what works
centre for
CHILDREN'S SOCIAL CARE

PROJECT TITLE	Re-analysis and meta-analysis of 83 EEF randomised controlled trials to determine value of interventions for children at different stages of the social care system
LEAD ORGANISATION	What Works Centre for Children's Social Care (WWC CSC)
PRINCIPAL INVESTIGATOR	Michael Sanders
PROTOCOL AUTHORS	Michael Sanders, Chris Mitchell, Vicky Clayton, Daniel Bogiatzis Gibbons
TRIAL DESIGN	Meta-analysis and re-analysis of historical trials
DATE	Addendum added May 2019
VERSION	Version 2.0 Changes to version 1.0 (March 2019): ● Addition of data protection section (as planned) ● Deletion of early years as a theme; exclusion of difference-in-difference trial (for consistency) ● Correcting data source for school-level covariates (Edubase no longer exists) ● Adding in age, special educational need and disability into individual-level covariates and deleting Early Years Pupil Premium (on seeing data dictionary)

Executive Summary

Background

1.5 million children were referred to or in need of social care services for at least one day in any of 2014-2017 and their educational attainment is far below the national average - with only 23% of pupils with CIN status achieving the expected standard in KS2 reading, writing and maths compared to 64% of pupils with no social care contact in the last three years[1]. However, the evidence base in improving educational attainment for this group is sparse[2]. The Education Endowment Foundation (EEF) has

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[1] Department for Education, (December 2018). *Children in Need of help and protection: a preliminary longitudinal analysis.*
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/762795/Children_in_Need_of_help_and_protection-Preliminary_longitudinal_analysi....pdf.

[2] See for example Godar, R. & Holmes, D. (2017). *The use of research evidence regarding 'what works' in local authority child protection systems and practice.* https://www.eif.org.uk/report/the-use-of-research-evidence-regarding-what-works-in-local-authority-child-protection-systems-and-practice.

conducted 83 randomised controlled trials (RCTs) of school- or early years-based interventions, which present an opportunity to add to that base.

Research Aims

To explore whether the interventions trialed by the EEF have an effect for children referred to or in need of social care services, and whether these effects are different to those not referred to or in need of such services. Further, to explore if the effects differ by the type of intervention.

Research Design

This research consists of secondary analysis of already completed randomised controlled trials (RCTs) consisting of meta-analyses as well as traditional regression analysis on each individual trial.

Outcome Measures

This research will use a variety of age or Key Stage appropriate educational attainment measures - these may be government standardised tests or researcher-administered tests.

Analyses

The meta-analyses will be conducted using multi-level random intercepts models and the re-analysis of individual randomised controlled trials will be conducted using the standard regression specifications in the original trials with an interaction term for our subgroup of interest added, as well as an indicator of that cohort.

Notes

This protocol was written without having accessed the EEF's data archives. We have aimed to make it as complete as possible on the basis of publicly available information. We have also outlined the principles we will use to change analytical specifications if this is necessary. Differences between the analyses described here and those ultimately conducted will be described in the final report.

About the Partners

The Education Endowment Foundation

Since its formation in 2011, the Education Endowment Foundation (EEF) have run a large range of randomised controlled trials (RCTs) to investigate the impact of interventions on young people's educational attainment. Interventions, such as intensive maths tuition or developing parents' skills to support their child's learning, have focused primarily on reducing the gap between affluent and less affluent students.

The What Works Centre for Children's Social Care

The What Works Centre for Children's Social Care (WWC CSC) was created in 2018 using funding from the Department for Education and are tasked with building an evidence base for effective interventions for children involved in social care, which is currently lacking. Re-analysis of the existing trials run by the EEF, focusing specifically on this cohort, is an efficient way to improve the evidence base from which teachers and social workers can make decisions to help young people.

Contents

Introduction

Subgroup of interest

Our analysis is concerned with the analysis of effects of interventions of young people who had received a statutory social care intervention either during the period of the trial or in the prior six years. Statutory social care interventions are here classed as: Child in Need (S.17), Child Protection (S.47), child being taken into care either through a court order (S.36), or with parental consent (S.20).

Motivation

The Department for Education are conducting a review of the existing evidence to understand the impact on children referred to children's social care services and which educational and social care interventions can help these children to achieve their academic potential. Preliminary longitudinal analysis has found that around 1.5 million children were referred to or in need of social care services for at least one day in any of 2014-2017, and that the educational attainment of this subgroup was below the national average[3].

Approach

The set of 83 currently completed randomised controlled trials with EEF funding (as of February 2019) provide an opportunity to explore through re-analysis whether the effectiveness of these interventions differs for our subgroup of interest, potentially providing indications for how to improve outcomes without running entirely new studies.

The focus of this analysis will be on interventions that are either school-based or Early Years based, and will therefore exclude a small number (2) of trials where the intervention was aimed at reorganising the resources of the school or promoting the use of evidence. We will also exclude two evaluations that were conducted by statistical matching and one evaluation conducted by difference-in-difference, rather than using randomised controlled trials. More details are included below in *Studies Included*.

It should be noted that the lower sample sizes for this subgroup and the lack of stratification on involvement in social care status means the treatment and control group sample sizes for this subgroup may not be balanced. This reduces statistical power. Further, the re-analysis is exploratory in the sense that:

- The research question focusing on the subgroup of interest was generated after the trials were completed;
- This sub-group was not identified as part of the theory of change in the studies suggesting no theoretical underpinnings why a differential effect would be expected;
- These trials were not individually powered to detect effects on this sub-group.

That said, it is worth noting that the Centre has not yet accessed the data as of the writing of this document, and involvement in social care is not an outcome within the trial datasets[4]. Further detail on sample sizes and statistical power is provided below.

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[3] Department for Education. (December 2018). *Children in Need of help and protection: a preliminary longitudinal analysis.*
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/762795/Children_in_Need_of_help_and_protection-Preliminary_longitudinal_analysi....pdf.

[4] The trial data will be linked to the National Pupil Database (NPD) which contains data on involvement in social care via Unique Pupil Numbers (UPN).

In the first part of our analysis, we will conduct a series of meta-analyses (statistical aggregations of multiple studies), divided into cohorts as follows:

- Early Years,
- Key Stages 1 and 2 (primary school),
- Key Stages 3 and 4 (secondary school).

Meta-analysis allows us to counteract the elevated risk that individual studies may be underpowered due to the reduced sample size compared with the original study (reflecting that the projects were not originally designed to be analysed for the effect on this subgroup).

We are able to conduct our meta-analyses using individual participant-level data, which simplifies the analytical strategy and allows for greater precision, at the cost of allowing us to make recommendations about particular interventions (whilst still allowing us to say something about types of intervention).

