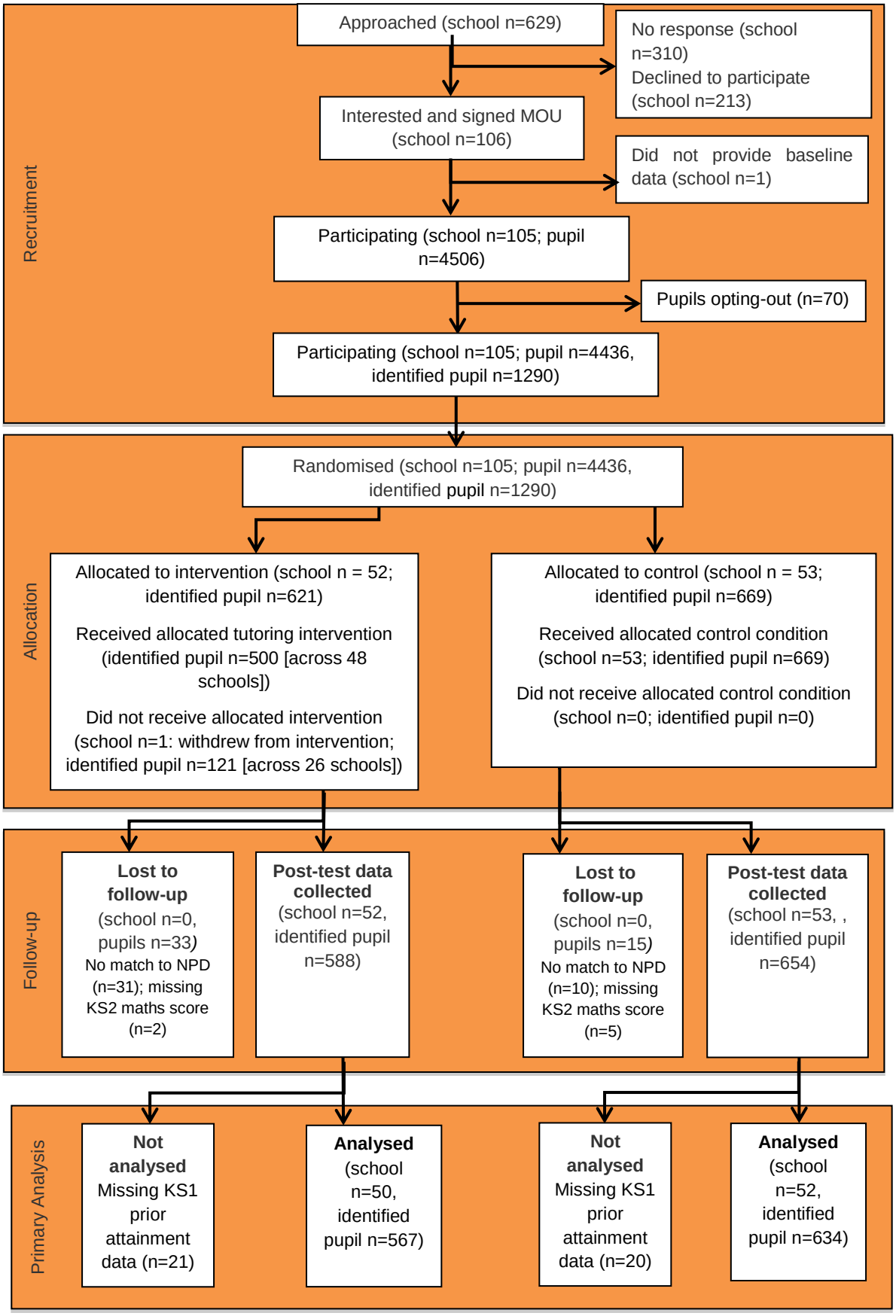


Table 4: Minimum detectable effect size at different stages for identified pupils

		Protocol		Randomisation		Analysis	
		Overall	FSM[a]	Overall	FSM[a]	Overall	FSM
MDES		0.21	0.34	0.21	0.33	0.28	0.30
Pre-test/ post-test correlations	level 1 (pupil)	0.67	0.67	0.67	0.67	0.53	0.53
Intra-cluster correlations (ICCs)	level 2 (school)	0.19	0.19	0.19	0.19	0.29	0.27
Alpha		0.05	0.05	0.05	0.05	0.05	0.05
Power		0.8	0.8	0.8	0.8	0.8	0.8
One-sided or two-sided?		Two	Two	Two	Two	Two	Two
Average cluster size		12	2	12	2	12	6
Number of schools	intervention	50	50	51	51	50	49
	control	50	50	52	52	52	52
	total	100	100	103	103	102[b]	101[b]
Number of pupils	intervention	600	89	621	92	576	272
	control	600	89	669	99	634	304
	Total	1200	178	1290	192	1201	576

[a] Assuming 14.8% of pupils eligible for FSM, not included in protocol, added retrospectively at time report written.

[b] Two schools were excluded from the primary analysis as they identified no children; and one school was not included as none of the identified pupils were matched by NPD. Additionally a further school was not included in the FSM analysis as none of the identified pupils were eligible for FSM.

Attrition

The primary outcome, KS2 scaled maths score, was available for a total of 4109 (92.6%) of the 4436 pupils from the participating schools (Intervention n=2015, 91.5%; Control n=2094, 93.7%), and for 1242 (96.3%) of the 1290 identified pupils (Intervention n=588, 94.7%; Control n=654, 97.8%). The measure of prior attainment for the primary analysis was KS1 maths score. This was available for a total of 3974 (89.6%) of the 4436 pupils from the participating schools (Intervention n=1953, 88.7%; Control n=2021, 90.4%), and 1207 (93.6%) of the 1290 identified pupils (Intervention n=568, 91.5%; Control n=639, 95.5%). Identidfied pupils were included in the primary analysis model if they had data for the outcome (KS2 scaled maths score), and covariates (KS1 maths score, and the minimisation factors). No data were missing for the minimisation factors; however, of the 1242 identified participants that had KS2 scaled maths score, 41 (Intervention n=21; Control n=20) were missing KS1 maths score. This led to the inclusion of 1201 identified pupils (93.0% of those randomised) in the primary analysis (Intervention n=567, 91.3%; Control n=634, 94.8%); therefore, attrition was minimal, and a similar proportion of pupils originally identified to receive tutoring if allocated to the intervention arm were included in the primary analysis from the two groups. The primary analysis was conducted for pupils from 102 schools, with three schools excluded due to missing data: two schools did not identify pupils for intervention prior to randomisation (intervention group n=1; control group n=1); and missing NPD

data for all the identified pupils (intervention group n=1; control group n=0) led to the exclusion of another.

Pupil and school characteristics

Characteristics of the 105 randomised schools were compared by eye, and appear similar in both groups and are presented in Table 5. Overall, more of the recruited schools were in Manchester (n=58) than in Leeds (n=47), but they were split equally across the intervention and control. The mean overall school size was 355.8 and was similar between the two groups (Intervention 352.7; Control 358.8); however the medians varied slightly with the intervention group having a median of 355.5 compared to 341.0 in the control group. The percentage of pupils eligible for FSM was similar between the groups, 29.5% v 27.1%; this is higher than the national average of pupils known to be eligible and claiming FSM in nursery and state-funded primary schools in January 2017 which is 14.8% (for 5–10 year olds; Department for Education., 2017). The median percentage of pupils working at or above age-expected level was 65%, compared to the national average of 76%.[5] The schools that were randomised were relatively balanced across the two groups in terms of the ratings from Ofsted with the exception that the control arm had four schools which were classified as inadequate, whereas the intervention arm had none classified as inadequate.

Characteristics for the 4436 pupils as randomised are also provided in Table 5, and are well balanced across the two groups. There was a roughly equal split of male to female pupils (51.0% male), and 42.5% of the pupils were eligible for FSM. The Hedges' g effect size for the difference in KS1 prior attainment scores between the intervention and control groups for all participating pupils for whom these data were available is 0.11 (95% CI 0.05 to 0.17, n=3974) for maths score, for KS1 Reading is 0.13 (95% CI 0.07 to 0.19, n=3973), and for KS1 writing score is 0.10 (95% CI 0.04 to 0.16, n=3973). For the identified pupils randomised and for whom these data are available, the Hedges' g effect size for the difference in KS1 maths score between the intervention and control groups is 0.09 (95% CI -0.02 to 0.21, n=1207), for KS1 Reading it is 0.10 (95% CI -0.01 to 0.21, n=1207), and for KS1 writing score it is 0.06 (95% CI -0.05 to 0.17, n=1206).

[5] https://www.gov.uk/government/publications/national-curriculum-assessments-key-stage-2-2018-interim/key-stage-2-2018-interim-results-text

Table 5: Baseline comparison as randomised (n=4436)

Variable	Intervention group		Control group		Overall	
School-level (categorical)	**n/N**	**Percentage**	**n/N**	**Percentage**	**n/N**	**Percentage**
Ofsted Rating						
Outstanding	6 / 52	11.5	5 / 53	9.4	11 / 105	10.5
Good	43 / 52	82.7	42 / 53	79.2	85 / 105	81.0
Requires Improvement	3 / 52	5.8	2 / 53	3.8	5 / 53	9.4
Inadequate	0 / 52	0	4 / 53	7.5	4 / 105	3.8
Location						
Leeds	23 / 52	44.2	24 / 53	45.3	47 / 105	44.8
Manchester	29 / 52	55.8	29 / 53	54.7	58 / 105	55.2
N of pupils on roll						
<340	24 / 52	46.2	25 / 53	47.2	49 / 105	46.7
≥340	28 /52	53.9	28 /53	52.8	56 / 105	53.3
% of pupils eligible for FSM						
<27%	28 / 52	53.9	29 / 53	54.7	57 / 105	54.3
≥27%	24 / 52	46.2	24 / 53	45.3	48 / 105	45.7
% of pupils working at or above age-expected levels						
<87	49 / 52	94.2	49 / 53	92.5	98 / 105	93 .3
≥87%	3 / 52	5.8	4 / 53	7.6	7 / 105	6.7
% of pupils working at or above age-expected levels						
<65%	24 / 52	46.2	27 / 53	50.9	51 / 105	48.6
≥65%	28 / 52	53.9	26 / 53	49.0	54 / 105	51.4
School-level (continuous)	**n (missing)**	**Mean (SD) Median (min, max)**	**n (missing)**	**Mean (SD) Median (min, max)**	**n (missing)**	**Mean (SD) Median (min, max)**
N of pupils on roll	52 (0)	352.7 (130.8) 355.5 (138, 703)	53 (0)	358.8 (132.7) 341 (136, 741)	105 (0)	355.8 (131.2) 341 (136, 741)
% of pupils eligible for FSM	52 (0)	29.5 (18.2) 26 (3, 72)	53 (0)	27.1 (19.0) 26 (0, 73)	105 (0)	28.3 (18.5) 26 (0, 73)
% of pupils working at or above age-expected levels	52 (0)	63.7 (16.5) 65 (28, 90)	53 (0)	61.2 (16.6) 64 (28, 99)	105 (0)	62.4 (16.5) 65 (28, 99)
Pupil-level (categorical)	**n/N (missing)**	**Percentage[a]**	**n/N (missing)**	**Percentage[a]**	**n/N (missing)**	**Percentage[a]**
Eligible for FSM	876 / 2201 (100)	41.7	936 / 2235 (69)	43.2	1812 / 4436 (169)	42.5
Sex, male	1071 / 2201 (98)	50.9	1105 / 2235 (69)	51.0	2176 / 4436 (167)	51.0
Pupil-level (continuous)	**n (missing)**	**Mean (SD) Median (min, max)**	**n (missing)**	**Mean (SD) Median (min, max)**	**n (missing)**	**Mean (SD) Median (min, max)**
Pre-test (KS1) raw scores						
Mathematics	1953 (248)	15.6 (3.5) 15 (3, 21)	2021 (214)	15.3 (3.7) 15 (3, 21)	3974 (462)	15.4 (3.6) 15 (3, 21)
Reading	1953 (248)	15.9 (3.9)	2020 (215)	15.4 (4.1)	3973 (463)	15.7 (4.0)

		15 (3, 27)		15 (3, 21)		15 (3, 27)
Writing	1952 (249)	14.5 (3.6) 15 (3, 21)	2021 (214)	14.1 (3.8) 15 (3, 21)	3973 (462)	14.3 (3.7) 15 (3, 21)

[a] As a percentage of pupils with valid (non-missing) data.

Characteristics of the 1290 identified pupils in the participating primary schools are presented in Table 6 as randomised, and in Table 7 as included in the primary outcome analysis model ('as analysed'), and those for the 3146 non-identified pupils can be found in Table 8.

FSM eligibility and gender appear well balanced across the two groups for the identified pupils, both as randomised and as analysed; therefore, there is no cause for concern that attrition has led to selection bias. Overall, 48.0% of the identified pupils included in the primary analysis were eligible for FSM, and 47.7% were male. The mean scores at pre-testing (KS1) are similar between the two groups (intervention and control) for each test.

Similarly, FSM eligibility and gender are well balanced across the two groups for the non-identified pupils as randomised, though the intervention group did tend to have slightly higher scores for the three KS1 tests.

A visual comparison of Tables 7 and 8 suggests that participants eligible for FSM were more likely to be identified to receive tutoring than those not eligible for FSM, and that identified pupils tended to have performed worse (lower scores) at KS1 than non-identified pupils.

Table 6: Baseline comparison for identified pupils as randomised (n=1290)

Variable	Intervention group		Control group		Overall	
Pupil-level (categorical)	**n/N (missing)**	**Percentage[a]**	**n/N (missing)**	**Percentage[a]**	**n/N (missing)**	**Percentage[a]**
Eligible for FSM	282 / 621 (32)	47.9	319 / 669 (10)	48.4	601 / 1290 (42)	48.2
Sex, male	280 / 621 (31)	47.5	324 / 669 (10)	49.2	604 / 1290 (41)	48.4
Pupil-level (continuous)	**n (missing)**	**Mean (SD) Median (min, max)**	**n (missing)**	**Mean (SD) Median (min, max)**	**n (missing)**	**Mean (SD) Median (min, max)**
Pre-test (KS1) scores						
Mathematics	568 (53)	14.8 (2.7) 15 (3, 21)	639 (30)	14.5 (2.6) 15 (3, 21)	1207 (83)	14.6 (2.6) 15 (3, 21)
Reading	568 (53)	15.0 (3.2) 15 (3, 21)	639 (30)	14.7 (3.2) 15 (3, 21)	1207 (83)	14.8 (3.2) 15 (3, 21)
Writing	567 (54)	13.7 (3.0) 15 (3, 21)	639 (30)	13.5 (3.0) 15 (3, 21)	1206 (84)	13.6 (3.0) 15 (3, 21)

[a] As a percentage of pupils with valid (non-missing) data.

Table 7: Baseline comparison for identified pupils as analysed (n=1201)

Variable	Intervention group		Control group		Overall	
Pupil-level (categorical)	**n/N (missing)**	**Percentage[a]**	**n/N (missing)**	**Percentage[a]**	**n/N (missing)**	**Percentage[a]**
Eligible for FSM	272 / 567 (0)	48.0	304 / 634 (0)	48.0	576 / 1201 (0)	48.0
Sex, male	265 / 567 (0)	46.7	308 / 634 (0)	48.6	573 / 1201 (0)	47.7
Pupil-level (continuous)	**n (missing)**	**Mean (SD) Median (min, max)**	**n (missing)**	**Mean (SD) Median (min, max)**	**n (missing)**	**Mean (SD) Median (min, max)**
Pre-test (KS1) scores						
Mathematics	567 (0)	14.8 (2.7) 15 (3, 21)	634 (0)	14.6 (2.5) 15 (3, 21)	1201 (0)	14.7 (2.6) 15 (3, 21)
Reading	567 (0)	15.0 (3.2) 15 (3, 21)	634 (0)	14.7 (3.1) 15 (3, 21)	1201 (0)	14.9 (3.2) 15 (3, 21)
Writing	566 (1)	13.7 (3.0) 15 (3, 21)	634 (0)	13.6 (2.9) 15 (3, 21)	1200 (1)	13.6 (3.0) 15 (3, 21)

[a] As a percentage of pupils with valid (non-missing) data.

Table 8: Baseline comparison for non-identified pupils as randomised (n=3146)

Variable	Intervention group		Control group		Overall	
Pupil-level (categorical)	**n/N (missing)**	**Percentage[a]**	**n/N (missing)**	**Percentage[a]**	**n/N (missing)**	**Percentage[a]**
Eligible for FSM	594 / 1580 (68)	39.3	617 / 1566 (59)	40.9	1211 / 3146 (127)	40.1
Sex, male	791 / 1580 (67)	52.3	781 / 1566 (59)	51.8	1572 / 3146 (126)	52.1
Pupil-level (continuous)	**n (missing)**	**Mean (SD) Median (min, max)**	**n (missing)**	**Mean (SD) Median (min, max)**	**n (missing)**	**Mean (SD) Median (min, max)**
Pre-test (KS1) scores						
Mathematics	1385 (195)	16.0 (3.7) 17 (3, 21)	1382 (184)	15.6 (4.0) 15 (3, 21)	2767 (379)	15.8 (3.9) 17 (3, 27)
Reading	1385 (195)	16.3 (4.1) 17 (3, 27)	1381 (185)	15.7 (4.4) 17 (3, 21)	2766 (380)	16.0 (4.3) 17 (3, 27)
Writing	1385 (195)	14.8 (3.8) 15 (3, 21)	1382 (184)	14.4 (4.1) 15 (3, 21)	2767 (379)	14.6 (4.0) 15 (3, 21)

[a] As a percentage of pupils with valid (non-missing) data.

Outcomes and analysis

The primary outcome for this evaluation is KS2 scaled maths score. Secondary outcomes were KS2 scaled reading and KS2 scaled GPS scores. These are all scored from 80 to 120, where a score of 100 or more indicates that the pupil has reached the national expected standard in the test.

A descriptive summary of the raw and scaled KS2 results can be found in Table 9 for all pupils and for the identified and non-identified pupils, separately. The average scaled score for KS2 maths, the primary outcome, is slightly lower for identified pupils than non-identified pupils: identified 101.4; non-identified 104.3; and all 103.4. The average is over the age-expected level (represented by a score of 100) in each of these groups and is similar between intervention and control groups. The difference in average raw score for KS2 maths between identified and non-identified pupils is more pronounced; 64.4 compared to 74.3 (71.3 for all). For KS2 reading an average score of 102.9 was achieved when looking at all pupils. This was slightly higher: 103.9, for non-identified pupils than identified pupils, 100.8, but the scores were similar in the intervention and control arms for each group. There was minimal difference in the average raw scores for KS2 reading between the identified and non-identified pupils; 27.2 and 30.7 respectively. The KS2 GPS average scaled and raw scores were also similar with the non-identified being a couple of points higher for non-identified pupils (scaled 106.2, raw 47.2) compared to identified pupils (scaled 103.2, 42.2). These averages were similar across both the intervention and control arms.