The second part of our analysis will be to re-analyse each trial individually using regressions looking at effects on sub-groups of young people who are in contact with children's social care - that is, young people with a Child in Need (CIN) or Child Protection plan (CP plan), and children who have been taken into care. In the rest of the document this is what we mean by the phrases "subgroup of interest" or "children referred to children's social care services". Clearly, not all trials will be well powered for this analysis but the advantages of this analytical strategy are that:
1. We can retain the original trial's analytical strategy;
2. Where relevant results are found, it gives them a sense of what might be prescribed to support children in this subgroup for those tasked making a personal education plan[5] or running a virtual school.
3. By seeing individual intervention effects for our subgroup, it might spark hypotheses about more targeted interventions, which the Centre can test in future.

We will conduct power calculations for the trials, and indicate in the final reporting whether the trial was powered for the subgroup analyses we are conducting.

Research questions
Bearing in mind the above, our main research questions are:

RQ1: Do the interventions trialled by the EEF have an effect on the educational attainment and attendance of children involved in children's social care services?

RQ2: Are the effects different to those not involved in statutory social care proceedings?

RQ3: Do the answers to these questions vary by type of intervention? (We define 'type' of intervention as the 'Big Picture' themes which the EEF uses to classify the projects with the exception of 'Early Years' and 'Post-16' which we consider as subgroups and so we do not cover those categories in the analysis).

Meta-analysis approach

Inclusion Criteria

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[5] A PEP, which is needed for all young people with Child Protection plans or who are in care.

We will include 83 RCTs conducted by the EEF that were on school-based or Early Years interventions. This includes all full and completed trials with the exception of:

- Two 'Literacy Octopus' trials[6] whose interventions were considered too far away from interventions the school or Early Years providers could implement to be included, and
- Two evaluations which were estimated using matching and one evaluation estimated using a difference-in-difference analysis rather than RCTs.

No trials conducted by the EEF on Further Education (FE) have yet reported results, so these will not form part of the analysis. It is worth caveating that in this circumstance we are conducting a different exercise to a traditional meta-analysis by pooling disparate kinds of interventions rather than multiple trials of the same intervention.

In total, 83 trials were included with over 5100 schools and over 450,000 pupils combined (some of which are likely to overlap). These included a range of interventions from group discussions about ethical and philosophical topics ('Philosophy for Children') to providing schools with resources to offer a free before-school breakfast club ('Magic Breakfast'). Descriptions of trial interventions, practitioner training and the model of delivery can be found in the individual trial protocols on the [EEF website](#), and are linked to in the table below.

We will conduct two lots of meta-analyses as follows:

1. The main meta-analysis using the standardised specified primary outcome/s in the trial. This meta-analysis will include every RCT in our sample.
2. Secondary meta-analyses split into English attainment, maths attainment or science attainment. This may make use of secondary outcome measures.

Identification of themes

Intervention themes will be categorised by the "Big Picture Themes" according to the EEF categorisation as on the [EEF's completed projects webpage](#). If a trial fits within multiple categories, it will be analysed in each of the categories it belongs.

The relevant themes are: behaviour; character & essential skills; developing effective learners; Special Educational Needs; staff deployment & development; parental engagement; mathematics; organising your school; science; feedback & monitoring pupil progress; language and literacy; enrichment.

Outcome Measures

Main Analysis
As noted above, we will used standardised versions of the primary outcome measure. In the case where there is more than one primary outcome, a composite measure based on averaging the z-scores of the outcomes will be created[7]. For more detail, see the discussion in the re-analysis section below.

Secondary Analyses

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[6] NFER. *The Literacy Octopus: Communicating and Engaging with Research.*
https://educationendowmentfoundation.org.uk/projects-and-evaluation/projects/the-literacy-octopus-communicating-and-engaging-with-research/
[7] We will be able to conduct one regression as we will standardise all outcome measures by transforming them into z-scores. The standard deviations used for this process will be those of the entire control group.

We will group outcomes and conduct separate meta-analyses for standardised versions of (Including only studies that measured these outcomes):

- Maths attainment,
- English attainment,
- Science attainment,
- Attendance (for that school year from the NPD).

Where more than one measure exists in the trial for that kind of attainment, we will use the primary outcome measure if relevant or a composite measure of the multiple measures constructed by averaging the z-scores where multiple measures of the same kind of attainment are included as primary outcome.

We will not include the Early Years cohort in the secondary analysis as there is only one study in each of English attainment and maths attainment.

Reporting

For each regression we will report:

- The effect size (we will calculate Glass' Δ[8]) for the subgroup of interest,
- The difference between the effect size on the subgroup of interest and the whole student population in the trials[9],
- The confidence intervals for the effect on the subgroup of interest[10] calculated from the regressions including an indication for whether they are narrower than 0.1 SD and contain zero (which we will take as a qualitative indication of a "true zero effect").

Analytical strategy

There was substantial heterogeneity between the studies in how they were conducted, often due to practical constraints or the interventions being tested, for example:

1. Some of the trials are clustered at the school or class level: children involved in social care service within the untreated group or cluster comprise the control group for these trials.
2. Sometimes "time-equivalent" control interventions -- for example, one-to-one tutoring of equal time and frequency as an intervention but not following its delivery model -- are considered as the comparator alongside the status quo group, who did not receive any additional support. When these appear together in multi-armed studies, both time-equivalent and status quo groups, as well as the combination of these cohorts, will be included as comparators.

   Further, we have inherently clustered data, due to the designs of the studies as follows:

- Individual (we will omit this level if there are less than 10% of total population are in multiple studies),
- Class,
- School,

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[8] Glass' delta is defined as Δ = (Difference between control and treatment means just for the cohort of interest)/(Standard deviation of the overall control group).

[9] The difference will be Cohort Δ - Total Population Δ = [(Difference between control and treatment means just for the cohort of interest)-(Difference between control and treatment means for the rest of the population)]/[Standard deviation of the overall control group population].

[10] Which is the sum of the overall effect and the interaction effect on the subgroup of interest.

- Study.

The advantage of having individual participant-level data is that we can specify our separate meta-analyses as regression models, though we must take account of the hierarchical clustering. There are two main approaches to doing this: so-called "fixed effects" models and multilevel "random effects" models. Our preferred modelling technique here is the multilevel random intercepts model, with the levels of the clusters specified above. We are employing a random intercepts model for the meta-analyses for the following reasons:

1. They are standard practice in individual participant data (IPD) meta-analyses.
2. Multilevel models handle hierarchies of clustering better than FE models - and that is of interest here (because we have e.g. classrooms within schools and studies within themes). This is because they explicitly model how this hierarchy exists.
3. Relatedly, they allow for dealing with having unequal numbers of arms or different clustering structures (e.g. class randomisation) within one model without too much trouble.
4. The key assumption in a model with study fixed effects that the studies differ only in sampling variation, and measure the same true effect rather than capturing uncertainty in the true effect across studies. As we're pooling different interventions in the same model rather than studying the effect of the same intervention, this is not a valid assumption.
5. The key assumption in "random effects" models is that of strict exogeneity of the random effects terms, i.e. that the random effect mean is not correlated with the variables included in the model. If this assumption fails, we will apply the mean centering technique of Bafumi and Gelman[11], as it helps dampen the issue.

Our primary interest is in:

- The mean treatment effect across all interventions on the subgroup of interest as well as estimated treatment effects for each intervention on the subgroup of interest (to answer RQ1),
- The difference between this treatment effect and the treatment effect for the rest of the study population (to answer RQ2),
- For each theme: the mean treatment effect on the subgroup of interest *and* the difference between treatment effect on the subgroup of interest and the treatment effect for the rest of the study population (to answer RQ3).

These can be calculated using the methods described in Huh et al. (2015)[12].

We will use the following list of additional standard individual- and school-level covariates (where they are available):

Individual Covariates

- Gender (included as a binary indicator: male=0, female=1),
- Eligibility for free school meals (binary variable: no FSM = 0, FSM=1) & ever eligible for free school meals (likewise a binary variable),

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[11] Bafumi, J & Gelman, A. (2006). *Fitting Multilevel Models When Predictors and Group Effects Correlate.* (pre-print), http://citeseerx.ist.psu.edu/viewdoc/summary?doi=10.1.1.69.9044.

[12] See for example Huh, D., Mun, E. Y., Larimer, M. E., White, H. R., Ray, A. E., Rhew, I. C., Kim, S. Y., Jiao, Y., Atkins, D. C. (2015). Brief motivational interventions for college student drinking may not be as powerful as we think: an individual participant-level data meta-analysis. *Alcoholism, clinical and experimental research*, *39*(5), 919-31.

- Standardised baseline attainment outcome variable (continuous),
- Year group (categorical variable) and age (integer),
- Special educational need and disability (binary variable)
- 'English as an additional language' status (binary variable: no EAL = 0, EAL=1),
- Has been involved in at least one previous EEF intervention (binary variable).

We have **not** requested ethnicity here because we are concerned about the fact that it might make individuals within the data identifiable. There is some risk that as this was included in the original trials that this may make the numbers produced not exactly aligned with the original published studies.

School Covariates (if available, these are largely from the School Census or school comparison site[13])

- School type (included as a categorical variable: most probably collapsed to the broad categories: comprehensive=1, non-comprehensive=2, other=3),
- Ofsted rating (included as a categorical variable on a 4-point scale: 'outstanding'=1, 'good' = 2, 'requires improvement' = 3, 'inadequate' = 4),
- Location (binary variable: urban = 0, rural=1),
- Proportion of pupils FSM eligible (continuous variable)
- Proportion of pupils achieving expected Key Stage level in English and Maths or closest available metric (continuous variable),
- Proportion of pupils white British (continuous variable).

Handling of missing data and lost units of randomisation

In cases of missing data, we will consider the possible reasons for its missingness and undertake statistical analyses to determine whether there are any patterns relating to other recorded covariates or to the intervention variable. We will follow EEF guidance on missing data, and follow the original trial specification where possible.

Re-analysis for subgroups

Studies included

Inclusion criteria are the same as for the meta-analyses.

Outcome measures

Primary outcome measures differ according to the specifics of the trial in question. These include a range of attainment, interest, behaviour and soft skills outcomes as well as attendance and parental engagement. Please see the table below for the primary outcomes for each trial (there are multiple primary outcomes for some trials). Justification for choice of measures can be found in the trial protocols found on the EEF website. We will include all primary outcomes measured in the included studies in our re-analysis.

Again, we will report:
- The effect size (we will calculate Glass' Δ) for the subgroup of interest,
- The difference between the effect size on the subgroup of interest and the whole student population in the trials (in Glass' Δ),

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[13] Gov.uk. *Find and compare schools in England.* https://www.compare-school-performance.service.gov.uk

- The confidence intervals for the effect on the subgroup of interest[14] calculated from the regressions including an indication for whether they are narrower than 0.1 SD and contain zero (which we will take as a qualitative indication of a "true zero effect").

Further, we will present the SD effect sizes in a forest plot by theme for ease of interpretation[15].

Analytical strategy

This will consist of a replication of the analytical strategies conducted in the original research, but with a focus on the children in contact with the social care system.

This will be done through regressions with an interaction term for the intervention and the subgroup of interest, and a control variable for the subgroup of interest.

In order to answer RQ1, we will conduct an F-test whether the sum of the interaction term and the overall treatment term is different from zero. To answer RQ2, we will test just whether the interaction term is different from zero.

We follow the majority of EEF trials in adopting a level of statistical significance of 10%. We shall consider a significant effect size of 0.1 as tentative evidence of impact of the intervention on the children in the social care system subgroup. This effect size is considered equivalent to 2 months' estimated progress. Given the exploratory nature of this analysis, and the hope that it will spur future research, we will report in more granular detail than is typical for this kind of analysis the level of statistical confidence.

Handling of missing data and lost units of randomisation

As for the meta-analysis, we will follow EEF guidance.

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[14] Which is the sum of the overall effect and the interaction effect on the subgroup of interest.
[15] See e.g. Lewis, S. & Clarke, M. (2001). "Forest plots: trying to see the wood and the trees", *BMJ* 322(7300): pp. 1479-1480. http://europepmc.org/backend/ptpmcrender.fcgi?accid=PMC1120528&blobtype=pdf.

Data Protection

This section is structured according to the guidance given by the Information Commissioner's Office, which "covers the General Data Protection Regulation (GDPR) as it applies in the UK, tailored by the Data Protection Act 2018"[16].

The Data Controller for this project is the What Works Centre for Children's Social Care. The legal basis for processing the data is legitimate interest.

This is a three part test:

1) Purpose test: are you pursuing a legitimate interest?

We are a research group within an innovation charity, whose purpose is to improve the evidence base in children's social care. We consider the processing of the data to be in our legitimate interests because it will enable us to produce research in this area, which will benefit schools or those tasked with making a personal education plan or running a virtual school.

2) Necessity test: is the processing necessary for that purpose?