The distribution of the KS2 scaled scores in maths, reading, and GPS are shown below in Figure 2, and Figure 4, respectively. The scores appear to be roughly normally distributed, but with a slight negative (left) skew towards higher scores for the KS2 scaled maths scores. Similar distributions are observed when restricting to the identified pupils.

Table 9: Summaries of scaled and raw KS2 scores for all, identified, and non-identified pupils

Variable	Intervention group		Control group		Overall	
Pupil-level (continuous)	n (missing)	Mean (SD) Median (min, max)	n (missing)	Mean (SD) Median (min, max)	n (missing)	Mean (SD) Median (min, max)
All pupils						
Post-test (KS2) scaled scores						
Mathematics	2015 (186)	103.1 (7.6) 104 (80, 120)	2094 (141)	103.8 (7.4) 104 (80, 120)	4109 (327)	103.4 (7.5) 104 (80, 120)
Reading	2005 (196)	103.5 (8.2) 104 (80, 120)	2078 (157)	102.4 (8.4) 103 (80, 120)	4083 (353)	102.9 (8.3) 103 (80, 120)
GPS	2011 (190)	105.7 (7.6) 106 (81, 120)	2087 (148)	105.0 (7.6) 106 (81, 120)	4098 (338)	105.3 (7.6) 106 (81, 120)
Post-test (KS2) raw scores						
Mathematics	2015 (186)	72.6 (24.8) 77 (3, 110)	2098 (137)	70.0 (25.6) 75 (1, 110)	4113 (323)	71.3 (25.3) 76 (1, 110)
Reading	2010 (191)	30.3 (9.9) 32 (1, 48.5)	2088 (147)	29.0 (10.1) 30.5 (1, 48.5)	4093 (338)	29.7 (10.0) 30.5 (1, 48.5)
GPS	2011 (190)	46.3 (13.9) 49 (4, 70)	2088 (148)	45.1 (14.0) 47 (2, 70)	4098 (338)	45.7 (14.0) 48 (2, 70)
Identified Pupils						
Post-test (KS2) scaled scores						
Mathematics	588 (33)	102.0 (5.8) 103 (83, 118)	654 (15)	100.8 (5.9) 101 (80, 118)	1242 (48)	101.4 (5.9) 102 (80, 118)
Reading	587 (34)	101.4 (6.8) 102 (80, 120)	649 (20)	100.2 (6.8) 101 (80, 119)	1236 (54)	100.8 (6.8) 101 (80, 120)
GPS	588 (33)	103.6 (6.2) 104 (83, 120)	653 (16)	103.0 (6.1) 103 (83, 120)	1241 (49)	103.2 (6.1) 104 (83, 120)
Post-test (KS2) raw scores						
Mathematics	588 (33)	66.7 (21.0) 70 (10, 108)	654 (15)	62.2 (21.3) 64 (5, 108)	1242 (48)	64.4 (21.3) 67 (5, 108)
Reading	587 (34)	28.1 (8.4) 29 (3.5, 48.5)	652 (17)	26.5 (8.6) 28 (1, 46)	1239 (51)	27.2 (8.6) 28 (1, 48.5)
GPS	588 (33)	42.9 (11.9) 43 (6, 68)	653 (16)	41.6 (11.9) 43 (6, 69)	1241 (49)	42.2 (11.9) 43 (6, 69)
Non-identified Pupils						
Post-test (KS2) scaled scores						
Mathematics	1427 (153)	104.5 (7.9) 106 (80, 120)	1440 (126)	104.1 (8.0) 106 (80, 120)	2867 (279)	104.3 (7.9) 106 (80, 120)
Reading	1418 (162)	104.3 (8.6) 105 (80, 120)	1429 (137)	103.4 (8.6) 104 (80, 120)	2847 (299)	103.9 (8.8) 105 (80, 120)
GPS	1423 (157)	106.5 (8.0) 107 (81, 120)	1434 (132)	105.9 (8.0) 107 (81, 120)	2857 (289)	106.2 (8.0) 107 (81, 120)
Post-test (KS2) raw scores						

Mathematics	1427 (153)	75.0 (25.8) 81 (3, 110)	1444 (122)	73.5 (26.6) 81 (1, 110)	2871 (275)	74.3 (26.2) 81 (1, 110)
Reading	1423 (157)	31.2 (10.3) 33 (1, 48.5)	1436 (130)	30.2 (10.6) 32 (1, 48.5)	2859 (287)	30.7 (10.5) 33 (1, 48.5)
GPS	1423 (157)	47.8 (14.5) 51 (4, 70)	1435 (131)	46.7 (14.6) 50 (2, 70)	2858 (288)	47.2 (14.6) 50 (2, 70)

Figure 2: Histogram of the KS2 scaled maths scores for all pupils

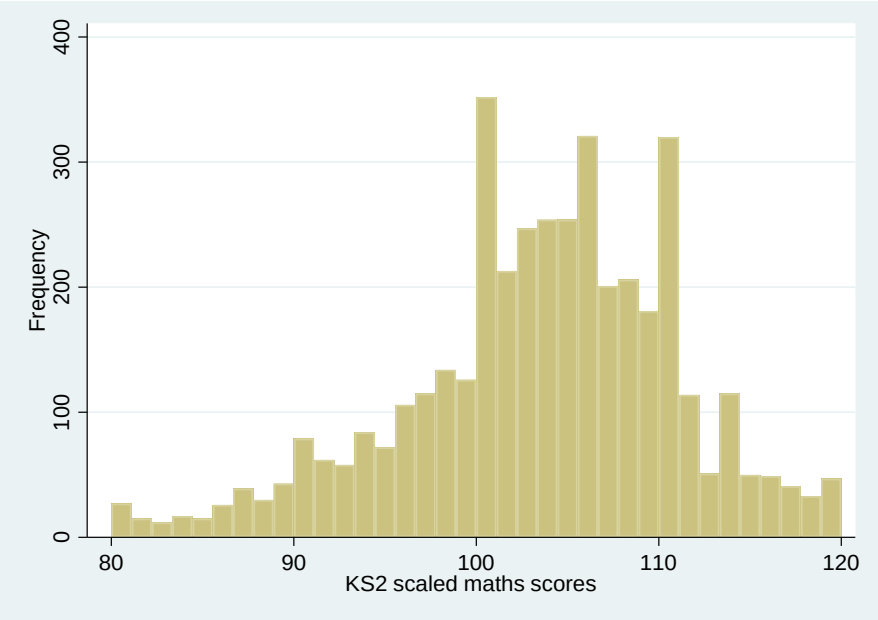


Figure 3: Histogram of the KS2 scaled reading scores for all pupils

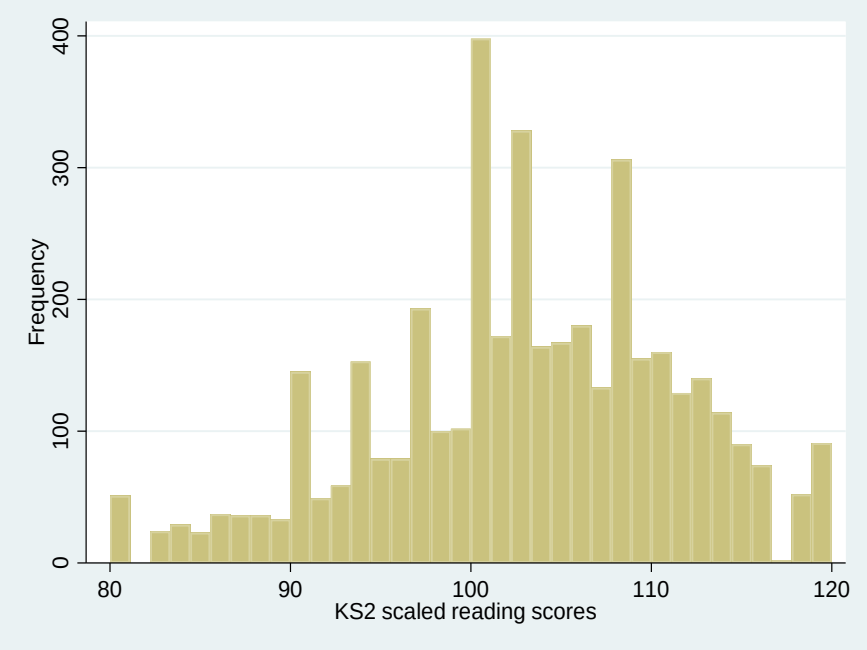
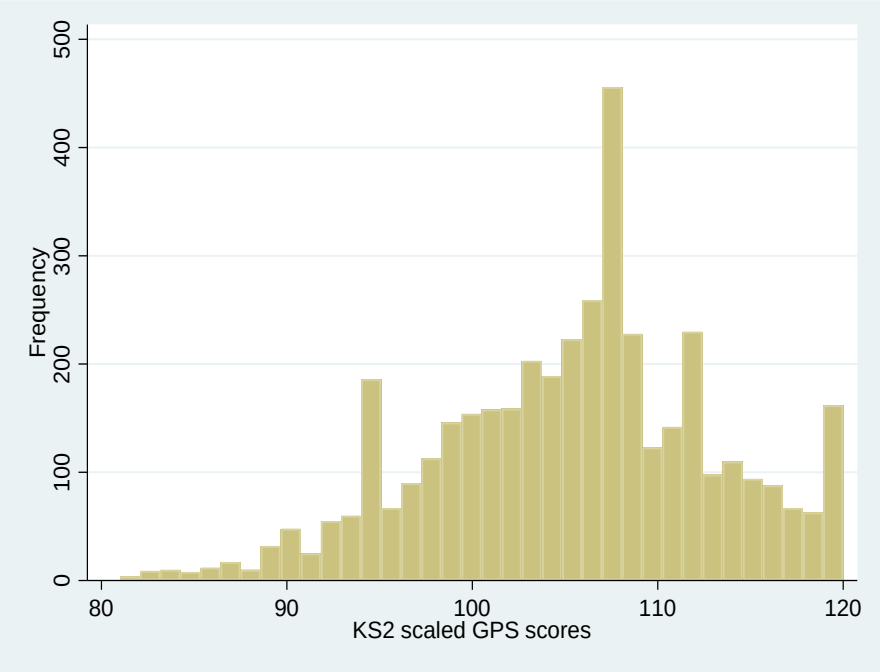


Figure 4: Histogram of the KS2 scaled GPS scores for all pupils

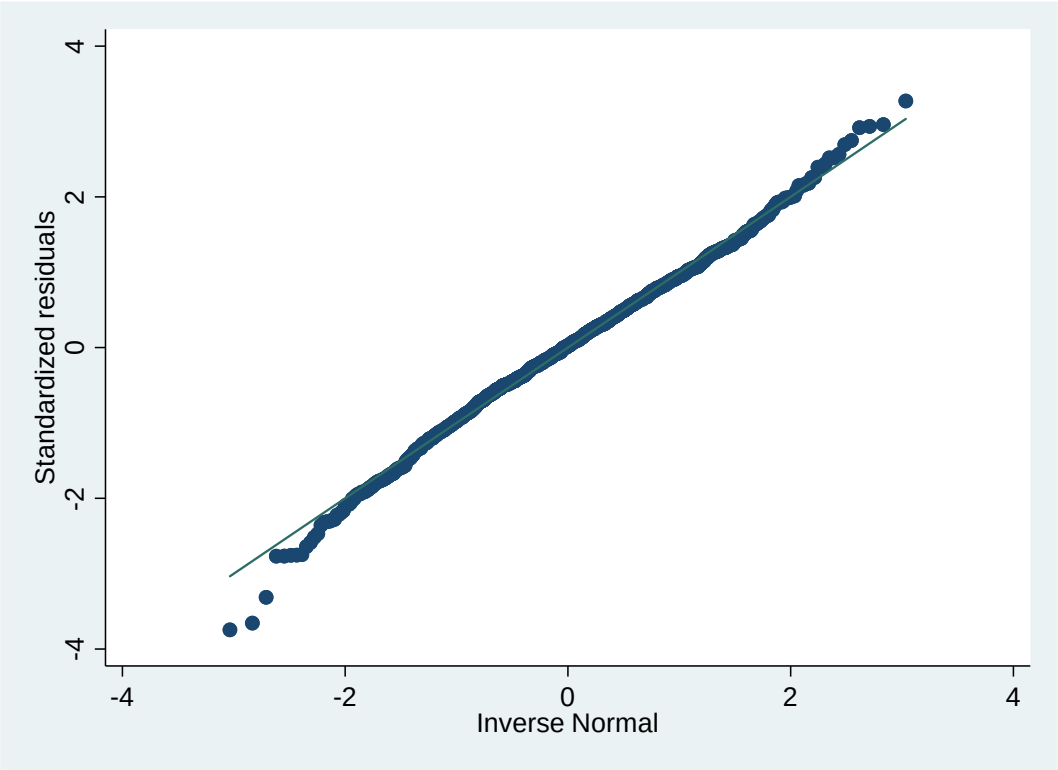


Primary analysis

In total, KS2 mathematics scaled score was available for 4113 identified pupils (Intervention n=2015, and Control n=2098), of which four, all in the control group but none of which were an identified pupil, had an invalid score (depicted by 'N' in the NPD data). The KS2 scaled maths score was available for 588 identified pupils in the intervention group with a mean (SD) of 102.0 (5.8). The KS2 scaled maths score was available for 654 identified pupils in the control group with a mean (SD) of 100.8 (5.9).

The adjusted mean difference in KS2 maths scaled score between the identified pupils in the two arms was 0.97 points in favour of the intervention group (95% CI -0.19 to 2.12); this difference is not statistically significant (p=0.10). The estimated effect size for the intervention effect is moderate at 0.19 of a standard deviation (95% CI -0.05 to 0.44; Hedges, 2007—Table 10), which relates to approximately three months' additional progress. The total variance used to calculate the effect size was 24.6; the sum of 17.4 (random variation between pupils, within-cluster variance) and 7.2 (heterogeneity between schools, between-cluster variance). The assumption of normality of the standardised residuals was checked using a QQ-plot, which confirmed the assumption (Figure 5).

Figure 5: QQ-plot of the standardised residuals from the primary analysis model



Sensitivity analysis: missing data

To investigate the impact of missing data the primary analysis was repeated using predicted values obtained via multiple imputation by chained equations. There was only missing data for the two scores provided by the NPD, KS2 maths score and KS1 maths score. Since these are mandatory tests it is likely that these missing values are due to illness/absence when the tests were undertaken. It should be noted that those who received a score of N in the KS2 maths score are treated as missing in the analysis. For the identified pupils there were 48 missing scores for the KS2 maths score (3.7%) and 83 for the KS1 maths score (6.4%). This lead to the exclusion of 89 (6.9%) identified pupils for the primary analysis. The adjusted mean difference in KS2 maths scaled score between the identified pupils in the two arms following multiple imputation was 1.02 (95% CI -0.12 to 2.15); this difference is not statistically significant at the 5% significance level (p=0.08). The estimated effect size for the intervention effect is moderate at 0.20 of a standard deviation (95% CI -0.02 to 0.43), which relates to approximately three months' additional progress, and is very similar to results of the primary analysis. The total variance used to calculate the effect size was 24.7: the sum of 18.2 (random variation between pupils, within-cluster variance) and 6.5 (heterogeneity between schools, between-cluster variance).

Sensitivity analysis: compliance to intervention

No control schools received the Tutor Trust intervention, as reported by the Tutor Trust. In total, 660 pupils across 51 of the 52 intervention schools received at least one hour of tutoring (one school withdrew from the intervention and so no pupils from this school received tutoring, but data were still requested from the NPD for pupils from this school). However, 160 of the pupils who received tutoring were not identified at baseline as pupils to receive the intervention, and conversely, 121 pupils who were identified to receive the tutoring did not receive it. In total, 500 of the 621 identified pupils in the intervention group received at least one hour of tutoring (mean 11.7, SD 1.5, median 12, range 1–14). This tutoring took place over an average of 11.2 sessions (SD 2.3, median 12, range 1–17). Tutoring sessions lasted a median of 60 minutes (range 30 to 210). The ratio of tutor to pupils was recorded for 476 identified pupils and was 1:1 (n=25, 5.3%), 1:2 (n=66, 13.9%) or 1:3 (n=385, 80.9%).

The majority of identified pupils received nine (75% of recommended number of sessions) or more hours of tuition (n=487, 78.4%). The CACE estimate of the effect of receiving at least nine hours of tutoring on KS2 scaled maths score was a predicted increase of 1.2 points (95% CI -0.3 to 2.6, p=0.11, estimated effect size 0.23, 95% CI -0.05 to 0.52), relative to receiving no, or less than nine hours, tutoring, which is quite similar to the primary analysis result. The CACE estimate of the effect of receiving at least one hour of tutoring on KS2 scaled maths score was a predicted increase of 1.1 points (95% CI -0.3 to 2.5, p=0.11, estimated effect size 0.23, 95% CI -0.05 to 0.51), relative to not receiving any tutoring.

The CACE analysis was also considered using the number of hours of tuition received in its continuous form, in which the effect of receiving one extra tuition session was observed to be an increase in 0.1 points in KS2 scaled maths score (95% CI -0.02 to 0.21, p=0.11, estimated effect size 0.02, 95% CI -0.005 to 0.04).

Secondary analyses

Secondary ITT analysis

The adjusted mean difference in KS2 maths scaled score between the identified pupils in the two arms, when the model controlled solely for prior attainment and not the minimisation factors, was 1.04 points in favour of the intervention group (95% CI -0.12 to 2.20); this difference is not statistically significant (p=0.08). The estimated effect size for the intervention effect is moderate at 0.21 of a standard deviation (95% CI -0.04 to 0.46), which relates to approximately three months' additional progress. The total variance used to calculate the effect size was 24.8; the sum of 17.4 (random variation between pupils, within-cluster variance) and 7.3 (heterogeneity between schools, between-cluster variance).

Effect on reading score

In total, KS2 scaled score in reading was available for 4098 identified pupils (Intervention n=2010, and Control n=2088), of which 15 (Intervention n=5, Control n=10) had an invalid score. A valid KS2 scaled reading score was available for 587 identified pupils in the intervention group with a mean (SD) of 101.4 (6.8). The KS2 scaled reading score was available for 649 identified pupils in the control group with a mean (SD) of 100.2 (6.8).

There was no evidence of a difference in KS2 scaled reading score between the identified pupils with a non-statistically significant increase of 0.81 for those in the intervention group compared to those in the control group (95% CI -0.34 to 1.96, p=0.17). The estimated effect size for the intervention effect is small at 0.14 of a standard deviation (95% CI -0.07 to 0.34). The total variance used to calculate the effect size was 34.8; the sum of 28.8 (random variation between pupils, within-cluster variance) and 6.0 (heterogeneity between schools, between-cluster variance).

Effect on GPS score

In total, a KS2 scaled score in GPS was available for 4099 identified pupils (Intervention n=2011, and Control n=2088), of which 1 in the control group had an invalid score. A valid KS2 scaled GPS score was available for 588 identified pupils in the intervention group with a mean (SD) of 103.6 (6.2). The KS2 scaled GPS score was available for 653 identified pupils in the control group with a mean (SD) of 103.0 (6.1).

There was no evidence of a difference in KS2 scaled GPS score between the identified pupils with a non-statistically significant increase of 0.37 for those in the intervention group compared to those in the control group (95% CI -0.69 to 1.44, p=0.49). The estimated effect size for the intervention effect is small at 0.07 of a standard deviation (95% CI -0.15 to 0.30). The total variance used to calculate the effect size was 24.8; the sum of 19.1 (random variation between pupils, within-cluster variance) and 5.7 (heterogeneity between schools, between-cluster variance).

Proportion of identified pupils achieving expected results

Identified pupils in the intervention group were seen to be more likely than identified pupils in the control group to meet the expected standard in KS2 mathematics, reading and GPS; however, none of these differences were statistically significant:

- mathematics: 70.4% vs. 63.8%; OR 1.39, 95% CI 0.76 to 2.54, p=0.29;
- reading: 65.8% vs. 58.4%; OR 1.37, 95% CI 0.89 to 2.09, p=0.15; and
- GPS: 74.3% vs. 72.1%; OR 1.20, 95% CI 0.69 to 2.09, p=0.53.

Table 10: Summary statistics and results from the analysis models for identified pupils

	Unadjusted means/n (%)				Effect size		
	Intervention group		Control group				
Primary outcome	n	Mean (SD) Median (min, max)	n	Mean (SD) Median (min, max)	n in model (intervention; control)	Effect size (95% CI)	p-value
KS2 scaled maths score	567	102.0 (5.8) 103 (83, 118)	634	100.7 (6.0) 101 (80, 118)	1201 (567; 634)	0.19 (-0.05, 0.44)	0.10
FSM subgroup: KS2 scaled maths score	272	101.2 (5.6) 102 (83, 117)	304	100.1 (6.1) 100 (80, 118)	576 (272; 304)	0.25 (-0.02, 0.51)	0.06
Secondary outcomes (continuous)	**n**	**Mean (SD) Median (min, max)**	**n**	**Mean (SD) Median (min, max)**	**n in model (intervention; control)**	**Effect size (95% CI)**	**p-value**
KS2 scaled reading score	566	101.3 (6.9) 102 (80, 120)	629	100.3 (6.9) 101 (80, 119)	1195 (566; 629)	0.14 (-0.07, 0.34)	0.17
KS2 scaled GPS score	566	103.6 (6.2) 104 (83, 120)	633	103.0 (6.1) 103 (83, 120)	1199 (566; 633)	0.07 (-0.15, 0.30)	0.49
Secondary outcome (categorical)	**n/N (missing)**	**Valid percentage**	**n/N (missing)**	**Valid percentage**	**n in model (intervention; control)**	**OR (95% CI)**	**p-value**
Achieved expected standard							
Mathematics	414/621 (33)	70.4	414/669 (15)	63.8	1201	1.39 (0.76, 2.54)	0.29
Reading	386/621 (34)	65.8	379/669 (20)	58.4	1195	1.37 (0.89, 2.09)	0.15
GPS	437/621 (33)	74.3	471/669 (16)	72.1	1199	1.20 (0.69, 2.09)	0.53

Subgroup analysis

All subgroup analyses were pre-specified, and statistical significance was set at 0.10 as the trial was not powered to detect interactions.

Effect of intervention on identified pupils eligible for FSM

Interaction model

When an interaction between allocation and FSM status was included in the primary model, the interaction was seen to be statistically significant at the 10% significance level (p=0.07).

Separate model for FMS pupils only

The mean and standard deviation (SD) of the KS2 scaled maths score for identified participants eligible for FSM was 101.3 (5.6) in the intervention group and 100.1 (6.0) in the control group. The adjusted mean difference in KS2 maths scaled score between the identified pupils eligible for FSM in the two arms was 1.20 (95% CI -0.05 to 2.44, p=0.06). This is statistically significant at the 10% level. The estimated effect size for the intervention effect is moderate at 0.25 of a standard deviation (95% CI -0.02 to 0.51) and equivalent to approximately three months' additional progress. The total variance

used to calculate the effect size was 23.5; the sum of 17.1 (random variation between pupils, within-cluster variance) and 6.4 (heterogeneity between schools, between-cluster variance).

Differential effect by baseline KS1 score

There is evidence of a statistically significant differential effect of the intervention by baseline KS1 maths score on the KS2 scaled maths score when assessed against a 10% significance level (interaction effect p=0.05), with those with lower KS1 scores benefitting more than those with higher KS1 scores.

Differential effect by sex

There is some evidence of a statistically significant differential effect of the intervention by sex on the KS2 scaled maths score when assessed against a 10% significance level (interaction effect p=0.09). The predicted adjusted mean difference in female pupils between the intervention and control group was 1.38 (95% CI 0.13 to 2.62) and in males was smaller at 0.52 (95% CI -0.75 to 1.79).

Additional analyses

Effect on non-identified pupils

The effect on pupils who were not identified as needing additional support to achieve age-related grades was also investigated for any spill over effect. There was no evidence of a difference in KS2 scaled maths score between the intervention and control group in the pupils not identified pre-randomisation to receive the tutoring (the 'non-identified' pupils) with a non-statistically significant adjusted mean difference of -0.18 points favouring the control group (95% CI -0.15 to 0.80, p=0.72). The estimated effect size for the intervention effect is small and negative at -0.03 of a standard deviation (95% CI -0.23 to 0.17). The total variance used to calculate the effect size was 29.9; the sum of 25.0 (random variation between pupils, within-cluster variance) and 4.9 (heterogeneity between schools, between-cluster variance).

Intra-cluster correlation coefficients (ICCs)

The ICCs and 95% CIs associated with school are presented in Table 11 for the primary outcome for both identified and non-identified pupils, and for the identified pupils for KS2 scaled reading and scaled GPS scores.

Table 11: Intra-cluster correlation coefficients

Variable	Population	ICC	95% CI
KS2 scaled maths score	Identified pupils	0.29	0.22–0.37
	Non-identified pupils	0.16	0.12–0.22
KS2 scaled reading score	Identified pupils	0.17	0.12–0.24
KS2 scaled GPS score	Identified pupils	0.23	0.17–0.30

Pearson's correlation coefficient was used to calculate the pair-wise correlations between KS1 and KS2 results for the whole population for whom the measures were available and for identified pupils only. It was found that for maths there was a correlation of 0.70 for all pupils, but this was lower when looking only at identified pupils (0.53). For reading the correlation was 0.67 for all pupils (0.51 among identified pupils) and it was 0.70 for writing and GPS for all pupils (0.58 among identified pupils). This suggests

that all of the KS1 tests are reasonably well correlated with the KS2 counterparts. These correlations are detailed below in Table 12.

Table 12: Correlations between the KS1 scores and KS2 scores based on all pupils (and for identified pupils only in parentheses)

Correlation		Key Stage 1		
		Mathematics	**Reading**	**Writing**
Key Stage 2	**Mathematics**	0.70 (0.53)	0.61 (0.42)	0.61 (0.40)
	Reading	0.63 (0.44)	0.67 (0.51)	0.63 (0.44)
	GPS	0.66 (0.50)	0.71 (0.62)	0.70 (0.58)

Cost

Schools participating in the intervention received a basic package of tuition equating to 12 hours of tuition for a flat fee of £1,000 (£83 per pupil), where 12 pupils received tuition. Any additional tuition (either tuition for additional pupils or additional hours for the same pupils) was charged at a flat rate of £15 per hour.

The cost of Tutor Trust under usual circumstances (that is, outside of the evaluation) depends on the tutor to pupil ratio selected by the school. For a ratio of 1:3 the hourly rate is £28 per hour, for 1:2 a rate of £23 per hour, and for 1:1 a rate of £20 per hour. 'Looked after' children can receive Tutor Trust tuition at a lower rate of £18 per hour, this is always on a 1:1 basis. The cost of Tutor Trust tutoring is subsidised by the charitable status of the organisation and prices have been frozen at this rate (as per Table 13) for three years.

In addition to the basic cost of tuition, schools can also choose to pay extra for tutors' planning, preparation, and assessment time (that is, non-contact time). This is charged at an additional £9 per hour or £7.50 per hour for 'looked after' children.

Hence excluding optional extras and using the most frequent delivery model we observed in the trial—12 hours of tuition (1 tutor: 3 pupils) for a non 'looked after' pupil—the total cost per pupil would be £112 for schools buying tutoring outside of this evaluation. This figure would rise to £148 if schools chose to pay for one hour of non-contact time for every tutoring session.

Table 13: Cost per pupil for 12 hours of tuition per year based on a 1 tutor: 3 pupil ratio per session

Item	Year 1	Year 2	Year 3	Total cost over 3 years
Tuition fees per pupil (no non-contact time)	£112	£112	£112	£336
Tuition fees per pupil (including optional non-contact time)	£148	£148	£148	£444

Time costs

There was some time required to set up the intervention in schools. This was generally a meeting with the KS2 lead teacher, Year 6 class teacher(s), as well as the prospective tutor(s) and a representative from the Tutor Trust. Schools were expected to facilitate this meeting; no 'buy out' was provided for

teachers to attend. The meeting lasted an average of 30 minutes, a copy of the agenda for this compulsory meeting can be found in Appendix F.

If schools required tutors to work with specific materials (such as past assessment papers or specific paper resources that they were using in class) then the schools provided these materials for the tutor and there would be a time cost associated with the teacher or member of school staff that prepared them. Some tutors were asked to tutor relatively autonomously in terms of resources and provided all of these themselves.

Tutor-teacher feedback was also encouraged; however, there was much variation as to how this was conducted; some used email, for example, while other relied on feedback forms or post-session catch-ups. All tutors were expected to provide written feedback (by hand or email) to the class teacher or other nominated teacher (for example, if tutored pupils were drawn from more than one class). A copy of the feedback form can be found in Appendix G. There was no stipulation as to how schools should use this; information from tutor and teacher interviews (n = 15 schools) suggested that the use of this feedback (for example, in contributing to shared planning between the tutor and the class teacher) was variable across schools. No other noteworthy areas of cost were identified.

Parental costs

Some schools opted to run the sessions outside of school hours. This may present issues and additional costs to parents in terms of arranging collection of pupils from school. For example, if a pupil usually uses a school bus to get home at the usual time, alternative arrangements would need to be made when the pupil was staying later. This approach may also have implications where parents have to arrange multiple pick-ups if the tutee has a sibling that needs to be collected at the usual school closure time. However, it is the responsibility of the school to agree suitable tuition arrangements with parents.

Implementation and process evaluation

The IPE was cross-sectional and longitudinal in nature; it began at the recruitment stage for the evaluation and was completed after the intervention period had finished. A non-random sample of schools was visited (14 out of 53 intervention schools) and over 95% of schools responded in the follow-up survey.[6] The IPE was designed to:

- explore the implementation of Tutor Trust affordable primary tuition (including its fidelity);
- consider how this evaluation affected the various stakeholders;
- make comparisons between Tutor Trust tuition and other standard KS2 maths practice (or usual teaching); and
- consider both barriers and facilitators to success of the intervention.

Considering teacher self-report, student and tutor feedback, and evaluators' tutoring observations, most tutors implemented the key components of Tutor Trust tuition as defined during tutor training. Tutors and the liaison teachers were generally confident of the students' enjoyment of the tutoring sessions but less certain in estimating the impact that it was having, or would have, on student attainment in their forthcoming KS2 tests. Tutoring sessions were generally viewed as a positive addition in most evaluation schools; however, some of the evaluators' tutoring observations revealed problems in communication that were likely to have had an impact upon the effectiveness of the tutoring provided in some cases. The teacher interviews and follow up survey for intervention schools indicated that, in some cases, more effective communication from the outset (tutoring set-up) would be likely to have a positive impact on the quality of the tutoring provided and facilitate a more 'joined up' approach with the work of the class teachers.

The IPE also explored activity relating to the identified group of pupils in control schools in the the follow-up teacher survey. Before exploring the implementation of the intervention and associated fidelity it is important to illustrate the IPE findings with regard to usual practice in all evaluation schools at the baseline (Spring Term 2016). This data was gathered using a baseline survey that was completed by all participating schools, either online in Qualtrics or in an Excel spreadsheet, prior to randomisation.

Baseline

In addition to the baseline data outlined in Tables 5–8, the baseline survey (n = 105 schools) allowed us to build up a picture of existing practice and also of school intentions with regards to tutoring (if they were allocated to the intervention arm of the trial). The baseline survey was completed by the headteacher of each participating school in 2016. In terms of 'usual' practice and considering the nature of the Tutor Trust intervention (small group tuition), it was important to establish if similar practice was already taking place (or was planned to take place) in any of the trial schools.

The results of the baseline survey illustrated that the majority of the 105 participating schools were not currently using a tutoring intervention with their Year 6 students for maths (94%) and only three schools specified any previous involvement with Tutor Trust. One of these stopped due to inconsistencies when it had used Tutor Trust three years previously;[7] two others had previously used Tutor Trust with Year 6 pupils or with students at the end of Year 5, respectively. Of these three schools, two were subsequently allocated to intervention and one to control. The prior involvement of Tutor Trust with Year 5 pupils in one school may have meant that some of the identified students or their peers had previously received tutoring from the Tutor Trust. The baseline survey did report evidence of tutoring interventions (other than Tutor Trust as described above) in four schools: two schools reported using Third Space Learning

[6] The baseline survey response was required before schools could be randomised.
[7] The inconsistencies were not described further by the school that reported this.

(online tutoring), one school reported using a specialist teacher, and one school reported using individual tuition within school (but did not specify by whom it was delivered).

The support of an additional education professional—a teaching assistant (TA)—was commonplace: 88% of the trial schools reporting having a TA to support in KS2 maths lessons. Of this support, 78% was described as TAs working with small groups and 16% with particular (specified) groups of students (such as those with specific additional learning needs). This reported frequency of small group work conducted by TAs in the evaluation schools meant that the students, teachers, and schools were accustomed to implementing small group support for Year 6 pupils. This type of support was similar to the small group tutoring provided by the Tutor Trust; however, 87% of this TA-delivered work took place within the classroom (at the same time as the teacher was teaching the whole class), a marked contrast to the standard Tutor Trust approach of students being withdrawn from the classroom to participate. In the follow-up survey, the majority of teachers reported that pupils were removed from different lessons each week: a small number of survey respondents (n = 4) reported that pupils were withdrawn from maths and many were withdrawn from non-core subject teaching in the afternoon (for example, humanities subjects and physical education). The TA-delivered support described in the baseline questionnaire was described as being quite flexible and dependent on the needs of the students. Information about the qualifications of the TAs described in the data was not gathered so it is not possible to compare them to the Tutor Trust tutors.

When asked, at baseline, about other approaches they planned to use, 89% of respondents reported that they would supplement the Tutor Trust intervention with additional measures to help those students that would be eligible to receive the tutoring intervention. Pre-teaching for important concepts, 1:1 support, small group interventions, and booster classes (before and after school) were all frequently described as support that would continue and/or be put in place for the students who were targeted by the intervention.

Implementation

Data about the implementation of Tutor Trust during the evaluation period were gathered during structured observations of recruitment, training and tutoring sessions. Data about implementation were also gathered through surveys, interviews, and focus groups involving stakeholders that included students, teachers, tutors, and the developers.

Recruitment

The recruitment process (observation of prospective tutor interviews) appeared thorough and equitable; two of the evaluators observed four interviews in total. The rigour of the recruitment process in a tutoring-based intervention is clearly a key factor in determining its subsequent success. In the developer interview, the Tutor Trust reported that 25% of tutor applicants were successful in being selected to become a tutor.

A pre-agreed observation framework was shared with the developers and the observers had the opportunity to talk to the interviewers after each interview. A clear rationale for proceeding, or not, with the engagement of candidates for tutoring was observed, with a high level of agreement between the two interviewers on the panels that we observed.

Prospective tutors were required to have an A at GCSE in the subject in which they sought to tutor. Tutoring observations (n = 17) indicated instances (n = 3) where tutors did not seem to have built positive working relationships with their tutees. Potential applicants who marginally missed the strict academic criteria may have had sufficient subject knowledge to tutor at that level combined with exceptional people skills which would have served to forge positive tutoring relationships. Tutor Trust report that in Autumn 2017 they introduced a role-playing element to their recruitment process to test applicants' ability to form relationships. The evaluators are unable to comment on the effectiveness of

this as it was after the end of the evaluation period. However, given the observation above it would seem a sensible addition, adding to the rigour of the recruitment process.

We observed two instances of the same tutor (in two different schools), presenting factually incorrect information to their tutees about how to calculate the area of a triangle. This tutor did not seem secure in all aspects of their subject knowledge but had clearly built up positive working relationships with their tutees in both instances. Subject knowledge checking, in relation to key concepts for KS2 maths tests, should perhaps feature more highly in the maths-specific training that is provided so that misconceptions such as the example above could be avoided.

Training

Training for Tutor Trust tutors is delivered by a team of experienced trainers with a wide variety of teaching and teacher training experience. Tutors are required to attend a total of 2.5 days of training before commencing work for the Tutor Trust. The training comprises a Welcome Evening, initial training (one day) and then subject-specific training (one day).[8] The trainers' experience (as gathered via the trainer survey) included teaching (some of the trainers were still working in schools), one-to-one maths tuition, school leadership, and initial teacher training. Initial training observations were completed for two training sessions; the first and longer of the two sessions (five hours) was focused on tutoring as a whole and included content based on the following areas: 'Why tuition? The role of the tutor'; schools and pupils; professional role; preparing and planning; learning styles; and successful tutoring. The second training session observed was specifically linked to the KS2 maths focus of the evaluation—primary maths (4.5 hours training).