The processing is necessary for the purpose because the original trials do not contain information on social care status, so we cannot answer research questions on the basis of already published reports. Also the existing evidence base on this area is very thin, so we could not rely on systematic reviews. We have mitigated against potential ethical risks by not using identifiable data as much as possible, though we still need individual-level data with variables on important moderators of educational attainment (otherwise we cannot be sure the differences in treatment effects are not due to other characteristics of children). If this processing cannot occur, it will mean that it is more difficult to plan future evaluations in this sector and teachers, social workers and virtual head teachers are more likely to rely on approaches without evidence, with downstream effects for children involved in statutory social care.

3) Balancing test: do the individual's interests override the legitimate interest

The individuals in the trial were alerted that their data would be used for statistical analysis. We have published a privacy notice on our website including an opt-out form to give general notice of this processing. While the data is quite sensitive and on a population which includes vulnerable children, we will not be using identifiable IDs and the data will be stored with the Office for National Statistics Secure Research Service. We believe this processing falls within generally socially acceptable uses of this kind of data - it is scientific research in the public interest by a charity and for the benefit of a vulnerable group.

We therefore believe that the individuals' interests do not override our legitimate interest in this processing.

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[16] https://ico.org.uk/for-organisations/guide-to-data-protection/guide-to-the-general-data-protection-regulation-gdpr/

The legal basis for processing special category data is that it is necessary for archiving, scientific, historical research or statistical purposes (point (e) of section 10 of the DPA which refers to (j) (archiving, research and statistics) of Article 9(2) of the GDPR). The project meets condition (4) in Part 1 of Schedule 1:

(a) is necessary for archiving purposes, scientific or historical research purposes or statistical purposes,

This processing constitutes "scientific research" as it will be used to create evidence on pre-defined, specific hypotheses around what works to promote educational attainment for children who have undergone a statutory intervention, in order to increase the knowledge base in this area. The special category data we are using is data concerning gender, and health, specifically special educational need (SEN) and disability. Not being able to assign gender, SEN status or disability status to our data limits the scientific value of this research because they are known to be a moderators of academic performance and may be confounders for the effect of having had a statutory social care intervention.

(b) is carried out in accordance with Article 89(1) of the GDPR (as supplemented by section 19)

Organisational and Technical Arrangements

"Those safeguards shall ensure that technical and organisational measures are in place in particular in order to ensure respect for the principle of data minimisation. Those measures may include pseudonymisation provided that those purposes can be fulfilled in that manner."

The data will be pseudo-anonymised i.e. it can no longer be attributed to a specific data subject without the use of additional information. We are not requesting any 'instant identifiers' (e.g. name or address) or 'meaningful identifiers' (identifiers that allow linking to other datasets).

We will access the data using the ONS's Secure Research Service and have received accreditation by the ONS for Limited Organisational Access. We would be using the DSAP framework and complying with the standards outlined by the ONS as the technical safeguards needed under Article 89(1). For example, we shall ensure that computer screens have visors over them in the area where we are accessing the data (in our offices).

Safeguards (DPA 2018 Section 19)

In the UK, the requirements of Article 89(1) GDPR will not be met unless the provisions of Section 19 DPA 2018 are also complied with. We have no reason to believe that the research will cause damage or distress (and certainly not substantial damage or distress) to the students - the analysis requires no extra involvement of the students. The data has already been collected and the processing and presentation of evidence is unlikely to have distressing effects because a) we protect against identification of the individual and also against statistical disclosure (following the ONS standard rules outlined in the Approved Researcher training), and b) the subject matter is not one which is distressing. The research is not being carried out for the purposes of measures or decisions with respect to a particular data subject but looks at the effect of interventions on the cohort as a whole.

(c) is in the public interest.

The work is intended to support work towards high standards of quality of education specifically for children with involved with the statutory social care system which is a substantial section of the public.

Principles of the GDPR

Principle (a): Lawfulness, fairness and transparency

1. Lawfulness:

The underlying data used to conduct this analysis consists of two sources:

- The National Pupil Database, which is a national dataset for students at state schools in England consisting primarily of information on educational attainment at different stages of their time in school and which also contains information on legal statuses relating to social work (e.g. CIN or LAC status);
- Information collected by researchers for specific trials which is usually collected by researcher- or teacher-administered assessments or surveys.

The Department for Education treats the National Pupil Database as personal data, and it contains sensitive data which we will need for this project -- notably the variables needed to determine membership of the cohort of interest (notably legal status for example CIN, LAC status etc).

2. Fairness:

ICO's guidance says fairness means "you should only handle personal data in ways that people would reasonably expect and not use it in ways that have unjustified adverse effects on them"[17]. This data is being used for statistical research, which is part of the intended purpose of the NPD and is being used to support our cohort of interest, not have adverse effects on them.

3. Transparency:

This will be covered below in the section on the right to be informed. We will ensure that privacy notices are written in clear and plain language. We will also ensure that notices have a Flesch-Kincaid grade level of 7 to ensure that either older children who are able to object by themselves can do so and that the notices are accessible to all parents.

Principle b): Purpose Limitation

This data will only be used to answer the research questions in this document, as part of a general purpose to increase the evidence base about how defined interventions affect the cohort of interest. They will not be used for any other purpose, other than usual statistical checks to ensure the accuracy of the data.

Where the data is researcher-collected this analysis is a different purpose than the original one used to process the data. This is a particular issue when the original basis for obtaining the data was consent from the study participants or parents.

However, statistical purposes and scientific research are "compatible purposes" to the original purpose for processing the data. We believe that in the spirit of the GDPR, it is also a purpose that research participants would find acceptable.

Principle c): Data Minimisation

We have only requested data that is adequate, relevant and limited to what is necessary to fulfil the purpose of this project i.e. to build the evidence base on the cohort of interest. Broadly speaking, we can classify the data requested into three groups:

- Outcome measures (which are usually measures of educational attainment) which are necessary to measure whether an intervention was successful,

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[17]https://ico.org.uk/for-organisations/guide-to-data-protection/guide-to-the-general-data-protection-regulation-gdpr/principles/lawfulness-fairness-and-transparency/

- The variables needed to ascertain membership of the cohort of interest (those relating to CIN or LAC status etc),
- Other variables used in the original analysis which are necessary for comparability with that analysis, excluding ethnicity which we will not collect because of concerns that it may make individuals in the data identifiable.

Principle d): Accuracy

This text is borrowed from the DfE application form for access to the NPD:

> *"DfE data collections undertake a significant period of cleaning and quality control, typically by frontline organisations undertaking their own data checking, and supported by validation routines at the point of entry into DfE systems. Our Subject Access Request policy allows data subjects (subject to necessary identification checks) to review the data about them which has impact on them (e.g. is used to drive elements of school funding relevant to them). In most cases, where they believe data is inaccurate and needs to be rectifying we would point them to the source of the data to ensure that the rectification can be considered locally and if appropriate ensure that any future runs of data are correct."*

Principle e): Storage limitation

The Centre will not store the data at all and we intend to access the data through the ONS Secure Research Service, which provides secure access to sensitive individual level data, and will only access the data for the period of time necessary to do the research and appropriate quality assurance.