Additional training was provided primarily for those tutors who were involved in KS2 maths tutoring. In several tutor interviews tutors spoke about additional 'EEF' training that they had received.[9] Tutor Trust stated that all tutors were offered £20 to attend the additional training, although the perception from several tutor interviews was that this training was intended specifically for those tutors involved in the evaluation.

In August 2017 we added an additional survey to the range of data collection tools in order to seek the views of the trainers on the Tutor Trust training. We received responses to the online survey from all five trainers that the survey was sent to on our behalf by Tutor Trust. All of the trainers provide training for the Tutor Trust in addition to their other roles as described above. We asked the trainers to give their brief judgement of how useful the current Tutor Trust training is, in terms of preparing tutors to deliver KS2 maths tuition: three thought it was extremely useful, one thought it was very useful and one thought it was moderately useful. The one trainer who rated the training as moderately useful commented that they thought that one half-day of training in maths tuition is not sufficient. In the sample of 15 schools that we visited to talk to and observe tutors, we observed a range of both tutoring experience and mathematical subject knowledge. For example, one tutor of the 15 had a PhD in a science subject and was a qualified teacher, compared to others who had A Levels in Maths but were not studying science subjects at university. For those with less tutoring experience, content knowledge could play a bigger role in the success of tutoring and therefore they would likely benefit from more training in content knowledge. The communication between the class teacher and the tutor is also key, particularly in terms of specific vocabulary and methods of teaching key mathematical concepts so as to maintain continuity in classroom teaching and tutoring sessions. In future studies or analysis, it may be beneficial to explore

[8] If tutors are tutoring in more than one subject or stage then they would need to attend additional days of subject-specific training.

[9] This training was referenced multiple times in tutor interviews, some examples: 'I went to the special EEF training too'; 'an extra one for this [EEF work] when it came up'; 'EEF extra training'; 'I also had specialist training for EEF too which talked us through techniques to help kids learn and we got a maths booklet all about what they're learning for their SATs', and 'compulsory CPD for EEF school tutors'. In addition, the training materials that the evaluators received from the Tutor Trust included PowerPoint slides entitled: 'Welcome to maths EEF training'. In the developer interview, Tutor Trust reported that all tutors were given the KS2 maths resource book.

data that the Tutor Trust hold on the qualifications and tutoring experience of the individual tutors that they employed in the trial period.

In tutor interviews during school visits, the evaluators asked tutors how well they felt the training provided by the Tutor Trust prepared them for tutoring in schools. Tutor responses to this question were largely positive, however, the provision of resources and lesson planning were mentioned as areas where tutors would appreciate more input from the Tutor Trust. The Year 6 workbook (Daniels et al., 2015) provided at the 'EEF training' was mentioned by the tutors as being a particularly useful resource. Resources and their provision by Tutor Trust was a recurring theme in interviews with tutors; some tutors seemed to rely heavily on these and others did not, preferring to make their own resources suited to their tutees. One tutor observed that many schools in Leeds are using the same 'White Rose' curriculum and commented that it might therefore be helpful for Tutor Trust to develop additional resources based upon this curriculum. Perhaps this is a potential area to consider for development going forward. We suggest that Tutor Trust could work with groups of schools where they provide tutoring to establish commonality in curriculum and its delivery so that tutors can be made more explicitly aware of this in training. This would have the potential to facilitate a more 'joined-up' approach where tutors are acutely aware of the vocabulary and approaches used in maths teaching.

Tutoring

Teachers and pupils were generally positive about their interactions with both the Tutor Trust and their tutors. Interviewed teachers reported that pupils had enjoyed their tutoring experiences but that some pupils did perhaps struggle with the heavy focus on 'intervention'[10] (not limited to Tutor Trust tutoring) in the run up to KS2 tests. Pressure on resources (in particular teacher and TA time) was frequently mentioned in relation to tutors being a valued additional resource in this respect.

Pupils frequently used words like 'enjoy' to describe their tutoring experiences and were often quite animated in doing this; they also frequently talked about confidence gained from their tutoring experiences. Pupils made repeated reference to the notion that tutoring sessions were helpful to revisit things that they had not fully understood during whole-class teaching. Pupils suggested that it was sometimes easier to speak up about the things that they might be struggling with in a smaller group.

Tutor and teacher interviews revealed that the perceived key to success for the intervention was appropriate and timely communication between all involved parties, in particular between the tutors and the class teachers of the tutees. Differences in the productivity of the tutoring relationships (school-tutor, tutor-tutees) were apparent when visiting schools where communication was prioritised and clear for all parties. In some schools it seemed that the initial communication between the school and the tutor (via Tutor Trust) was not as clear as it could have been. Two teachers at one school both reported that they had realised, as the intervention progressed, that more involvement was needed (reference was then made to the school maths policies and the importance of tutor awareness of these). We understand that an initial or set-up meeting (facilitated by Tutor Trust) between tutor and school precedes any tutoring assignment and that this is one of the aims of this meeting. This was not the only example of teachers expressing a perception that a more 'joined-up' approach (to the existing strategy for Year 6 maths) is important for the success of tutoring. It could be that these examples are isolated or that maths policies and strategies need to be brought more to the forefront in the initial tutoring set-up meetings between tutors and the schools to which they are assigned.

Related to clarity for tutors around school-specific maths strategy and policy, some discrepancy was observed around the expected content and delivery of tutoring sessions which primarily related to communication between the schools and the tutors. For example, one tutor had been under the impression that they were to plan their own tutoring sessions and could use maths games by way of

[10] Teachers we interviewed talked about various interventions that were implemented, particularly in the run-up to SATs for Year 6 students. These included various teacher and TA delivered approaches where pupils were sometimes withdrawn from usual lessons to receive additional support.

engaging the pupils. However, on more than one occasion when a teacher had briefly informally observed part of a tutoring session, the tutor had been instructed that they were not to use games. This tutor also noted that she was finding herself completing planning even though the school was not paying for planning time and said it was difficult at times as she would be asked to cover a topic at short notice on the day of the tutoring. Two examples were observed where the tutors had been instructed that they should only go through past exam papers for KS2 assessments in their sessions. In the follow-up teacher survey (intervention schools), 33% of the 49 respondents (from 44 schools) reported that tutors were asked to plan specific topics or areas as they were worked through in the classroom, 33% reported that tutors were asked to plan tutoring around specific topic areas as needed. Only two respondents of the follow-up teacher survey reported that tutors planned their tutoring sessions independently. The findings from the survey suggest that communication between teachers and tutors was generally effective, although some discrepancies were identified in the observations.

One interviewed tutor, who was told by the school (on more than one occasion) that games should not be used as a means of engaging the students in the work set, felt that this was potentially limiting in terms of facilitating pupil engagement. This tutor also reported having received limited information and resources from the school: the tutor was not paid for planning time (the school's choice) but personal planning time was needed due to 'off the cuff' guidance from schools like 'just do decimals with them'. Interestingly, the observers noted a lack of clarity in some aspects of this particular tutoring observation, aspects that were related to planning (for example, clear session objectives and the pace of different activities). Aspects of planning like the setting of session objectives (and sharing these with pupils) were sometimes determined by the tutor after discussion with the teacher, if they were planning their own sessions. In some cases, where tutoring focused solely on practice exam questions, there was limited evidence of clear session objectives. On reflection, after interviewing this tutor we concluded that the issues identified here seemed to be more likely to be related to communication between the tutor and the school rather than the tutoring ability of the tutor. All participating schools were given a copy of the Tutor Trust's Partnership Guide; the research team were informed by the Tutor Trust that this (along with the introductory meeting checklist/agenda—see Appendix F) was adapted slightly from usually distributed materials for the evaluation. The Partnership Guide contained information and guidance including:

- an explanation of what the Tutor Trust is;
- a brief explanation of the EEF research project (this evaluation);
- information about monitoring tuition quality (lesson observations, spot checks on lesson plans, Quality Support Meetings where required) and the quality manager;
- partnerships that the Tutor Trust has (universities and charities);
- tutor recruitment and training (including the academic requirements for prospective tutors);
- the flexibility of tuition for schools;
- tutor to pupil ratios;
- EEF schools—explanation of the tutoring requirement for the trial (minimum of 12 hours for 12 pupils);
- the role of the school and the introductory meeting (including agenda/checklist) and the encouraging of regular contact with Tutor Trust's school co-ordinators; and
- quotes from tutors about what works well (for example, relating to tutoring environment, contact with school staff, additional training from schools, and marking policies).

In total, 16 tutors were observed;[11] these observations were not formally graded. Of these 16, we felt that three could be described as exemplary and one as not satisfactory.[12] The remainder of the

[11] Seventeen sessions, but one tutor was unavoidably observed on two separate occasions in different schools (by the same observer).

[12] Although not formally graded, the evaluators discussed these conclusions in relation to the observation framework and whether or not (fully or in part) tutors met the aspects of a tutoring session as specified by the Tutor Trust and reflected in the pre-agreed (with Tutor Trust) observation framework that was used in the observations.

observed tutoring sessions were neither exemplary nor not satisfactory and met most of the criteria as outlined in the observation framework. Tutor Trust has various procedures in place for quality assurance; therefore, the unsatisfactory example of tutoring observed could have been an isolated example, or the monitoring completed by the Tutor Trust may not be sufficiently rigorous. The quality assurance procedures (as reported in the developer interview) include the appointment of a quality manager (before the commencement of the trial period), the observation of tutoring sessions (12 completed in the trial period), lesson plan spot-checks (24 completed during the trial period), and in-depth feedback checks (53 completed during the evaluation). In-depth feedback checks refer to Tutor Trust monitoring the feedback that tutors provide to schools, usually by email, at the end of each tutoring session. Tutor Trust reported that 100% of the observations they conducted were satisfactory and that the few lesson plans and feedback forms that were not up to standard were followed by additional training for these tutors and a second review of lesson planning and/or feedback forms. In the developer interview it was reported that during the evaluation period two tutors were removed (reasons not stated) but that both schools affected were very happy with the replacement tutors. We acknowledge that the monitoring of the large number of tutors that the Tutor Trust engage is not a small task, but that greater school involvement (such as asking schools to observe and assure quality), therefore increasing school burden, is not ideal either.

In all of the 'exemplary' examples the high quality of the communication between the school and the tutor was clear. In one example, it was particularly clear that the tutor had been welcomed into what came across to the observer as a very friendly school. There was clear evidence of good communication both formally and informally, the tutor had access to resources including photocopying, and was able to confidently ask questions about content that was being tutored and how this related to specific pupils. This tutor reported that they had a place for the forthcoming year on Teach First; they had developed (according to the Year 6 teacher/deputy head) a very productive relationship with their tutees very quickly. The tutors observed in the 'exemplary' examples came across very positively and were able to clearly articulate their motivation for working with the Tutor Trust. All tutors interviewed communicated several ways in which the tutoring assignments were an attractive prospect; several were interested in teaching as a potential future career and were looking to gain relevant experience. In the observations of tutoring sessions, exemplary practice was characterised by clear communication between the tutor and pupils, clear evidence of session planning that wasn't limited to exam practice in terms of only going through past papers, and engagement on both sides (that is, the tutor was engaging the pupils actively in the learning and the tutor was engaged by what the pupils were doing and responding appropriately).

In the unsatisfactory example referred to above, two evaluators observed a tutoring session where the tutor spoke very little to the students, who were tasked with working through a series of work sheets with very little discussion. The tutor did not capitalise on pupil interaction with them, for example, pupils (reported as being very willing by the observer) requested an additional game of bingo and the tutor responded 'no' without any explanation. The logic or reasoning behind answers was not discussed or explored with the pupils. This could be an example of a school where communication between the school and tutor was inadequate; however, this was a school where two tutors were observed simultaneously. Aspects of tutoring listed in the observation framework were largely met by the other tutor observed.

Observations of tutoring sessions highlighted some physical barriers to successful delivery that were apparent in the schools that were visited. Often tutoring took place in busy spaces (for example, break-out spaces or communal areas where frequently-used facilities like photocopiers were located) and locations where there were many potential distractions and various people passing through during the tutoring time. At times it was clear to the observers that tutoring space and its associated distractions did seem to be having an impact on the engagement of the tutees. It should be noted that in large part, tutors in the good examples of tutoring that were observed did a good job of managing tutee engagement despite such distractions.

Teacher views of the tutoring across all intervention schools were collected in the follow-up survey where we had a total of 49 responses from a range of school staff including Year 6 class teachers, headteachers, special educational needs co-ordinators (SENCO) and other school leadership staff (deputy and assistant headteachers). Teacher responses (using a Likert scale) to questions relating to the implementation of tutoring are summarised in Appendix E and were generally positive. When asked if Tutor Trust tutoring had met their expectations (when they signed up), 96% of respondents either strongly agreed or agreed; only one respondent (2%) disagreed. Of the teachers that responded to the follow up survey, 41% said their school was 'definitely' likely to continue using Tutor Trust tutoring in the future, 10% said 'probably not', 29% said maybe. None said 'definitely not'. We acknowledge that the teachers responding to the survey, for the most part, will likely not have held the responsibility for the budget but also that we would hope schools leaders will be responsive to the opinions of the class teachers of the pupils who had been tutored.

To summarise, the findings of the IPE indicate that the conditions necessary for success focus on effective communication:

- effective communication (about both the students and the content to be tutored) between the tutor and the school staff, both in the initial set-up stages with Tutor Trust and throughout the tutoring assignment; and
- effective communication between tutor and tutees was vital for the perceived success of tutoring sessions: more progress[13] was witnessed in tutoring sessions where the communication between tutor and tutee was clear and the working relationship was positive and encouraging.

Barriers to success identified in the IPE related to the observation of noticeably less effective tutor-tutee relationships where appropriate communication, pace, and tasks were not maintained throughout tutoring sessions. Where this was the case, feedback from teachers highlighted that a more 'joined-up' approach was required with more involvement from them to maximise the potential gains of tutoring (with particular reference to subject-specific vocabulary and methods of calculation used). Of the 17 tutoring observations completed, with respect to the tutor-tutee relationships, three tutors were observed where the learning relationship was noticeably less effective. Observed reasons for this included the tutors being less able to engage the students as fully as possible, tutors not checking progress and understanding throughout the session and lack of appropriate use of encouraging language. The follow-up teacher survey indicated that the timing of the intervention in the evaluation was potentially problematic in that there was limited time to share practice and information between the school and the tutor. There was only one school that we spoke to (teacher interview) where there had been a change of tutors, which was unsettling for a short period but a necessary change. One school in the survey reported that they would like commitment from 'ONE tutor alone'. Due to the nature of the survey and limited detail, we do not know if this school had more than one tutor tutoring separate groups or if this was another example of a school where the tutor had changed mid-intervention.

In pupil focus groups we did not schedule a question about removal from lessons to attend tutoring but we did ask pupils if there was anything that they would like to change about their tutoring. Pupils expressed a desire to miss a variety of lessons to attend tutoring, rather than the same lesson or a break time every week: 'we miss out on some things we want to do in class'. This has the potential to be, or to become, a barrier if pupils are disengaged because they resent missing a lesson that they particularly enjoy or excel at (the timetabling of tutoring sessions was at the discretion of each individual school). It should be noted that the pupil focus groups were anonymous so we are not able to link up specific pupils and their engagement in tutoring sessions to their responses in pupil focus groups. From the observations completed, it is likely that ineffective tutor-pupil relationships were down to a variety

[13] Progress (not formally measured) in the sense that observers could clearly see where students had gaps in their knowledge at the beginning of a tutoring session but that they had moved on from this and shown improvement by the end of the tutoring session.

of reasons rather than simply pupils missing lessons. After school tutoring sessions, or during break times, are also potentially problematic due to pupils being denied a break or missing out on other activities taking place at those times. In addition, it could also be difficult for parents/carers to pick them up at a later time. Some interviewed teachers did mention that, at times, it was difficult to keep parents/carers on board and convey to them the potential benefits of additional support with maths for their child. Conversely, some parents/carers were clearly already engaged with tutoring (outside of school); several pupils mentioned that they already had multiple tutors for KS2 tests and/or to prepare for forthcoming entrance to particular selective high schools.

Fidelity

Considering observations, teacher and tutor self-report, and registers kept by the tutors, the intervention seems to have been delivered as intended to the treatment group. All of the students we spoke to indicated that they were attending their tutoring sessions on a weekly basis (at least). Indeed, there was, in the schools we visited, a high degree of 'mop up' where tutors were providing additional tutoring to students who had missed sessions due to absence from school for a variety of reasons. Registers kept by the tutors and shared with the evaluation team also indicated that the majority of tutors used the intervention as intended. This is supported by the fact that the average number of sessions was 11, ranging from 1 to 17, and also the average length of time between the first and last tutoring session was 12.5 weeks, ranging from 0 to 20.3 weeks.

Variation in tutor quality and in the instructions provided by schools (as reported by the tutors interviewed) regarding session content was observed in the IPE. These variations will undoubtedly have had an impact on the effectiveness of the intervention in these instances but no huge deviations from fidelity (as per protocol) were observed or recorded.

There was variation across the intervention schools that responded to the follow-up survey in terms of when the tutoring was delivered (that is, in school time or after school and at the same time each week or different times). The majority of school staff surveyed at follow-up (57%) reported that students were removed from specific lessons to attend tutoring; this has the potential to negatively impact on achievement in the lessons that pupils are removed from. Given that pupils were largely removed from non-core lessons it is not possible for us to evaluate the impact of this.

Several aspects of the intervention, as outlined in the protocol (Protocol., 2016) were flexible and adaptable according to particular school requirements—the ratio of tutor to tutees, the times at which the tutoring was delivered, the number of tutors delivering the tuition (some schools engaged more than one tutor to work simultaneously), and the frequency and length of tutoring sessions. The majority (82%) of school staff responding to the follow-up survey (n = 49) did not suggest any changes to the tutoring provided by Tutor Trust. Suggestions that were made included starting earlier in the year, not using tutors but spending the money on experienced teachers, and more contact time with the tutor before tutoring begins including planning the programme of study with them. Table 14 below shows, using data from the follow up survey, what the intervention looked like in practice in the intervention schools that responded to the survey.