Principle f): Integrity and confidentiality (Security)

See the security section below.

Principle g): Accountability principle

The Executive Director of the What Works Centre and Principal Investigator for this research (Dr. Michael Sanders) will be ultimately responsible for the conduct of the research. Other details are below in the accountability and governance section.

Individuals' rights under the GDPR

The right to be informed

Participants were given the chance to withdraw their data from analysis at the time of the original research, and were informed that their personal data could be anonymised and shared with other research organisations. EEF's Privacy Policy recommends evaluators to include the following text in recruiting documents and information sheets:

> *"For the purpose of research, the responses will be linked with information about the pupils from the National Pupil Database (NPD) and shared with [delivery partner, if applicable], the Department for Education, the EEF's archive manager and, in an anonymised form, with the Office for National Statistics and potentially other research teams. Further matching to NPD and other administrative data may take place during subsequent research." (p.5).*

On the DfE side, to borrow again from their application form to the NPD:

> *"DfE publishes model privacy notices and regularly encourages schools and colleges to use them to fulfil their own responsibilities as controllers. We recognise that schools and colleges are the 'front line' with a more direct relationship with data subjects within our data than our department. As such, we explain about how government uses data, and the NPD, within that privacy notice. DfE also has several sections on .gov.uk explaining more about how we use data, and through our transparency publications ensure that all data sharing that moves through our governance board is visible to citizens. We are undertaking work to improve the readability and interpretation of this publication."*

The Centre has published a privacy notice on its website detailing how the processing will be done, and giving the option to opt out of the processing via an online form. As this data is indirectly collected and for "scientific or historical research purposes" as well as "statistical purposes" the Centre is relying on an exemption to the requirement to individually inform participants as it would "*prevent* or *seriously impair* the achievement of the purposes for processing".

This is the case because:

- It would require the centre, which is part of a not-for-profit organisation to expend considerable resource to mail 450,000 individuals thus leaving less resources to undertake the processing;
- It would require re-identifying the individuals via their addresses, which is data the Centre does not have access to.

<u>The right to access</u>

On the DfE side, to borrow again from their application form to the NPD:

> *"Individuals have the right to access their individual data and supplementary information. The right of access allows individuals to be aware of and verify the lawfulness of the processing. Individuals are entitled to obtain:*
>
> - *confirmation that their data is being processed;*
> - *access to their individual data; and*
> - *other supplementary information*
>
> *DfE has procedures in place to process Subject Access Requests in line with legislation."*

<u>The right to rectification</u>

To borrow again from their application form to the NPD:

> *"Individuals have the right to access their individual data and supplementary information. The right of access allows individuals to be aware of and verify the lawfulness of the processing. Individuals are entitled to obtain:*
>
> - *confirmation that their data is being processed;*
> - *access to their individual data; and*
> - *other supplementary information*
>
> *DfE has procedures in place to process Subject Access Requests in line with legislation."*

<u>The right of erasure</u>

To borrow again from their application form to the NPD:

> *"The right of erasure is also known as 'the right to be forgotten'. The broad principle underpinning this right is to enable an individual to request the deletion or removal of individual data where there is no compelling reason for its continued processing. This right is not applicable if the data is collected through a legitimate legal gateway which DfE data is."*

<u>The right to restrict processing</u>

Our general privacy notice contains a form with options to either object to the processing, restrict the processing or have the data erased from the extract that the Centre is using.

<u>The right to data portability</u>

To borrow again from their application form to the NPD:

> *"The right to data portability allows individuals to obtain and reuse their individual data for their own purposes across different services. It allows them to move, copy or transfer individual data easily from one IT environment to another in a safe and secure way, without hindrance to usability. This is not particularly relevant in the context of DfE operations."*

<u>The right to object</u>

See the right to restrict processing.

<u>Individual's rights in relation to automated decision-making and profiling</u>

Nothing in this analysis is related to either automated decision-making or profiling of any individuals, and in particular relating to the GDPR not the individuals whose data we will be analysing.

Accountability and Governance under the GDPR

Nesta (which is incubating the WWC CSC) has a Data Protection Team which has the responsibility for the management of Data Protection on behalf of the Organisation. The Data Protection Team includes the Deputy CEO, ensuring compliance with GDPR at the highest level of management. Each team has a Data Protection Lead which has day-to-day responsibility for data protection. There is no formal Data Protection Officer at Nesta because Nesta does not routinely undertake large-scale processing of personal data

Nesta's Data Protection Policy evidences the steps taken to ensure compliance with GDPR and documents the appropriate technical and organisation measures in place to comply with GDPR.

Security

The approach of Nesta (which is incubating the WWC CSC) to information security is outlined in its Information Security and IT Usage Policy. We will be using the ONS' Secure Research Service either in person at the ONS' sites (in which case we will adopt the ONS' rules for using those sites) or via a VPN. The Centre has been accredited by the ONS for Limited Organisational Connectivity.

Checks on staff

The data will only be accessed by Centre research team members who are ONS Approved Researchers, with DBS checks. Research staff at both the EEF and the What Works Centre have undergone data protection training and have substantial experience in handling data. The research team continues to review the training needs of the team to ensure the Centre's approach remains up-to-date.

Pre-registration

We will pre-register the protocols on the OSF (Open Science Framework: https://osf.io).

Appendix: Table of studies

The table includes all primary outcomes for each intervention in each trial included in the re-analysis and the meta-analysis. The MDES and sample sizes reflect the sample at the point of the analysis (ITT). Where the trials are multi-armed, the sample size is listed as for that intervention and for the specific outcome variable. Where the trials are split-arm trials, the sample size is listed as the total sample size. We have defined statistical significance at the 10% level, though this in some cases it was taken at 5% in the original reporting.

†School /pupil numbers are at the point of analysis.
††MDES are stated at the point of analysis, which were reported in all but a small number of trials. In cases in which MDES was not disclosed, stated as a range or only at the point of randomisation, this is noted.
††† Significance defined at the 10% level.