Table 14: The intervention as described by respondents to the follow up survey[14]

Survey item		Tuition Location		Evaluator comments
		Leeds (n = 20)	Manchester (n = 29)	
How many Year 6 students have been tutored from your school in total?	Mean Median Range	12.8 10 (12, 21)	13.6 12 (9, 26)	Schools were free to engage tutoring in addition to the tutoring for the identified group of pupils in the trial.
Group sizes students tutored in with Tutor Trust tutors, n (%)	Individually Pairs Small groups of 3 Mixture of group sizes	0 (0.0) 2 (10.0) 13 (65.0) 5 (25.0)	1 (3.4) 2 (6.9) 21 (72.4) 5 (17.2)	The majority of the tutoring in the evaluation schools took place at a ratio of 1:3.
Start month of tutoring, n (%)	January February March April	13 (65.0) 4 (20.0) 1 (5.0) 2 (10.0)	18 (62.1) 6 (20.7) 4 (13.8) 1 (3.4)	The timing of tutoring was influenced by the trial set-up and the desire of some schools to have tutoring in the run-up to KS2 assessments.
End month of tutoring, n (%)	February March April May	1 (5.0) 2 (10.0) 9 (45.0) 8 (40.0)	0 (0.0) 2 (6.9) 7 (24.1) 20 (69.0)	
Amount of tuition with the Tutor Trust selected students receives on average per week, n (%)	30 mins 1hr 90 mins 2hrs Other	0 (0.0) 15 (75.0) 3 (15.0) 1 (5.0) 1 (5.0)	0 (0.0) 25 (86.2) 2 (6.9) 2 (6.9) 0 (0.0)	The amount of tutoring per week here reflects the variety of different session lengths that were observed in the observations.
Time of tutoring, n (%)	Before school After school Students were removed from specific lessons Other	1 (5.0) 2 (10.0) 11 (55.0) 6 (30.0)	1 (3.4) 4 (13.8) 17 (58.6) 7 (24.1)	The majority of tutoring took place when pupils were removed from what teachers described in the teacher survey as 'non-core' lessons (i.e. not English, maths or science). The 'other' responses included regularly changing the lesson from which children were withdrawn, withdrawal from a core subject (maths, science, English,

[14] For the full results of the follow up survey in a summary table please see Appendix E.

				guided reading, topic lessons).
Tutor Trust tutors planned the sessions that they conducted with the selected Year 6 students, n (%)	Tutors plan their tutoring sessions independently	1 (5.0)	1 (3.4)	Responses to 'other' included planning in line with current teaching with the freedom to develop where necessary, a mixture of the given statements (1–3), enhancement of teacher-developed activities with games, and one respondent stated that they planned sessions for the tutors.
	Tutors are asked to plan specific topics or areas as we work through them in class	8 (40.0)	8 (27.6)	
	Tutors have been asked to use tutoring time for mainly exam practice	1 (5.0)	4 (13.8)	
	Tutors are asked to plan tutoring around specific topics areas as needed	7 (35.0)	9 (31.0)	
	Other	3 (15.0)	6 (20.7)	
	Missing	0 (0.0)	1 (3.4)	

Outcomes

Evidence about the perceived outcomes of the intervention was gathered in teacher interviews, the follow-up survey, pupil focus groups, and an interview with the developer.

The developer interview was conducted in July 2017 with one of the co-founders of Tutor Trust; having this discussion at the end of the intervention period was a useful opportunity to reflect on the intervention period as the school year drew to a close. The developer reported that a total of 3500 hours of tuition were delivered for the evaluation, with 14 schools from Manchester (5 control; 9 intervention) and 16 from Leeds (4 control; 12 intervention) having signed up for and received tuition in the year following the evaluation period (school year 2017/2018). When asked about outcomes in terms of moving forward with tuition in the coming years, Tutor Trust reported that additional continuing professional development (CPD) training would be offered to all primary tutors moving forward, the additional CPD offered during the trial would become part of the usual practice of Tutor Trust. This additional training will be mandatory and tutors will not be paid to attend. The Tutor Trust also said that they believed there was value in the rigour of making sure tutored pupils receive 12 hours of tuition.

Teacher interviews and the follow-up survey illustrated that the perceived outcomes from the teachers' point of view focused on pupil confidence in maths, an opportunity for additional exam preparation, and the value of having an additional adult to provide input with the specified group of students. The notion that, to some extent, this frees up some teacher time, was valued. Teachers asked questions around

knowing whether or not the perceived positive outcomes that they were observing in some of the tutored pupils were due to Tutor Trust or other factors.

On the whole, feedback about Tutor Trust tutoring, including from the pupils being tutored, was generally positive and we observed largely positive tutoring relationships in the session observations. Many students valued the small group tuition that was provided in that they felt more confident to ask questions and give answers and enjoyed the time that they spent with their tutors. In interviews with teachers at the schools where we had observed exemplary examples of tutoring, teachers spoke about the value of the increased confidence they had see in tutored pupils and were encouraged by the potential for this to increase attainment.

The potential for unintended, or negative effects lies at an individual school level in terms of when pupils were scheduled to attend tutoring sessions (for example, the potential for a negative effect if pupils were removed from regular maths lessons with their class teacher). Several students that we spoke to reported that they did not like missing the same lesson (or break) each week (for example, 'I'm missing the best lesson'); this potential demotivation for students could have a negative impact upon their achievement in maths rather than the intended positive outcome of tutoring. No overt unintended or negative effects were reported by teachers or tutors interviewed. The potential for a negative effect on pupil attainment was observed in two of the tutoring sessions that were observed, one where the engagement of the tutor with the pupils was minimal and the other where factually incorrect information was being 'taught' to the pupils.

One tutor queried whether the selected students were actually the targeted group as they believed their tutees were well below the eligibility criteria[15] and therefore probably not able to make as much progress. This tutor also noted that some children had been swapped in and out of the intervention group at quite a late stage and therefore had their quota of tutoring delivered over a shorter period of time than others.

Formative findings

In the teacher survey, interviews, and pupil focus groups, the majority of respondents were very positive about the tuition that had been delivered and no issues were identified across the board. The observations undertaken in the IPE identified three main areas of the intervention implementation that were lower than might have been expected, or required further exploration in terms of the replicability of the intervention post evaluation. The responses to the survey and focus groups were largely positive and encouraging with regards to the success of the Tutor Trust intervention from the perspective of the schools and the pupils; additional comments made in the survey support the formative findings as outlined below.

- The quality of communication between schools and tutors—in observations and interviews several examples were highlighted where tutors and/or teachers felt that communication was not as it should be. For example, there were some instances where interviewed tutors did not feel supported by the school staff in terms of content and approach of their tutoring sessions. Examples where teachers acknowledged that a more 'joined–up' approach was required to maximise the potential benefit of tutoring were also evident in the teacher survey (for example, 'tutor having time in school with the teacher to go through […] before the sessions begin'; 'we would like to determine the programme of study from the start').

- The subject knowledge of tutors and the mathematical language used in tutoring sessions—tutors are provided with training for the subject in which they tutor, but no formal testing of their mathematical knowledge is conducted (in relation to their knowledge of the concepts required

[15] By 'below the eligibility criteria' we refer to pupils described by the tutors as having significant learning needs that they felt they were not able to meet in the context of the tutoring.

at KS2 maths and how they should be explained in tutoring sessions. We observed one tutor delivering factually incorrect information to students (on two occasions in two separate schools) and another tutor where it was difficult to determine whether or not appropriate mathematical vocabulary was being used as there was very little interaction between the tutor and the pupils.

- The perception of some tutors that tutors tutoring in evaluation schools received additional training (and resources). The implication of this is that to achieve similar effects in future, it would be important to replicate the training model used here, including elements perceived to be 'additional'.

A lack of 'joined-up' approach from the outset with the teachers, despite the set-up meetings arranged in each school, is something that came up frequently in the teacher interviews and survey. It is also something that the tutors expressed an opinion about in some of the tutor surveys.

There was some evidence that some tutors were working on wipe clean boards in tutoring sessions; this meant that there was limited evidence available to the class teacher of what had been covered in the tutoring sessions. This seems to come back to communication again. We suggest further clarity in the set-up meetings about vocabulary and methods used in teaching specific areas that the tutor will cover or has been asked to cover would be advisable.

Control group activity

Information about control group activity was derived from the follow up-survey. Out of the 53 control schools (Figure 1) there were 35 responses (16 from Leeds based schools and 19 from Manchester, 67% return rate). There was no overt resentful demoralisation or compensation rivalry, but it was clear from the survey responses that having TAs work with small groups of students was a theme recurring from the baseline questionnaire: 40% of the responding control schools reported that TAs worked with small groups of pre-specified students. The majority of TA work in Year 6 maths lessons took place within the main classroom (63%), with only 20% taking place where students were removed to a space outside of the classroom. Five control schools reported that they did use some form of external tutoring for maths in Year 6 and one school in a year group other than Year 6.

Control schools reported the implementation of maths interventions (other than Tutor Trust tuition) for Year 6 or whole-school approaches to maths (80% of the responding schools). The results of the baseline survey indicated that 78% of the schools would supplement the intervention (if offered) with additional measures to help the selected pupils and 98% reported that they would take extra steps to support these pupils. It is beyond the scope of this report to analyse the content of each of the interventions listed in the survey in detail (see Appendix D). Differentiation in Year 6 maths lessons was a common feature (71% selected either 'strongly agree' or 'agree' in response to 'students of different abilities having different work set for them') so students were receiving individualised work in whole-class settings.

To summarise, 'business as usual' comprised:

- a combination of whole-class teaching (where students were equally reported as having been streamed or not streamed according to ability in Year 6 maths lessons);
- TA support for individuals and small groups of students; and
- a variety of maths-focused interventions: 80% of respondents reported maths interventions for Year 6 and/or whole school and 46% reported that TAs delivered structured interventions relating to maths in Year 6.

Conclusions

Key conclusions	
1.	Children who received tutoring from Tutor Trust made three months' additional progress compared to children in control schools. There was a 0.19 effect size benefit which was not statistically significant (95% CI -0.05 to 0.44). This finding has a high security rating.
2.	Among children eligible for free school meals (FSM), those who received tutoring made three months' additional progress compared to FSM children in control schools. The observed effect was 0.25 (95% CI -0.02 to 0.51) but not statistically significant (p=0.06). There was also evidence that pupils of lower prior attainment tended to benefit more from the tutoring. These analyses are exploratory, but together suggest that the approach may be particularly beneficial for disadvantaged pupils.
3.	The primary result and that for the FSM subgroup were not statistically significant. This means that if the intervention has no impact then, in this trial, the probability that we would have observed an effect size as large as the one found is greater than 5%. However, in both cases this probability was fairly low (10% and 6%, respectively). This, combined with the effect sizes and the high padlock rating does give some evidence that small group tutoring led to benefits for the children in this study.
4.	Tutored pupils and their teachers consistently reported increased pupil confidence. Some extremely positive examples of tutoring were observed where productive relationships had been developed between tutors and tutees. Teachers reported that they valued the presence of an additional adult to support pupils with their maths and KS2 preparation.
5.	Good communication with tutors, particularly about the language and approaches used to teach key concepts, was a challenge for some schools. There were some weaknesses in tutors' subject knowledge for the KS2 maths curriculum, which might be mitigated by further training and testing.

Interpretation

In this pragmatic randomised controlled trial we evaluated whether small group maths teaching to Year 6 pupils who were at risk academically led to a significant improvement in maths attainment. We found a modest improvement (effect size 0.19 or three months' improvement), which, whilst not statistically significant (p = 0.1), was in line with a previous small group effect (Torgerson et al, 2014) in English acquisition (effect size 0.25). Indeed, we designed the study to observe an effect size of 0.21, which was very similar to that observed in the trial. There was a statistically significant interaction between FSM status, baseline attainment, gender, and group allocation. This means that the effect of the intervention was larger in FSM pupils, female pupils, and those who scored lowest on baseline maths assessment. Chance may provide an explanation for these interactions as the trial was not specifically powered to look for interactions. Therefore, unless these interactions are observed in other small group trials, it may be misleading to prioritise small group teaching on the basis of FSM status and gender. We found no evidence of a spillover effect on the outcomes of other children who were not in the small group sessions.

The trial gives some supporting evidence that small group teaching leads to benefits for the children that were included in this study.

Limitations

There was some loss to follow-up with three schools dropping out after randomisation. However, overall attrition was relatively limited. The difference between the groups that we observed was not statistically significant; consequently, chance may provide an explanation for the observed difference. However, the analysis may have failed to achieve statistical significance because assumptions made at the planning stage were not borne out in the trial data. For instance, we assumed a pre and post test

correlation of 0.67 in our sample size calculation, when the actual value turned out to be 0.53. Furthermore, the assumed intra-cluster correlation coefficient in our sample size calculation was 0.21, when the actual value was 0.28. Both of these effects will have had a deleterious impact on the power of the study. Whilst most of the observed lessons were good or satisfactory, a small number of instances were observed where tutoring was considered to be inadequate. This suggests that, with better quality control of the tutors, better effect sizes of the intervention could be achieved, although, arguably, this might be more challenging if the intervention needed to be delivered on an even larger scale.

Future research and publications

This study adds to existing evidence that small group teaching might be an effective strategy for helping children. Because the results did not achieve statistical significance it may be wise to replicate the results in this trial across a larger school population before there is extensive roll-out of the intervention.

We plan to write-up this trial for publication in a peer-reviewed journal.

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Appendix A – Memorandum of understanding

Tutor Trust Primary Tuition Randomised Controlled Trial Study

MEMORANDUM OF UNDERSTANDING

Aims of the evaluation

The aim of this project is to evaluate the impact of small group extra tuition delivered by tutors trained by the Tutor Trust on children's KS2 attainment in maths. The results of the research will contribute to our understanding of the potential value of additional small group tuition with University students or graduates who have been carefully selected and trained by the Tutor Trust and will be widely disseminated to schools across England.

The project

Teachers at the end of Year 5, or at the start of Year 6, will select approximately 12 pupils who are working below age-related expectations in Maths (or are working insecurely at this level) who would be receptive to tuition and benefit from this small group intervention to participate in the tutoring programme. The impact of this tutoring programme will be evaluated and compared with the "business as usual" approach, i.e. usual teaching, using a randomised controlled trial (RCT).

During this project, you will be contacted by both the Tutor Trust team, hereafter referred to as the 'Project Team', who are responsible for training, supplying and monitoring the tutors and by researchers from York Trials Unit (YTU) at the University of York and from Durham University, hereafter referred to as the 'Evaluation Team', who are carrying out an independent evaluation of project.

This memorandum of understanding (MOU) explains what your school's participation in the study will entail. If you agree to take part and accept the terms and conditions outlined, please sign a copy of this form and return by email or postal mail to the contact provided at the end of this letter (there is a FREEPOST envelope provided for your convenience).

Structure of the evaluation

Schools will be involved in delivering either of two possible approaches, with your school being randomly assigned to one of the two approaches for the whole academic year:

- *Tutoring Approach:* Teachers will identify twelve pupils who are entering into Year 6 in the 2016/2017 academic year to receive the intervention. Identified pupils will receive a minimum of twelve one-hour sessions with a Tutor Trust trained tutor in maths. Tutors will devise their own sessions based on teacher recommendations of subject areas that need to be covered. Tutoring will be provided on a one-to-one basis or in small groups to a maximum of three. Group size will be determined through teacher recommendations. Teachers will receive regular feedback from tutors regarding pupil's progress. Schools who receive the tutoring in the 2016/2017 academic year will also have the opportunity to purchase tuition at a discounted rate in the next academic year (2017/2018). This discounted tuition can be in Maths and/or English, for Years 5 and/or 6.

- *'Business as usual' Approach:* Schools in the control group will be asked to continue with usual teaching with Year 6 pupils in 2016/2017. If the school has already planned for additional small group tutoring that is not led by Tutor Trust, this should continue. After the evaluation has finished, if you were allocated to the business as usual approach, you will have the opportunity to purchase Tutor Trust tutoring for the next academic year at a

discounted rate. This discounted tuition in 2017/2018 can be in Maths and/or English, for Years 5 and/or 6.

Random allocation is essential to the evaluation as it is the best way of investigating what effect the tutoring programme had on children's attainment. It is important that schools understand and consent to this process.

In order to find out how the intervention is working we will visit a sample of schools which agree to a visit and observe some lessons and talk with the teachers and pupils in interviews and focus groups. Informed consent will be sought from teachers or parents before we conduct any interviews or focus groups.

The Evaluation Team will use school and pupil information provided by schools including KS2 results, and information from the Nation Pupil Database to assess any impact of the tutoring programme on attainment.

Use of Data

All pupil data will be treated with the strictest confidence and will be stored in accordance with the Data Protection Act (1998). Named data will be matched with the National Pupil Database and shared with the Project Team – the Tutor Trust, the Evaluation Team – York Trials Unit, University of York and Durham University, the Department for Education, the Education Endowment Foundation (EEF), FFT Education and in an anonymised form to the UK Data Archive.

All results will be anonymised so that no schools or individual pupils will be identifiable in the report or dissemination of any results. Confidentiality will be maintained and no one outside the Project Team and Evaluation Teams will have access to the database.

Responsibilities of the Project Team:

- To provide appropriately trained tutors to schools
- To ensure all tutors are insured and have a clear DBS record
- To arrange payments for tutors
- Provide on-going support to the school
- To work closely with the Evaluation Team

Responsibilities of the Evaluation Team:

- Act as the first point of contact for any questions about the evaluation
- Conduct the random allocation
- Provide information sheets and opt-out consent forms for parents
- Conduct baseline surveys with teaching staff
- Collect class and pupil level data (including name, date of birth, UPN)
- Request NPD data using pupil details
- Analyse the data from the project
- Disseminate the research findings
- To work closely with the Project Team

Requirement for Schools

- The school will not participate in another research project or evaluation (e.g. with maths skills in Year 6) that would interfere with implementation of the intervention.
- The school will identify at least 12 suitable pupils to participate in the intervention.
- The school will help researchers from Evaluation and Project Teams to collect evaluation data.
- Schools will deliver letters to parents giving them information about the study and an opportunity to opt their child out of the data gathering process. They will inform the Evaluation Team of any responses arising, and permit the publication of anonymised data collected.
- The school agrees to the Evaluation Team obtaining data on the evaluation cohort's KS2 results from the National Pupil Database, and will provide the UPNs to enable this to be achieved.
- Teachers will, at the earliest opportunity, notify the Project Team if there are any issues which could prevent the effective implementation of the tutoring intervention.
- If the school has to withdraw from the project for operational or other unavoidable reasons, it will notify the Evaluation and Project Teams straight away and wherever possible still provide test data for the evaluation.
- Teachers will provide valid email addresses and telephone contact numbers to the Evaluation and Project Teams and agree to check communications regularly during the period of the research.