Trial	Year	Trial type	Arms	Unit of randomisation	Schools†	Pupils†	MDES†††	Primary outcome		Effect size	Significance†††
								Variable	Measure		
1st Class @ Number	2015	RCT	2	School	130	491	0.27	Quantitative reasoning	Quantitative Reasoning Test	0.18	Y
Abracadabra	2013	RCT	3	School and pupil	48	1731	0.27	Reading attainment	Progress in Reading Assessment (PIRA)	0.27	Y
Abracadabra (offline)	2013	RCT	3	School and pupil	48	1715	0.27	Reading attainment	Progress in Reading Assessment (PIRA)	0.27	Y
Accelerated Reader	2012	RCT	2	Pupil	4	349	0.2	Reading attainment	New Group Reading Test (NGRT)	0.24	Y

Act, Sing, Play (Singing) - Maths	2013	RCT	3	Pupil	19	542	0.22	Mathematics attainment	Performance Indicators in Primary Schools (Maths)	0.04	N
Act, Sing, Play (Singing) - English	2013	RCT	3	Pupil	19	542	0.22	English attainment	Performance Indicators in Primary Schools (English)	0.03	N
Act, Sing, Play (Strings) - Maths	2013	RCT	3	Pupil	19	545	0.22	Mathematics attainment	Performance Indicators in Primary Schools (Maths)	-0.03	N
Act, Sing, Play (Strings) - English	2013	RCT	3	Pupil	19	545	0.22	English attainment	Performance Indicators in Primary Schools (English)	0.03	N
Affordable Maths Tuition	2014	RCT	2	School	64	578	0.33	Mathematics attainment	KS2 Maths	-0.02	N
Best Practice in Setting - Maths	2014	RCT	2	School	76	2,383	0.15	Mathematics attainment	Progress Test in Maths (PTM13)	-0.01	N
Best Practice in Setting - English	2014	RCT	2	School	37	939	0.19	English attainment	Progress Test in English (PTE13)	-0.08	N
Butterfly Phonics	2013	RCT	2	Pupil	6	310	0.63	Reading attainment	New Group Reading Test (NGRT)	0.43	N
Catch Up Literacy	2012	RCT	3	Pupil	15	557	0.27	Reading attainment	New Group Reading Test	0.12	Y

Catch Up Literacy (re-grant)	2019	RCT	2	School	141	1035	0.24	Reading attainment	Hodder Group Reading Test (HGRT)	0.01	N
Catch Up Numeracy	2012	RCT	3	Pupil	54	216	0.25	Mathematics attainment	Basic Number Screening Test	0.21	Y
Catch Up Numeracy vs time equivalent	2012	RCT	3	Pupil	54	210	0.25	Mathematics attainment	Basic Number Screening Test	0	N
Catch Up Numeracy (re-grant)	2019	RCT	2	School	42	1481	0.25	Mathematics attainment	Progress in Maths (PiM)	-0.04	N
Changing Mindsets - Pupil workshops (maths)	2013	RCT	2	Pupil	6	174	0.4 - 0.5	Mathematics attainment	Measuring Success in Maths (MSiM)	0.1	N
Changing Mindsets - Pupil workshops (english)	2013	RCT	2	Pupil	6	178	0.4 - 0.5	English attainment	Progress in English (PiE)	0.18	Y
Changing Mindsets - Teacher training (maths)	2013	RCT	2	Teacher	30	896	0.3 - 0.4	Mathematics attainment	Measuring Success in Maths (MSiM)	0.01	N
Changing Mindsets - Teacher training (english)	2013	RCT	2	Teacher	30	885	0.3 - 0.4	English attainment	Progress in English (PiE)	-0.11	N
Chatterbooks	2013	RCT	3	Pupil	12	304	0.22	Reading attainment	New Group Reading Test	-0.14	N

Chatterbooks - plus	2013	RCT	3	Pupil	12	295	0.22	Reading attainment	New Group Reading Test	-0.01	N
Chess in Primary Schools	2013	RCT	2	School	100	4009	0.18	Mathematics attainment	KS2 maths score	0.01	N
Children's University - maths	2014	RCT	2	School	68	1231	0.2 - 0.3	Maths attainment	KS2 maths	0.15	N
Children's University - reading	2014	RCT	2	School	68	1224	0.2 - 0.3	Reading attainment	KS2 reading	0.12	N
Dialogic Teaching - Maths	2014	RCT	2	School	69	603	0.28	Maths attainment	Progress Test in Maths	0.09	N
Dialogic Teaching - English	2014	RCT	2	School	69	627	0.28	English attainment	Progress Test in English	0.15	Y
Dialogic Teaching - Science	2014	RCT	2	School	69	613	0.28	Science attainment	Progress Test in Science	0.12	Y
Discover Summer School	2013	RCT	2	Pupil	19	124	Underpowered (insufficient recruitment)	English attainment	Progress in English 11 (PiE)	0.25	N
Embedding Formative Assessment	2015	RCT	2	School	140	25,393	0.17	General educational attainment	Attainment 8 GCSE	0.1	Y
Families and Schools Together (FAST)	2015	RCT	2	School	115	4221	0.18	Reading and arithmetic attainment (combined)	KS1	0.01	N

Family skills	2016	RCT	2	School	102	1985	0.23	Literacy attainment	CEM BASE Reception Baseline Assessment	0.01	N
Flipped Learning	2013	RCT	2	School	24	1129	0.38	Mathematics attainment	KS2 Maths	0.09	N
Foreign Language Learning in Primary School	2014	RCT	2	Class	91	2166	0.28	English attainment	Overall Progress in English (PiE)	0	N
Fresh Start	2013	RCT	2	Pupil	10	419	0.26	Literacy attainment	New Group Reading Test	0.24	Y
FRIENDS	2015	RCT	2	Class	79	3010	0.15	Maths and reading attainment (combined)	KS2 Maths and reading	0.01	N
Future Foundations Summer School - English	2013	RCT	2	Pupil	43	310	Not disclosed, underpowered due to low recruitment	English attainment	KS2 Reading and Writing	0.17	N
Future Foundations Summer School - Maths	2013	RCT	2	Pupil	43	306	As above	Maths attainment	KS2 Maths	0	N
Graduate Coaching Programme	2012	RCT	2	Pupil	4	291	0.21	Reading, spelling and grammar ability	PiE	0.36	Y
Grammar for Writing - small group vs control	2013	RCT	3	Pupils randomised (small group / whole class) within	50	817	0.23	Writing attainment	Extended writing score exercises (PiE II LF)	0.24	Y