Head teacher agreement

I agree for my school _____to take part in the Tutor Trust Primary Tuition study and I accept the eligibility terms and conditions.

School Name:

_____

Head Teacher Name:

_____

Head Teacher Signature: _____

Date: ____/____/_____

Head Teacher Email Address:

_____

School Contact (if not Head Teacher):

_____

School Contact Email Address (if not Head Teacher):

_____

School Telephone Number:

_____

Thank you for agreeing to take part in this research. Please return this form to:

Evaluation@TheTutorTrust.org

[insert FREEPOST address for Tutor Trust]

Appendix B – Parent letter and opt-out consent form

Parent and Pupil Information Letter and Consent Form

[INSERT DATE]
[INSERT SCHOOL NAME]

Dear Parent / Carer

Your child's school is taking part in the *Tutor Trust Primary Tuition* programme evaluation. Durham University and the University of York have been asked by the Education Endowment Foundation (an organisation funding research into education) to independently evaluate the Tutor Trust Primary Tuition programme.

This research project is fully supported by your child's school and will be carried out under strict ethical guidelines. Naturally, we place special emphasis on confidentiality and data protection.

The Tutor Trust Primary Tuition programme is being led by Tutor Trust, a professional tuition service and a registered charity with offices in Manchester and Leeds. It is designed to provide high quality in-school extra tuition in maths to children before their Year 6 KS2 assessments. There is no cost to parents or carers for this extra tuition.

To find out how well the Tutor Trust Primary Tuition programme works some schools will use the Tutor Trust Primary Tuition programme this year and some schools will not. This is decided randomly by a computer. Teaching will continue as normal for schools who will not receive the programme. Researchers will then compare results from schools that have used the programme with schools that have not. In order to do this we would like to collect information about your child from your child's primary school.

Of course, we take confidentiality very seriously and at no point in the research or the final report will the name of your child or even the name of your child's school be made public. For the purpose of research, information provided by your child's school (including your child's name, date of birth, gender, free school meal entitlement, unique pupil number, pupil premium status and Key Stage 1 and Key Stage 2 results) will be linked with information about your child from the National Pupil Database (held by the Department for Education) and shared confidentially with the Tutor Trust, Durham University and the University of York, the Department for Education, EEF, EEF's data contractor FFT Education and in an anonymised form to the UK Data Archive. Your child's data will be treated with the strictest confidence. We will not use your child's name or the name of the school in any report arising from the research.

If you are happy for information about your child to be used in the evaluation you do not need to do anything. Thank you for your help with this evaluation.

If you would rather your child's school did not share information about your child for use in this evaluation please complete the enclosed form and return it to your child's school by [INSERT DATE].

If you would like further information about the evaluation please contact the Evaluation Coordinator, Dr Kerry Bell, at **mailto:Kerry.Bell@york.ac.uk** or 01904 321325.

Yours faithfully,

Professor David Torgerson (University of York)

Professor Carole Torgerson (Durham University)
Education Endowment Foundation
The Tutor Trust

Tutor Trust Primary Tuition Evaluation: Opt Out Form

If you **DO NOT** want information about your child to be shared for use in the Tutor Trust Primary Tuition evaluation, please return this form to your child's school by [INSERT DATE].

I **DO NOT** want information about my child to be shared for use in the Tutor Trust Primary Tuition evaluation

Parent/Carer Signature……

Date……

Child's Name……

Child's School……

Appendix C – Data collection tools (IPE)

Baseline survey

Tutor Trust: Affordable Primary Tuition Trial School information sheet		
Q1	**School name**	
Q2	**6 digit school unique reference number (URN)**	
Q3	**Head teacher's name**	
Q4	**Head teacher's email address**	
Q5	**School address**	
Q6	**School postcode**	
Q7	**School telephone number**	
Q8	**Lead school contact - name**	
Q9	**Lead school contact - email address**	
Please provide the following information about the last academic year (xxxx/xxxx)		
Q10	**% of year 6 pupils working below age-related expectations in KS2 maths**	
Q11	**Did you take any extra steps to support children these children**	
Q11a	If yes, please specify	
Please provide the following information about the current academic year (xxxx/xxxx)		
Q12	**Number of pupils currently on roll**	
Q13	**Number of pupils in year 5**	
Q14	**How many completed opt-out forms have you received?**	
Q15	**% of school *currently* eligible for FSM**	
Q16	**% of school from minority ethnic groups**	
Q17	**% of pupils supported at School Action Plus not including those with statement of SEN**	
Q18	**Is your school in special measures?**	
Please provide the following information about the next academic year (xxxx/xxxx) Please do not worry if you do not have a definitive answer to these questions as we will be asking them again at a later date and currently only need them for planning purposes		
Q19	**How many year 6 *maths classes* do you anticipate having?**	
Q20	**Have you ever used a maths tutoring intervention with your current year 5 pupils?**	
Q21	**Do you deliver your maths teaching according to ability?**	
Q21a	If you answered 'other' to Q20, please provide	
Q22	**Do you have a Teaching Assistant for your maths lessons?**	
Q23	**How do you make use of TA support in Maths?**	
Q24	**Do you plan on taking any extra steps to support children working below age-related expectations?**	
Q24a	If you answered 'yes to Q22, please provide more details	
Q23	**When do you anticipate the 12 pupils will complete the Tutor Trust sessions?**	
Q24	**What group size do you intend to use for the tutoring sessions?**	
Q25	**How long do you intend to use the intervention?**	
Q26	**What term would you prefer the tutoring sessions to begin?**	

Tutoring session observation form, information sheet and consent – available in process evaluation protocol document

Trainer survey

Start of Block: Training questions

Q1 Thank you agreeing to complete this questionnaire regarding your position as a Tutor Trust trainer, this will contribute to the process evaluation of the Tutor Trust's work that we are completing on behalf of the Education Endowment Foundation. We are very grateful for your time.

Q2 Please list the titles of the training sessions that you deliver for the Tutor Trust...

_____

_____

_____

_____

_____

Q3 How long have you been a trainer for the Tutor Trust?

- Less than 1 year (1)
- 1-2 years (2)
- 3 years or more (3)

Q4 Is delivering training for the Tutor Trust your full time role?

- Yes (1)
- No (2)

Q5 Please describe any additional work that you do (or did do) if it is relevant to Tutor Trust training (e.g. teaching, lecturing, initial teacher training)

_____

_____

_____

_____

_____

Q6 Please can you describe the content and format of the training that you deliver for the Tutor Trust

_____

_____

_____

_____

_____

Q7 Are you involved in any ongoing or additional training delivered to Tutor Trust tutors (i.e. continuation of training that is delivered after the tutor has commenced tuition)

- ○ Yes (1)
- ○ No (2)

Display This Question:

If Are you involved in any ongoing or additional training delivered to Tutor Trust tutors (i.e. cont... = Yes

Q8 Please describe the ongoing or additional training and approximately when it is delivered

_____

_____

_____

Q9 Please give your brief judgement of how useful the current Tutor Trust training is, in terms of preparing tutors to deliver KS2 maths tuition

- Extremely useful (18)
- Very useful (19)
- Moderately useful (20)
- Slightly useful (21)
- Not at all useful (22)

Display This Question:

If Please give your brief judgement of how useful the current Tutor Trust training is, in terms of p... = Moderately useful

Or Please give your brief judgement of how useful the current Tutor Trust training is, in terms of p... = Slightly useful

Or Please give your brief judgement of how useful the current Tutor Trust training is, in terms of p... = Not at all useful

Q10 Please can you elaborate on your answer...

Q11 Many thanks for your time. Should you have any queries please contact kerry.bell@york.ac.uk or louise.gascoine@york.ac.uk. Please click the next arrow to submit.

End of Block: Training questions

Tutor interview schedule

- What attracted you to tutoring for Tutor Trust?
- How well do you feel the training you received from Tutor Trust prepared you for tutoring in schools?
- Have you used the tutoring session resources provided by the Tutor Trust? How useful have they been in planning and delivering your tutoring sessions?
- The process of introductions and beginning tutoring in schools – did you feel ready, was communication and support from the school enough/appropriate?
- How have you found facilitating appropriate learning behaviour with your tutees and keeping them engaged throughout the sessions?
- Would you continue with Tutor Trust next year (if not a leaver), why? Why not?

Teacher interview schedule:

- Were you involved in the decision to take part in Tutor Trust affordable primary tuition? If yes, why did you want your school to take part?
- How has the delivery of Tutor Trust affordable primary tuition compared to your expectations of it upon your school's signup?
- Are there any aspects of Tutor Trust affordable primary tuition that you find are particularly effective? Why?
- How have the students reacted to Tutor Trust affordable primary tuition?
- What do you think that the main benefits of Tutor Trust affordable primary tuition are, for you as a teacher and your students in terms of their progress in numeracy and other aspects like confidence?
- Did your school use tutoring (in any form) before taking part in the evaluation of Tutor Trust affordable primary tuition? If so, how did this practice differ from Tutor Trust affordable primary tuition?
- How easy was it to incorporate Tutor Trust affordable primary tuition into the school day (planning, discussions with tutors, were students withdrawn from lessons or after school? Which lessons?)
- How easy was it to work with the tutors to meet the needs of the year 6 pupils that had been selected for participation in Tutor Trust affordable primary tuition? Was there anything that made this easier? More difficult?
- Could you tell us about any actual or potential barriers to the successful delivery Tutor Trust affordable primary tuition? Was anything difficult to fit in or do? If so, how do you think these could be overcome?
- Are there any particular aspects of Tutor Trust affordable primary tuition that you think need changing or improving? Why?
- What advice would you give a teacher or school contemplating using Tutor Trust affordable primary tuition in the future?

- Have you got any other comments about Tutor Trust affordable primary tuition?

Student focus group schedule:

Background:

The purpose of the student focus groups is to explore students' thoughts and feelings about Tutor Trust tutoring that they have received; we are interested in their enthusiasm and attitudes.

Voluntary Informed Consent:

Teaching staff (or head teacher) will be able to give consent for the students to participate in the focus groups, but it will be important that the students themselves give voluntary and informed consent to participate at the beginning of each session after they have been given information about the focus groups.

Researcher introduction (to students) for focus groups:

Hi, my name is _____ and I am a researcher from the University of Durham / York. We are doing a research project about Tutor Trust tutoring. We're interested in talking to you about your views of Tutor Trust tutoring today; your teacher thought that you would be interested in talking to us.

Are you happy to talk to us about your tutoring sessions?

We would like to record what you say today in the focus group to make it easier for us to remember what has been said – it's easier than trying to write everything down. Our research will be anonymous, no one will know who has said what and there will be no students or schools named in our report.

Are you still happy to talk to us? Do you have any questions?

Student Focus Group Questions:

- Tell me about your tutoring sessions (check with schools what these are called in individual settings) – what do you do etc.?
- Do you enjoy your tutoring sessions – what do you enjoy the most?
- Do you think your tutoring sessions have helped you with your maths? How – what has changed since you started having tutoring?
- Has your tutoring helped you in your maths lessons with the rest of your class? How?
- Do you feel more confident with some/all of your maths now?
- Is there anything you would change about your tutoring sessions to make them better/easier/more enjoyable?

Developer interview schedule:

- What do you think the main successes of Tutor Trust delivery within the intervention schools have been this year?
- Have any schools or tutors identified any particular challenges with regards to delivery within the intervention schools?
- Have you had any other feedback from intervention schools with regards to the tutoring? If so, can you describe this?

- Have any of the intervention schools indicated that they would like to use Tutor Trust again next year? (or vice versa)
- Can you describe your processes for monitoring the tuition? For example, what percentage of tutors are observed in schools? All? A sample? How often? Or how many times? What would happen if you observed unsatisfactory tuition? Have you ever had to dismiss a tutor or can it always be resolved by further training?
- In your monitoring have you identified any problems/issues? How were these resolved?
- Have you had any feedback from the tutors with regards to either tuition or training processes? If so, can you describe this?
- Have you encountered any challenges in delivering tuition during the trial period for intervention schools? For example, have you encountered any difficulties with the volume of tutoring required?
- Have you identified any potential changes to the model of Tutor Trust tutoring as a result of the evaluation process?

Follow up survey intervention schools:

Q1 Thank you for participating in the evaluation of Tutor Trust Affordable Primary Tuition in school year 2016/17. We really appreciate you taking the time to complete this questionnaire.

Q2 School name

Q3 School postcode

Q4 What is your role in school?

- ○ Year 6 class teacher
- ○ Head teacher
- ○ SENCO
- ○ Other, please state _____

Q5 How many year 6 students have been tutored from your school in total?

Q6 What group sizes were students tutored in with Tutor Trust tutors?

- ○ Individually
- ○ Pairs
- ○ Small groups of 3
- ○ A mixture of group sizes

Q7 Which month and year did Tutor Trust tutoring start in your school?

- ○ September 2016
- ○ October 2016
- ○ November 2016
- ○ December 2016
- ○ January 2017
- ○ February 2017
- ○ March 2017
- ○ April 2017

Q8 Which month and year did Tutor Trust tutoring end in your school?

- ○ September 2016
- ○ October 2016
- ○ November 2016
- ○ January 2017
- ○ December 2016
- ○ February 2017
- ○ March 2017
- ○ April 2017
- ○ May 2017

Q9 How much tuition with the Tutor Trust did the selected students receive on average per week ?

- ○ 30 minutes
- ○ 1 hour
- ○ 90 minutes
- ○ 2 hours
- ○ Other, please state _____

Q10 When did the tutoring take place?

- ○ Before school
- ○ After school
- ○ Students were removed from specific lessons (please state which lesson or state if this changed each session) _____
- ○ Other (please state) _____

Q11 Please describe the amount of staff/administration time involved in facilitating the tutoring intervention within the school. For example, "one hour set-up meeting with the head plus 10 minute weekly catch-ups between the tutor and the Year 6 teacher"

Q12 What attracted you and your school to engaging with the Tutor Trust tutoring programme?

Q13 Do the Tutor Trust tutors plan the sessions that they conduct with the selected year 6 students?

- ○ Tutors plan their tutoring sessions independently
- ○ Tutors are asked to plan specific topics or areas as we work through them in class
- ○ Tutors have been asked to use tutoring time for mainly exam practice (e.g. past SATs papers)
- ○ Tutors are asked to plan tutoring around specific topics are areas as need arises for the students they tutor
- ○ Other (please state) _____

Q14 Please indicate to what extent you agree or disagree with the following statements about your experiences of Tutor Trust tutoring in your school...

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
It was straightforward to set up tutoring in my school	○	○	○	○	○
It was easy to incorporate Tutor Trust tutoring into the daily routine of my school or classroom	○	○	○	○	○
Tutor Trust tutoring has met the expectations we had of it when we signed up	○	○	○	○	○
The Tutor Trust tutor(s) are enthusiastic and able to engage with the students that they tutor	○	○	○	○	○

Q15 Please can you describe in more detail, any difficulties you had in setting up Tutor Trust tutoring or using it in the last year

Q16 Please indicate below the extent to which you think the following aspects of Tutor Trust tutoring have been helpful in your school setting...

	Extremely useful	Very useful	Moderately useful	Slightly useful	Not useful at all
Additional support for specific areas or topics	○	○	○	○	○
The flexibility around group sizes for tutoring (e.g. 1:1, 1:2 or 1:3)	○	○	○	○	○
Flexibility around the duration of tutoring sessions	○	○	○	○	○
Flexibility around the frequency of tutoring sessions	○	○	○	○	○

Q17 Based on your experiences, please indicate below the extent to which you agree with the following statements about Tutor Trust tutoring...

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
Individual or small group attention in maths (as opposed to whole class teaching) is useful for tutored students	○	○	○	○	○
Tutor Trust tutors relate well to the students that they have tutored	○	○	○	○	○
The consistency of having the same tutor over a period of time was beneficial for the tutored students	○	○	○	○	○
Tutor Trust tutors have a positive relationship with the students that they have tutored	○	○	○	○	○

I think that Tutor Trust tutoring has had a positive impact on the progress in maths of the tutored students	○	○	○	○	○
I think that Tutor Trust tutoring has had a more noticeable impact for specific students (e.g. EAL, SEN, boys, girls?)	○	○	○	○	○
It was easy to work with the tutors to meet the needs of the students selected for tutoring	○	○	○	○	○
Students are enthusiastic about attending their tutoring sessions	○	○	○	○	○
Students seem to be actively engaged in learning when they attend their tutoring sessions	○	○	○	○	○

Tutor feedback to class teachers after tutoring sessions is timely and appropriate	○	○	○	○	○

Q18 Please describe which group of students you think Tutor Trust tutoring had a more noticeable impact for

Q19 We are really interested in more detail about your experiences with Tutor Trust, please could you give us some more information about your answers in the previous questions where you have selected disagree or strongly disagree

Q20 Could you please tell us about any barriers to planning and implementing Tutor Trust tutoring experienced by you and/or your school

Q21 Would you change anything about the tutoring provided by Tutor Trust in the last year in your school?

○ Yes (please describe) _____

○ No

Q22 How likely is your school to continue using Tutor Trust tutoring in the future?

○ Definitely

○ Maybe

○ Undecided

○ Probably not

○ Definitely not

Q23 Can you tell us a bit about the main reasons why you will probably not or definitely not use Tutor Trust tutoring again?

Q24 Do you have any other comments about Tutor Trust tutoring?

Q25 Does your school use any other form of external tutoring for maths?

- ○ Yes in year 6 (please describe)
- ○ Not in year 6, but we do use tutoring in other year groups (please describe)
- ○ No, not at all

Q26 Please describe the external tutoring that has been used for maths (e.g. who provided it, was it for students with particular needs, etc.).

Q27 Does your school use any other form of external tutoring for another subject?

- ○ Yes
- ○ No

Q28 Please describe the external tutoring that has been used (e.g. who provided it, for which subject, was it for students with particular needs, etc.).

Q29 Please indicate the extent to which the following statements are true of year 6 maths lessons...

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
We stream students by ability in maths (e.g. different classes or different groups or tables)...	○	○	○	○	○
Students of different abilities have different work set for them in maths lessons...	○	○	○	○	○

Q30 In the last year, in your school, have any maths interventions for year 6 or whole school approaches to maths been implemented?

○ Yes (please state)

○ No

Q31 Please describe the maths interventions (year 6 or whole school) that have been implemented in the last year (e.g. their names, description of their content, who was involved etc.)

Q32 Do you have a Teaching Assistant for your year 6 maths lessons?

○ All of the time

○ Some of the time

○ Not at all

Q33 In year 6 maths lessons do TA's work with...

- ○ Any individuals or groups of students as they require help over the course of the lesson (whole class assistance)
- ○ Small groups of pre-identified students
- ○ A pre specified individual with specific learning needs

Q34 If TA's are working with a pre-specified individual or small groups of students in a year 6 maths lesson they would...

- ○ Work in the classroom
- ○ Remove student(s) to a space outside of the classroom to work with them

Q35 Do TA's conduct any planned and structured interventions relating to year 6 maths?

- ○ Yes (please state) _____
- ○ No

Q36 Is the work that TA's do in year 6 maths lessons...

- ○ Set on a lesson by lesson basis by the class teacher before the lesson starts
- ○ In response to need within a lesson (i.e. not pre-specified by the teacher) but teacher directed within a lesson
- ○ In response to need (self-directed by the TA)
- ○ A mixture of the above

Follow up survey (control schools):

Start of Block: Background info

Q1 Thank you for participating in the evaluation of Tutor Trust Affordable Primary Tuition in school year 2016/17. We really appreciate you taking the time to complete this questionnaire

Q2 School name

_____

Q3 School postcode

_____

Q4 What is your role in school?

- ○ Year 6 class teacher (1)
- ○ Head teacher (2)
- ○ SENCO (3)
- ○ Other, please state (4) _____

End of Block: Background info

Start of Block: School information

Q5 Does your school use any form of external tutoring for maths?

- ○ Yes in year 6 (please describe) (1)
- ○ Not in year 6, but we do use tutoring in other year groups (please describe) (2)
- ○ No, not at all (3)

Display This Question:

If Does your school use any form of external tutoring for maths? = Yes in year 6 (please describe)

Or Does your school use any form of external tutoring for maths? = Not in year 6, but we do use tutoring in other year groups (please describe)

Q6 Please describe the external tutoring that has been used for maths (e.g. who provided it, was it for students with particular needs, etc.).

_____

_____

_____

_____

_____

Q7 Does your school use any other form of external tutoring for another subject?

- Yes (1)
- No (2)

Display This Question:

If Does your school use any other form of external tutoring for another subject? = Yes

Q8 Please describe this external tutoring (e.g. who provided it, for which subject, was it for students with particular needs, etc.).

_____

_____

_____

_____

_____

Q9 Please indicate the extent to which the following statements are true of year 6 maths lessons...

	Strongly agree (1)	Agree (2)	Neither agree nor disagree (3)	Disagree (4)	Strongly disagree (5)
We stream students by ability in maths (e.g. different classes or different groups or tables)... (1)	○	○	○	○	○
Students of different abilities have different work set for them in maths lessons... (2)	○	○	○	○	○

Q10 In the last year, in your school, have any maths interventions for year 6 or whole school approaches to maths been implemented?

○ Yes (please state) (1)

○ No (2)

Display This Question:

If In the last year, in your school, have any maths interventions for year 6 or whole school approac... = Yes (please state)

Q11 Please describe the maths interventions (year 6 or whole school) that have been implemented in the last year (e.g. their names, description of their content, who was involved etc.)

_____

_____

_____

_____

_____

Q12 Do you have a Teaching Assistant for your year 6 maths lessons?

- All of the time (1)
- Some of the time (2)
- Not at all (3)

End of Block: School information

Start of Block: Teaching assistants

Q13 In year 6 maths lessons do TA's work with...

- Any individuals or groups of students as they require help over the course of the lesson (whole class assistance) (1)
- Small groups of pre-identified students (2)
- A pre specified individual with specific learning needs (3)

Q14 If TA's are working with a pre-specified individual or small groups of students in a year 6 maths lesson they would...

- Work in the classroom (1)
- Remove student(s) to a space outside of the classroom to work with them (2)

Q15 Do TA's conduct any planned and structured interventions relating to year 6 maths?

- ○ Yes (please state) (1) _____
- ○ No (2)

Q16 Is the work that TA's do in year 6 maths lessons...

- ○ Set on a lesson by lesson basis by the class teacher before the lesson starts (1)
- ○ In response to need within a lesson (i.e. not pre-specified by the teacher) but teacher directed within a lesson (2)
- ○ In response to need (self-directed by the TA) (3)
- ○ A mixture of the above (4)

End of Block: Teaching assistants

Appendix D – Additional steps schools planned to take for the identified pupils (from the baseline survey, Q24a, reproduced ad litteram)

smaller teaching groups (less than 25)
Extra support staff so adult support, on average was 1:8
4 day holiday Maths club
intervention timetable
parent support
complimentary Collins revision guides
Pupils working in small focus groups and attending after school clubs
They will continue to be part of our regular intervention work/ groups.
focussed groups (boosters after December)
Where required, as a teacher I will support any child who shows they need extra help with a particular area in maths. At the moment I do not know what this will look like.
Maths Intervention carried out by the Maths Subject Lead
After School targeted booster groups
Individual support if asked for by child from teacher or TA
Small group work, booster classes.
Interventions
After school revision groups, booster sessions.
Breakfast club after February half term open to all pupils, pre teaching sessions and intervention if necessary.
Streamed small classes
Invitation to Easter revision classes
Normal in school boosters and intervention
Booster groups to run before school and in the Easter holidays
Targeted support where there are weaknesses in learning through Teaching assistant and teacher withdrawal of small groups in afternoons. Focus will be on securing the basics of the four operations before moving on.
Booster classes (before school and holidays)
Therapies outside the maths lesson to address misconceptions identified (T/TA)
Purchase study books and run after school club
Continued support in the maths lesson
Support from a number of staff / resources on a needs basis
Booster groups
Booster classes after the Xmas holidays.
Additional homework, links with parents.
if pupils need additional focussed time on outcomes of any additional tests, targeted 1:1 or small group work will take place.
Maths booster work planned by teachers and delivered either by Y6 teachers or TAs
Also possibly access to Friday pre-teach group.
BOOSTER CLASSES
All year 6 will take part in after school booster sessions, 6 of these focusing upon maths. We will also be increasing the number of hours that we teach maths with an extra lesson being added each week.
Target group in class with extra focus from teacher.
Small group and individual teaching
1:1 booster support

We are considering implementing assertive mentoring across KS2 from January.

Booster Set Maths

We use Tas to clarify maths teaching in the afternoons with pupils who have been identified as needing extra support.

Some of the pupils will also be part of the small group teaching led by a teacher each day in the daily maths lesson.

Intervention groups, booster groups

continuing with pre-teach and 1-1 follow ups if needed

Some may be included in afternoon booster sessions

Children will continue to receive focussed group attention in lessons. We structure our maths lessons so pupils receive immediate intervention at the end of each lesson if they have not been able to show that they have met the objective.

Support in class. Big maths lessons. Extra homework

Booster groups if necessary

small group booster class

Before school extra maths classes

They will still receive additional support if required but if this skews the results of the tutoring we will take advice .

The children may receive intervention with a TA on an afternoon in addition to the 1:1 tuition.

Daily bosting Mon-Thurs

Data will be reviewed consistently along side pupil progress meetings and staff will decide on the priority children. From here children will be placed into groups and will take part in small 30 minute (approx) sessions on focused aspects of the curriculum they struggle with. This will be in addition to any same day intervention. We are a 3 form school and often struggle for human resources to cover everything the lower end need.

Small Booster class x2

We are currently undertaking boosters in maths once per week after school for one hour - groups are no larger than 6 and these are run by myself, our deputy head teacher and our new head teacher.

Further support from TAs

Small group interventions with teacher and TA

in class support

Third Space Learning

Quality First Teaching, Small group intervention - number, place value and calculation, SATs Booster sessions

Review of learning with tutor.

Immediate intervention if a child is struggling with a concept.

tutorials based on need identified in maths lesons will still take place on an afternoon

Feb half term and easter holiday booster classes

smaller teaching groups

targeted intervention

Revision Guides

Smaller Class Sizes

Teaching Assistants

Revision Classes

Small group interventions in school

I will ensure that whatever topics the children are currently learning will be embedded in the intervention. Tutors will be told what areas the children are struggling with.

Maths intervention groups and work with individual children identified as needing further support

Additional after-school sessions once per week to provide opportunities to address gaps in understanding

booster classes

Revision classes before and after school.

Target children have also been allocated extra TA support time and in lesson focus groups.

Maths booster lessons, After School maths clubs.

Small group intervention. Times table practice.

Booster groups for targeted children, extra vocabulary help for Eal children, Targeted catch up groups for maths &english for Eal children again

Individual learning packs for support at home.

Booster classes

PIXL programme for all pupils. Small group teaching. Any other interventions.

Breakfast club, small group sessions and after school club. Children split into small groups.

Use Arithmetic AFL to support interventions.

Booster groups in the afternoons closer to SATS

before and after lesson intervention where necessary

Afternoon booster sessions

after school club

lunchtime club

Same day interventions as usual

Any feedback will lead into work that can be done in class and around school ie interventions/boosters to narrow gaps.

Additional teachers

Additional 1:1 tuition from headteacher, and other senior staff.

Small group work

Ability grouping

Targeted TA support

Extra booster support sessions will be planned in the Spring Term

Some have maths intervention (2X half hour slot) with a TA each week. In class teaching where they have access to TA and teacher. No specific support in class for any children.

Some children within the chosen 12 will be receiving 2x20min additional maths from their teacher after half term focusing on key skill development. We also use a 'Jam Box' strategy - same day intervention - which may involve some of the children.

lunch time club, continuing with setting 4 ways daily,

Booster groups and lunchtime clubs.

quality first teaching

Continued group intervention to fill specific gaps as identified by internal assessment system

Appendix E – Summary of follow up survey (intervention)

Manchester – N = 29

What is your role in the school?	Year 6 class teacher – 14 (48.2) Head teacher – 6(20.7) SENCO – 0 (0.0) Other – 9(31.0)
How many year 6 students have been tutored from your school in total?	Mean – 13.6 Med – 12 Range – (9, 26)
What group sizes were students tutored in with Tutor Trust tutors?	Individually – 1(3.4) Pairs – 2 (6.9) Small groups of 3 – 21 (72.4) Mixture of group sizes – 5 (17.2)
Which month and year did Tutor Trust tutoring start in your school?	September - 0(0.0) October - 0(0.0) November - 0(0.0) December - 0(0.0) January – 18 (62.1) February – 6 (20.7) March - 4 (13.8) April - 1(3.4)
Which month and year did Tutor Trust tutoring end in your school?	September - 0(0.0) October - 0(0.0) November - 0(0.0) December - 0(0.0) January - 0(0.0) February - 0(0.0) March - 2 (6.9) April – 7 (24.1) May – 20 (69.0)
How much tuition with the Tutor Trust did the selected students receive on average per week ? - Selected Choice	30 mins - 0(0.0) 1hr – 25 (86.2) 90 mins - 2 (6.9) 2hrs - 2 (6.9) Other - 0(0.0)
When did the tutoring take place? - Selected Choice	Before school - 1(3.4) After school - 4 (13.8) Students were removed from specific lessons – 17 (58.6) Other - 7 (24.1)

Do the Tutor Trust tutors plan the sessions that they conduct with the selected year 6 students? - Selected Choice	Tutors plan their tutoring sessions independently - 1(3.4) Tutors are asked to plan specific topics or areas as we work through them in class – 8 (27.6) Tutors have been asked to use tutoring time for mainly exam practice – 4 (13.8) Tutors are asked to plan tutoring around specific topics areas as needed – 9 (31.0) Other – 6 (20.7) Blank - 1(3.4)
Please indicate to what extent you agree or disagree with the following statements about your experiences of Tutor Trust tutoring in your school... - It was straightforward to set up tutoring in my school	Strongly agree – 14 (48.3) Agree – 15 (51.7) Neither agree nor disagree – 0(0.0) Disagree – 0(0.0) Strongly disagree - 0(0.0)
Please indicate to what extent you agree or disagree with the following statements about your experiences of Tutor Trust tutoring in your school... - It was easy to incorporate Tutor Trust tutoring into the daily routine of my school or classroom	Strongly agree – 9 (31.0) Agree – 18 (62.1) Neither agree nor disagree – 1(3.4) Disagree – 1(3.4) Strongly disagree -0(0.0)
Please indicate to what extent you agree or disagree with the following statements about your experiences of Tutor Trust tutoring in your school... - Tutor Trust tutoring has met the expectations we had of it when we signed up	Strongly agree – 10 (34.5) Agree –13 (44.8) Neither agree nor disagree – 4 (13.8) Disagree – 2 (6.9) Strongly disagree -0(0.0)
Please indicate to what extent you agree or disagree with the following statements about your experiences of Tutor Trust tutoring in your school... - The Tutor Trust tutor(s) are enthusiastic and able to engage with the students that they tutor	Strongly agree – 16 (55.2) Agree –11 (37.9) Neither agree nor disagree – 1(3.4) Disagree – 1(3.4) Strongly disagree -0(0.0)
Please indicate below the extent to which you think the following aspects of Tutor Trust tutoring have been helpful in your school setting... - Additional support for specific areas or topics	Extremely useful – 9 (31.0) Very useful – 12 (41.4) Moderately useful – 6 (20.7) Slightly useful – 1(3.4) Not useful at all – 0(0.0) Blank - 1(3.4)
Please indicate below the extent to which you think the following aspects of Tutor Trust tutoring have been helpful in your school setting... - The flexibility around group sizes for tutoring (e.g. 1:1, 1:2 or 1:3)	Extremely useful – 8 (27.6) Very useful – 14 (48.3) Moderately useful – 4 (13.8) Slightly useful – 2 (6.9) Not useful at all – 0(0.0) Blanks - 1(3.4)
Please indicate below the extent to which you think the following aspects of Tutor Trust tutoring have been helpful in your school setting... - Flexibility around the duration of tutoring sessions	Extremely useful – 6 (20.7) Very useful – 15 (51.7) Moderately useful – 6 (20.7) Slightly useful – 0(0.0) Not useful at all – 1(3.4) Blanks - 1(3.4)

Please indicate below the extent to which you think the following aspects of Tutor Trust tutoring have been helpful in your school setting... - Flexibility around the frequency of tutoring sessions	Extremely useful– 6 (20.7) Very useful – 17 (58.6) Moderately useful – 5 ((17.2) Slightly useful – 0(0.0) Not useful at all –0(0.0) Blanks - 1(3.4)
Based on your experiences, please indicate below the extent to which you agree with the following statements about Tutor Trust tutoring... - Individual or small group attention in maths (as opposed to whole class teaching) is useful for tutored students	Strongly agree – 14 (48.3) Agree –13 ((44.8) Neither agree nor disagree – 0(0.0) Disagree – 1(3.4) Strongly disagree –0(0.0) Blank - 1(3.4)
Based on your experiences, please indicate below the extent to which you agree with the following statements about Tutor Trust tutoring... - Tutor Trust tutors relate well to the students that they have tutored	Strongly agree – 12 (41.4) Agree – 15 (51.7) Neither agree nor disagree – 1(3.4) Disagree – 0(0.0) Strongly disagree -0(0.0) Blank - 1(3.4)
Based on your experiences, please indicate below the extent to which you agree with the following statements about Tutor Trust tutoring... - The consistency of having the same tutor over a period of time was beneficial for the tutored students	Strongly agree – 16 (55.2) Agree –11 (37.9) Neither agree nor disagree – 1(3.4) Disagree – 0(0.0) Strongly disagree –0(0.0) Blank - 1(3.4)
Based on your experiences, please indicate below the extent to which you agree with the following statements about Tutor Trust tutoring... - Tutor Trust tutors have a positive relationship with the students that they have tutored	Strongly agree – 15 (51.7) Agree – 12 (41.4) Neither agree nor disagree – 0(0.0) Disagree – 1(3.4) Strongly disagree –0(0.0) Blanks - 1(3.4)
Based on your experiences, please indicate below the extent to which you agree with the following statements about Tutor Trust tutoring... - I think that Tutor Trust tutoring has had a positive impact on the progress in maths of the tutored students	Strongly agree – 10 (34.5) Agree –9 (31.0) Neither agree nor disagree – 6 (20.7) Disagree – 2 (6.9) Strongly disagree –0(0.0) Blank - 2 (6.9)
Based on your experiences, please indicate below the extent to which you agree with the following statements about Tutor Trust tutoring... - I think that Tutor Trust tutoring has had a more noticeable impact for specific students (e.g. EAL, SEN, boys, girls?)	Strongly agree – 2 (6.9) Agree –4 (13.8) Neither agree nor disagree – 17 (58.6) Disagree – 4 (13.8) Strongly disagree -1(3.4) Blank - 1(3.4)
Based on your experiences, please indicate below the extent to which you agree with the following statements about Tutor Trust	Strongly agree – 7 (24.1) Agree –19 (65.5) Neither agree nor disagree – 2 (6.9) Disagree – 0(0.0)

tutoring... - It was easy to work with the tutors to meet the needs of the students selected for tutoring	Strongly disagree –0(0.0) Blank - 1(3.4)
Based on your experiences, please indicate below the extent to which you agree with the following statements about Tutor Trust tutoring... - Students are enthusiastic about attending their tutoring sessions	Strongly agree – 8 (27.6) Agree –15 (51.7) Neither agree nor disagree – 4 (13.8) Disagree – 1(3.4) Strongly disagree - 0(0.0) Blank - 1(3.4)
Based on your experiences, please indicate below the extent to which you agree with the following statements about Tutor Trust tutoring... - Students seem to be actively engaged in learning when they attend their tutoring sessions	Strongly agree – 7 (24.1) Agree –17 (58.6) Neither agree nor disagree – 4 (13.8) Disagree – 0(0.0) Strongly disagree - 0(0.0) Blank - 1(3.4)
Based on your experiences, please indicate below the extent to which you agree with the following statements about Tutor Trust tutoring... - Tutor feedback to class teachers after tutoring sessions is timely and appropriate	Strongly agree – 6 (20.7) Agree – 20 (69.0) Neither agree nor disagree – 1(3.4) Disagree – 1(3.4) Strongly disagree - 0(0.0) Blank - 1(3.4)
Would you change anything about the tutoring provided by Tutor Trust in the last year in your school? - Selected Choice	Yes – 5 (17.2) No -23 (79.3) Blank - 1(3.4)
How likely is your school to continue using Tutor Trust tutoring in the future?	Definitely – 12 (41.4) Maybe – 7 (24.1) Undecided – 5 (17.2) Probably not –4 (13.8) Definitely not – 0(0.0) Blank - 1(3.4)
Does your school use any other form of external tutoring for maths?	Yes in year 6 – 1(3.4) Not in year 6 but we do use tutoring in other year groups – 0(0.0) No not at all – 27 (93.1) Blank - 1(3.4)
Does your school use any other form of external tutoring for another subject?	Yes – 2 (6.9) No - 26 (89.7) Blank - 1(3.4)
Please indicate the extent to which the following statements are true of year 6 maths lessons... - We stream students by ability in maths (e.g. different classes or different groups or tables)...	Strongly agree – 3 (10.3) Agree –7 (24.1) Neither agree nor disagree – 1(3.4) Disagree – 10 (34.5) Strongly disagree -6 (20.7) Blank - 2 (6.9)