Name	Year	Design		Randomisation	Clusters	Pupils		Outcome	Test	Effect size	
				intervention classes							
Grammar for Writing - whole class vs control	2013	RCT	3	Pupils randomised (small group / whole class) within intervention classes	50	1289	0.18	Writing attainment	Extended writing score exercises (PiE 11 LF)	0.1	N
Grammar for Writing (re-grant)	2017	RCT	2	School	135	5416	0.18	Writing attainment	Bespoke test based on KS2 writing	-0.02	N
GraphoGame Rime - Reading	2015	RCT	2	Pupil	15	362	0.25	Reading attainment	New Group Reading Test (NGRT)	-0.06	N
GraphoGame Rime - Spelling	2015	RCT	2	Pupil	15	362	0.25	Spelling attainment	Single-Word Spelling Test (SWST)	0.01	N
Hampshire Hundreds	2012	RCT	2	School	24	2148	0.2	Reading and maths attainment (combined)	Interactive Computerised Assessment System (InCAS)	0.03	N
Improving Numeracy and Literacy in KS1 - maths	2012	RCT	3	School	36	1365	0.18	Mathematics attainment	Progress in Maths 7 (PiM)	0.2	Y
Improving Numeracy and Literacy in KS1 - english	2012	RCT	3	School	38	1427	0.18	English attainment	Progress in English 7 (PiE)	-0.05	N

Increasing Pupil Motivation; financial incentive; Maths	2012	RCT	3	School	48	7960	0.16	Mathematics attainment	Maths GCSE	0.03	N
Increasing Pupil Motivation; financial incentive; English	2012	RCT	3	School	48	7960	0.16	English attainment	English GCSE	0.02	N
IPM financial incentive - Science	2012	RCT	3	School	48	7960	0.16	Science attainment	Science GCSE	-0.06	N
IPM event incentive - Maths	2012	RCT	3	School	48	8242	0.16	Mathematics attainment	Maths GCSE	0.08	N
IPM event incentive - English	2012	RCT	3	School	48	8242	0.16	English attainment	English GCSE	0.04	N
IPM event incentive - Science	2012	RCT	3	School	48	8242	0.16	Science attainment	Science GCSE	-0.06	N
IPEEL	2012	RCT	2	School	23	261	0.43	Writing attainment	Extended writing score exercises (PiE 11 LF)	0.74	Y
IPEEL re-grant (1yr of int.)	2015	RCT	2	School	83	2465	0.2	Writing attainment (1yr of IPEEL)	KS2 literacy	-0.09	N
IPEEL re-grant (2yrs of int.)	2015	RCT	2	School	78	2196	0.2	Writing attainment (1yr of IPEEL)	Bespoke test based on KS2 literacy	0.11	N

Learner Response System - Maths (1yr of int.)	2013	RCT	2	School	97	2837	0.18	Maths attainment	KS2 Maths	0	N
Learner Response System - English (1yr of int.)	2013	RCT	2	School	94	2829	0.18	English attainment	KS2 English	0	N
Learner Response System - Maths (2yrs of int.)	2013	RCT	2	School	93	3127	0.18	Maths attainment	KS2 Maths	-0.08	N
Learner Response System - English (2yrs of int.)	2013	RCT	2	School	93	3013	0.18	English attainment	KS2 English	-0.04	N
Lesson Study (1yr of int.)	2015	RCT	2	School	160	6437	0.1	Maths and reading attainment (combined)	KS2 Maths and reading (combined)	0.02	N
Lesson Study (2yrs of int.)	2015	RCT	2	School	156	6304	0.1	Maths and reading attainment (combined)	KS2 Maths and reading (combined)	0.03	N
Let's Think Secondary Science	2013	RCT	2	School	47	5882	0.23	Science attainment	Historic KS3 Science test	-0.01	N
LIT Programme	2012	RCT	2	School	29	4413	0.25 (at randomisation, but high attrition)	Literacy attainment	Hodder Access Reading Test (ART)	0.09	N
Magic Breakfast - KS1 maths	2014	RCT	2	School	101	4590	0.16	Mathematics attainment	KS1 mathematics	0.15	Y

Magic Breakfast - KS1 reading	2014	RCT	2	School	101	4590	0.16	Reading attainment	KS1 reading	0.1	Y
Magic Breakfast - KS1 writing	2014	RCT	2	School	101	4590	0.16	Writing attainment	KS1 writing	0.14	Y
Magic Breakfast - KS2 reading	2014	RCT	2	School	101	3907	0.16	Reading attainment	KS2 reading	0.1	N
Magic Breakfast - KS2 maths	2014	RCT	2	School	101	3907	0.16	Mathematics attainment	KS2 mathematics	0.08	N
Mathematical Reasoning (re-grant)	2015	RCT	2	School	160	6353	0.14	Mathematics attainment	GL Assessment Progress Test in Maths (PTM)	0.08	N
Mathematics Mastery (Primary)	2012	RCT	2	School	83	2176	0.15	Maths attainment	Number Knowledge Test (NKT)	0.1	Y
Mathematics Mastery (Secondary)	2011	RCT	2	School	44	5938	0.14	Maths attainment	Progress in Maths (PiM) 12 test	0.06	N
Maths Champions	2015	RCT	2	School	94	628	0.26	Maths attainment	ASPECTS	0.1	N
Maths Counts	2015	RCT	2	Pupil	35	291	0.29	Maths attainment	CEM InCAS assessment	0.12	Y
Mind the Gap	2012	RCT	3	School and pupil	39	700	0.45	Literacy and numeracy attainment	Combined InCAS (reading, general maths, arithmetic)	-0.14	N
Nuffield Early Learning	2012	RCT	3	Pupil	68	229	0.25	Language skill attainment	Three test composite: Renfrew Action Picture Test (APT), CELF-	0.27	Y

Intervention									Measure		
Intervention - 30wks of int.									Preschool 2 UK: Expressive Vocabulary, Listening Comprehension)		
Nuffield Early Learning Intervention - 20wks of int.	2012	RCT	3	Pupil	68	236	0.25	Language skill attainment	Three test composite: Renfrew Action Picture Test (APT), CELF-Preschool 2 UK: Expressive Vocabulary, Listening Comprehension)	0.16	Y
Parent Academy - Incentivised, Reading	2014	RCT	3	Pupil	16	1290	0.11	Reading attainment	Reading InCAS	0	N
Parent Academy - Incentivised, Maths	2014	RCT	3	Pupil	16	1312	0.14	Mathematics attainment	Mathematics InCAS	0.01	N
Parent Academy - non-incentivised, Reading	2014	RCT	3	Pupil	16	1398	0.14	Reading attainment	Reading InCAS	0.02	N