Please indicate the extent to which the following statements are true of year 6 maths lessons... - Students of different abilities have different work set for them in maths lessons...	Strongly agree – 7 (24.1) Agree – 17 (58.6) Neither agree nor disagree – 1(3.4) Disagree – 3 (10.3) Strongly disagree -0(0.0) Blank - 1(3.4)
In the last year, in your school, have any maths interventions for year 6 or whole school approaches to maths been implemented?	Yes – 18 (62.1) No – 10 (34.5) Blank - 1(3.4)
Do you have a Teaching Assistant for your year 6 maths lessons?	All of the time – 13 (44.8) Some of the time – 13 (44.8) Not at all – 2 (6.9) Blank - 1(3.4)
In year 6 maths lessons do TA's work with...	Any individuals or groups of students as they require help over the course of the lesson – 16 (55.2) Small groups of pre-specified students – 8 (27.6) A pre specified individual with specific learning needs – 2 (6.9) Blank – 3 (10.3)
If TA's are working with a pre-specified individual or small groups of students in a year 6 maths lesson they would...	Work in the classroom – 19 (65.5) Remove student(s) to a space outside of the classroom to work with them – 7 (24.1) Blank – 3 (10.3)
Do TA's conduct any planned and structured interventions relating to year 6 maths? - Selected Choice	Yes – 10 (34.5) No – 16 (55.2) Blank – 3 (10.3)
Is the work that TA's do in year 6 maths lessons...	Set on a lesson by lesson basis by the class teacher before the lesson starts – 7 (24.1) In response to need within a lesson(i.e. not pre-specified by the teacher) but teacher directed within a lesson – 5 (17.2) In response to need (self-directed by the TA) – 0(0.0) A mixture of the above – 14(48.3) Blank – 3 (10.3)

Leeds – N = 20

What is your role in the school?	Year 6 class teacher – 11 (0.55) Head teacher – 5 (0.25) SENCO – 2 (0.1) Other – 2 (0.1)
How many year 6 students have been tutored from your school in total?	Mean – 12.8 Med – 10 Range – (12, 21)
What group sizes were students tutored in with Tutor Trust tutors?	Individually – 0 (0.0) Pairs – 2 (0.1) Small groups of 3 – 13 (0.65) Mixture of group sizes - 5 (0.25)
Which month and year did Tutor Trust tutoring start in your school?	September – 0 (0.0) October - 0 (0.0) November - 0 (0.0) December - 0 (0.0)

	January - 13 (0.65) February - 4 (0.2) March - 1 (0.05) April - 2 (0.1)
Which month and year did Tutor Trust tutoring end in your school?	September - 0 (0.0) October - 0 (0.0) November - 0 (0.0) December - 0 (0.0) January - 0 (0.0) February - 1 (0.05) March - 2 (0.1) April – 9 (0.45) May – 8 (0.4)
How much tuition with the Tutor Trust did the selected students receive on average per week? - Selected Choice	30 mins - 0 (0.0) 1hr - 15 (0.75) 90 mins - 3 (0.15) 2hrs - 1 (0.05) Other - 1 (0.05)
When did the tutoring take place? - Selected Choice	Before school - 1 (0.05) After school - 2 (0.1) Students were removed from specific lessons - 11 (0.55) Other – 6 (0.3)
Do the Tutor Trust tutors plan the sessions that they conduct with the selected year 6 students? - Selected Choice	Tutors plan their tutoring sessions independently - 1 (0.05) Tutors are asked to plan specific topics or areas as we work through them in class – 8 (0.4) Tutors have been asked to use tutoring time for mainly exam practice – 1 (0.05) Tutors are asked to plan tutoring around specific topics areas as needed – 7 (0.35) Other – 3 (0.15)
Please indicate to what extent you agree or disagree with the following statements about your experiences of Tutor Trust tutoring in your school... - It was straightforward to set up tutoring in my school	Strongly agree – 8 (0.4) Agree – 12 (0.6) Neither agree nor disagree – 0 (0.0) Disagree – 0 (0.0) Strongly disagree - 0 (0.0)
Please indicate to what extent you agree or disagree with the following statements about your experiences of Tutor Trust tutoring in your school... - It was easy to incorporate Tutor Trust tutoring into the daily routine of my school or classroom	Strongly agree – 8 (0.4) Agree –11 (0.55) Neither agree nor disagree – 0 (0.0) Disagree – 1 (0.05) Strongly disagree - 0 (0.0)
Please indicate to what extent you agree or disagree with the following statements about your experiences of Tutor Trust tutoring in your school... - Tutor Trust tutoring has met the expectations we had of it when we signed up	Strongly agree – 12 (0.6) Agree – 8 (0.4) Neither agree nor disagree – 0 (0.0) Disagree – 0 (0.0) Strongly disagree - 0 (0.0)

Please indicate to what extent you agree or disagree with the following statements about your experiences of Tutor Trust tutoring in your school... - The Tutor Trust tutor(s) are enthusiastic and able to engage with the students that they tutor	Strongly agree – 14 (0.7) Agree – 6 (0.3) Neither agree nor disagree – 0 (0.0) Disagree – 0 (0.0) Strongly disagree - 0 (0.0)
Please indicate below the extent to which you think the following aspects of Tutor Trust tutoring have been helpful in your school setting... - Additional support for specific areas or topics	Extremely useful – 10 (0.5) Very useful – 9 (0.45) Moderately useful – 1 (0.05) Slightly useful – 0 (0.0) Not useful at all – 0 (0.0)
Please indicate below the extent to which you think the following aspects of Tutor Trust tutoring have been helpful in your school setting... - The flexibility around group sizes for tutoring (e.g. 1:1, 1:2 or 1:3)	Extremely useful – 9 (0.45) Very useful – 9 (0.45) Moderately useful – 0 (0.0) Slightly useful – 1 (0.05) Not useful at all – 1 (0.05)
Please indicate below the extent to which you think the following aspects of Tutor Trust tutoring have been helpful in your school setting... - Flexibility around the duration of tutoring sessions	Extremely useful – 8 (0.4) Very useful – 9 (0.45) Moderately useful – 3 (0.15) Slightly useful – 0 (0.0) Not useful at all – 0 (0.0)
Please indicate below the extent to which you think the following aspects of Tutor Trust tutoring have been helpful in your school setting... - Flexibility around the frequency of tutoring sessions	Extremely useful – 8 (0.4) Very useful – 8 (0.4) Moderately useful – 4 (0.2) Slightly useful – 0 (0.0) Not useful at all – 0 (0.0)
Based on your experiences, please indicate below the extent to which you agree with the following statements about Tutor Trust tutoring... - Individual or small group attention in maths (as opposed to whole class teaching) is useful for tutored students	Strongly agree – 10 (0.5) Agree – 10 (0.5) Neither agree nor disagree – 0 (0.0) Disagree – 0 (0.0) Strongly disagree - 0 (0.0)
Based on your experiences, please indicate below the extent to which you agree with the following statements about Tutor Trust tutoring... - Tutor Trust tutors relate well to the students that they have tutored	Strongly agree – 11 (0.55) Agree – 9 (0.45) Neither agree nor disagree – 0 (0.0) Disagree – 0 (0.0) Strongly disagree - 0 (0.0)
Based on your experiences, please indicate below the extent to which you agree with the following statements about Tutor Trust tutoring... - The consistency of having the same tutor over a period of time was beneficial for the tutored students	Strongly agree – 12 (0.6) Agree – 8 (0.4) Neither agree nor disagree – 0 (0.0) Disagree – 0 (0.0) Strongly disagree – 0 (0.0)

Based on your experiences, please indicate below the extent to which you agree with the following statements about Tutor Trust tutoring... - Tutor Trust tutors have a positive relationship with the students that they have tutored	Strongly agree – 13 (0.65) Agree – 7 (0.35) Neither agree nor disagree – 0 (0.0) Disagree – 0 (0.0) Strongly disagree - 0 (0.0)
Based on your experiences, please indicate below the extent to which you agree with the following statements about Tutor Trust tutoring... - I think that Tutor Trust tutoring has had a positive impact on the progress in maths of the tutored students	Strongly agree – 11 (0.55) Agree – 8 (0.4) Neither agree nor disagree – 1 (0.05) Disagree – 0 (0.0) Strongly disagree - 0 (0.0)
Based on your experiences, please indicate below the extent to which you agree with the following statements about Tutor Trust tutoring... - I think that Tutor Trust tutoring has had a more noticeable impact for specific students (e.g. EAL, SEN, boys, girls?)	Strongly agree – 3 (0.15) Agree – 4 (0.2) Neither agree nor disagree – 12 (0.6) Disagree – 1 (0.05) Strongly disagree - 0 (0.0)
Based on your experiences, please indicate below the extent to which you agree with the following statements about Tutor Trust tutoring... - It was easy to work with the tutors to meet the needs of the students selected for tutoring	Strongly agree – 10 (0.5) Agree – 10 (0.5) Neither agree nor disagree – 0 (0.0) Disagree – 0 (0.0) Strongly disagree - 0 (0.0)
Based on your experiences, please indicate below the extent to which you agree with the following statements about Tutor Trust tutoring... - Students are enthusiastic about attending their tutoring sessions	Strongly agree – 10 (0.5) Agree – 10 (0.5) Neither agree nor disagree – 0 (0.0) Disagree – 0 (0.0) Strongly disagree - 0 (0.0)
Based on your experiences, please indicate below the extent to which you agree with the following statements about Tutor Trust tutoring... - Students seem to be actively engaged in learning when they attend their tutoring sessions	Strongly agree – 8 (0.4) Agree – 10 (0. 5) Neither agree nor disagree – 2 (0.1) Disagree – 0 (0.0) Strongly disagree - 0 (0.0)
Based on your experiences, please indicate below the extent to which you agree with the following statements about Tutor Trust tutoring... - Tutor feedback to class teachers after tutoring sessions is timely and appropriate	Strongly agree – 10 (0.5) Agree – 10 (0.5) Neither agree nor disagree – 0 (0.0) Disagree – 0 (0.0) Strongly disagree - 0 (0.0)
Would you change anything about the tutoring provided by Tutor Trust in the last year in your school? - Selected Choice	Yes – 3 (0.15) No - 17 (0.85)

How likely is your school to continue using Tutor Trust tutoring in the future?	Definitely – 8 (0.4) Maybe – 7 (0.35) Undecided – 4 (0.2) Probably not – 1 (0.05) Definitely not - 0 (0.0)
Does your school use any other form of external tutoring for maths?	Yes in year 6 – 0 (0.0) Not in year 6 but we do use tutoring in other year groups – 1 (0.05) No not at all - 19 (0.95)
Does your school use any other form of external tutoring for another subject?	Yes – 1 (0.05) No - 19 (0.95)
Please indicate the extent to which the following statements are true of year 6 maths lessons... - We stream students by ability in maths (e.g. different classes or different groups or tables)...	Strongly agree – 2 (0.1) Agree – 3 (0.15) Neither agree nor disagree – 5 (0.25) Disagree – 7 (0.35) Strongly disagree – 2 (0.1) Blank - 1 (0.05)
Please indicate the extent to which the following statements are true of year 6 maths lessons... - Students of different abilities have different work set for them in maths lessons...	Strongly agree – 4 (0.2) Agree – 10 (0. 5) Neither agree nor disagree – 3 (0.15) Disagree – 1 (0.05) Strongly disagree - 2 (0.1)
In the last year, in your school, have any maths interventions for year 6 or whole school approaches to maths been implemented?	Yes – 14 (0.7) No - 6 (0.3)
Do you have a Teaching Assistant for your year 6 maths lessons?	All of the time – 9 (0.45) Some of the time – 9 (0.45) Not at all - 2 (0.1)
In year 6 maths lessons do TA's work with...	Any individuals or groups of students as they require help over the course of the lesson – 9 (0.45) Small groups of pre-specified students – 9 (0.45) A pre specified individual with specific learning needs – 0 (0.0) Blank - 2 (0.1)
If TA's are working with a pre-specified individual or small groups of students in a year 6 maths lesson they would...	Work in the classroom – 15 (0.75) Remove student(s) to a space outside of the classroom to work with them – 3 (0.15) Blanks - 2 (0.1)
Do TA's conduct any planned and structured interventions relating to year 6 maths? - Selected Choice	Yes – 10 (0.5) No – 8 (0.4) Blanks - 2 (0.1)
Is the work that TA's do in year 6 maths lessons...	Set on a lesson by lesson basis by the class teacher before the lesson starts – 4 (0.2) In response to need within a lesson(i.e. not pre-specified by the teacher) but teacher directed within a lesson – 3 (0.15) In response to need (self-directed by the TA) – 1 (0.05)

	A mixture of the above – 10 (0.5) Blanks - 2 (0.1)

Appendix F – Introductory meeting checklist (as used by Tutor Trust in the evaluation)

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EEF Tutor Introductory Meeting

School Staff Contact Details	
School	
Point(s) of contact / Role	
Child Protection Officer/DBS & Photo ID checks & procedures	
Procedure for fire alarm	
Tuition Logistics	
Final Timetable Please include days, times and groupings (1:1/1:2/1:3)	
Please List the weeks the 12 hours of tuition will fall on. Are there any school trips/days off planned that we might not otherwise know about?	Pupils need a minimum of 12 hours Tuition could also take place during half term/Easter Holidays
Lateness/ Absence Procedure	Each child requires 12 hours (min) of tuition. If a child is late/ill/absent, then we will need to rearrange those hours to an alternative time during the week. If children are grouped 1:1 or 1:2, it will be possible to tutor the late/ill/absent child in another group that week. If a tutor is late/ill/absent, then the tutor will try to rearrange those hours to an alternative time during the week (that is convenient for the school). If this is not possible, we will arrange for a cover tutor to make up those hours.
Location of tuition in school Will tutor take pupil out of class or pupil be brought to tutor?	Tutors are not responsible for dismissing pupils at the end of the day. If multiple tutors are working at a school on the same day, we strongly advise that each tutor has their own independent work space.

Tuition Details	
Planning/Resources Will the tutors need to do significant prep and planning for the tuition sessions? Or will Year 6 teachers provide most of the guidance about topics and provide school resources to the tutors? -School calculation policy -Photocopier -Additional homework can be provided	
Information about pupils: -Current Ability (Strengths/Weaknesses) -Latest Test Results -Targets	**All pupils should be working below ARE or insecurely at ARE. Tutors should not be expected to work with pupils who are working significantly below ARE, or who have severe behavioural issues and/or SEN.**
How should work be presented/marked -Books/folders (provided by school) -Marking policy	We expect our tutors to make corrections as they go along and provide verbal feedback. If you would like them to follow your marking policy, then please make this explicit and ensure you provide adequate guidance.
Behaviour policy and reward system	
Communication and feedback models	Tutors are required to complete an 'EEF Tutor Feedback Sheet' which will be returned to the school and The Tutor Trust after every session. This acts as a register and establishes a dialogue between tutor/s and school staff about progress.
School Details	
Title: First names or Ms/Sir?	**Dress code:**
Additional notes:	

Appendix G – Tutoring session feedback form (as used in the evaluation).

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EEF Evaluation Project Year 6 Maths Tutor Register/Feedback Sheet		
Tuition Time: Date: Session Number:	School: Tutor Name:	**Pupils Present:** …… ……
Pupil's Attitude to Learning:	Focused and productive Focused but struggling to complete set task Quiet but unproductive Uncooperative, completing little work	
How did the session go? What were you covering and did you complete the session aims? What are you covering in the next session?		
Request to teacher for topic guidance or resource:	Teacher comments:	

Appendix H: Padlock rating

Rating	Criteria for rating			Initial score		Adjust		Final score
	Design	Power	Attrition					
5	Well conducted experimental design with appropriate analysis	MDES < 0.2	0-10%					
4	Fair and clear quasi-experimental design for comparison (e.g. RDD) with appropriate analysis, or experimental design with minor concerns about validity	MDES < 0.3	11-20%	4		Adjustment for balance [x]		4
3	Well-matched comparison (using propensity score matching, or similar) or experimental design with moderate concerns about validity	MDES < 0.4	21-30%					
2	Weakly matched comparison or experimental design with major flaws	MDES < 0.5	31-40%			Adjustment for threats to internal validity [x]		
1	Comparison group with poor or no matching (E.g. volunteer versus others)	MDES < 0.6	41-50%					
0	No comparator	MDES > 0.6	>50%					

- **Initial padlock score:** lowest of the three ratings for design, power and attrition = 4
- **Reason for adjustment for balance** (if made): N/A (The effect size for the difference in KS1 maths score between the intervention and control groups was 0.09. KS1 maths was included as a covariate in the analysis. The sample eligible for tutoring was identified based on teacher judgement of attainment in Year 6, ie, those working at below age-expected levels in Y6. KS1 score was not used for identifying pupils for tutoring. For these reasons, and in line with the

recommendations of the two independent peer reviewers, it was decided not to drop an additional padlock for imbalance.)

- **Reason for adjustment for threats to validity** (if made): N/A

Final padlock score: initial score adjusted for balance and internal validity = 4

Appendix I: Cost rating

Cost ratings are based on the approximate cost per pupil per year of implementing the intervention over three years. More information about the EEF's approach to cost evaluation can be found **here**. Cost ratings are awarded as follows:

Cost rating	Description
£ £ £ £ £	*Very low:* less than £80 per pupil per year.
£ £ £ £ £	*Low:* up to about £200 per pupil per year.
£ £ £ £ £	*Moderate:* up to about £700 per pupil per year.
£ £ £ £ £	*High:* up to £1,200 per pupil per year.
£ £ £ £ £	*Very high:* over £1,200 per pupil per year.

This document is available for download at **www.educationendowmentfoundation.org.uk**

Education
Endowment
Foundation

The Education Endowment Foundation
9th Floor, Millbank Tower
21–24 Millbank
London
SW1P 4QP
www.educationendowmentfoundation.org.uk