Intervention	Year	Design		Unit					Outcome	Test	Effect	
Parent Academy - non-incentivised, Maths	2014	RCT	3	Pupil		16	1414	0.14	Mathematics attainment	Mathematics InCAS	-0.04	N
Peer Tutoring in Secondary Schools (Year 7)	2013	RCT	2	Class	20		1306	0.13	Reading attainment	New Group Reading Test (NGRT)	-0.02	N
Peer Tutoring in Secondary Schools (Year 9)	2013	RCT	2	Class	20		1269	0.11	Reading attainment	New Group Reading Test (NGRT)	-0.06	N
Philosophy for Children - reading	2012	RCT	2	School		48	1529	0.3 - 0.4	Reading attainment	KS2 reading (KS1 adjusted)	0.12	Y
Philosophy for Children - writing	2012	RCT	2	School		48	1529	0.3 - 0.4	Writing attainment	KS2 writing (KS1 adjusted)	0.03	N
Philosophy for Children - maths	2012	RCT	2	School		48	1529	0.3 - 0.4	Mathematics attainment	KS2 mathematics (KS1 adjusted)	0.1	Y
Project-based Learning	2014	RCT	2	School		19	2850	0.36	Literacy attainment	PiE	-0.13	N
Promoting Alternative Thinking Strategies - Maths (Year 5)	2012	RCT	2	School		37	1117	0.19	Maths attainment	Maths InCAS	0.03	N
Promoting Alternative Thinking	2012	RCT	2	School		37	1117	0.19	Reading attainment	Reading InCAS	-0.03	N

Strategies - Reading (Year 5)											
Promoting Alternative Thinking Strategies - Maths (Year 6)	2012	RCT	2	School	45	1582	0.17	Mathematics attainment	Maths InCAS	0.03	N
Promoting Alternative Thinking Strategies - Reading (Year 6)	2012	RCT	2	School	45	1582	0.17	Reading attainment	Reading InCAS	-0.11	Y
Quest	2013	RCT	2	School	20	2117	>0.23 (underpowered due to high attrition)	Reading attainment	New Group Reading Test (NGRT)	-0.04	N
Rapid Phonics	2013	RCT	2	Pupil	17	174	0.58	Reading attainment	New Group Reading Test (NGRT)	-0.05	N
REACH	2013	RCT	3	Pupil	21	133	0.28	Reading attainment	New Group Reading Test (NGRT)	0.33	Y
REACH + Language comprehension	2013	RCT	3	Pupil	21	132	0.28	Reading attainment	New Group Reading Test (NGRT)	0.51	Y
ReflectED Metacognition	2014	RCT	2	Class	30	1507	0.4	Mathematics attainment	InCAS Maths	0.3	Y

Name	Year	Design		Unit of randomisation	Clusters	N	ICC	Outcome domain	Measure	Effect size	Sig.
Research Learning Communities	2014	RCT	2	Schools / clusters of schools	119	4966	0.17	Reading attainment	KS2 Reading	0.02	N
Response to Intervention	2013	RCT	2	School	49	385	Not disclosed; underpowered due to uneven attrition between control and intervention schools	Reading attainment	New Group Reading Test B (NGRTB)	0.19	Not disclosed
Rhythm for Reading	2013	RCT	2	Pupil	6	355	0.2 (at randomisation)	Reading attainment	New Group Reading Test (NGRT)	0.03	N
Scratch Maths	2014	RCT	2	School	110	5818	0.17	Mathematics attainment	KS2 Maths	0	N
Shared Maths (Year 3)	2012	RCT	2	School	79	2709	0.1	Mathematics attainment	InCAS Maths	0.01	N
Shared Maths (Year 5)	2012	RCT	2	School	79	2598	0.1	Mathematics attainment	InCAS Maths	0.02	N
SHINE on Manchester (1yr of int.)	2012	RCT	2	Year group (within school)	14	314	0.58	Reading attainment	InCAS Reading	0.03	N
SHINE on Manchester (2yrs of int.)	2012	RCT	2	Year group (within school)	36	1072	0.35	Reading attainment	InCAS Reading	-0.10	N

	Year			Unit	Clusters	N	MDES	Outcome	Measure	ES	
SHINE on Manchester (3yrs of int.)	2012	RCT	2	Year group (within school)	19	701	0.45	Reading attainment	InCAS Reading	0.10	N
SPOKES (1)	2012	RCT	2	Pupil	66	620	0.22	Reading attainment - letter recognition	Letter Identification Test (Woodcock Reading Mastery Tests sub-scale)	0.08	N
SPOKES (2)	2012	RCT	2	Pupil	66	604	0.22	Reading attainment - word recognition	Word Identification Test (WRMT-R sub-scale)	0.05	N
SPOKES (3)	2012	RCT	2	Pupil	66	604	0.22	Reading attainment - phonemic awareness	Phonemic awareness test (WRMT-R sub-scale)	0.03	N
Success for All	2013	RCT	2	School	51	1332	0.31	Literacy attainment	Woodcock Reading Mastery Test III (WRMT III)	0.07	N
Summer Active Reading Programme	2013	RCT	2	Pupil	48	182	0.31	Reading attainment	NGRT	0.13	N
Switch On Reading	2011	RCT	2	Pupil	19	308	0.25	Gain in reading attainment (NGRTA to NGRTB)	NGRTB	0.24	Y
Switch On Reading (re-grant)	2015	RCT	3	School	183	902	0.25	Reading attainment	Hodder Group Reading Test (HGRT) 2A	0	N
Talk for Literacy	2012	RCT	2	Pupil	3	213	0.29	Reading attainment	NGRT	0.2	Y
Talk of the Town	2013	RCT	2	School	62	2696	0.08	Reading attainment	NGRT	-0.03	N
Teacher Effectiveness Enhancement Programme - English	2014	RCT	2	School	45	10,384	0.14	English and maths attainment	GCSE (Eng and Maths)	-0.04	N

Teacher Effectiveness Enhancement Programme - Mathematics	2014	RCT	2	School	45	10,449		0.14	Mathematics attainment	GCSE Maths	-0.02	N
Teacher Observation	2013	RCT	2	School	82	12,826		0.11	English and maths attainment	GCSE (Eng and Maths) combined	-0.01	N
Texting Parents - English	2013	RCT	2	Year group (within school)	29	11,411	0.17		English attainment	Access Reading Test (Hodder) / GCSE Eng,	0.03	N
Texting Parents - Mathematics	2013	RCT	2	Year group (within school)	29	11,590	0.13		Mathematics attainment	Access Maths Test (Hodder) / GCSE Maths	0.07	N
Texting Parents - Science	2013	RCT	2	Year group (within school)	29	10,308	0.19		Science attainment	Science SAT 2009 / GCSE Science	-0.01	Y
TextNow Transition	2013	RCT	2	Pupil	53	391		0.2	Reading attainment	NGRT	-0.06	Y
The Good Behaviour Game	2014	RCT	2	School	77	2504		0.15	Reading attainment	Hodder Group Reading Test (HGRT) 2A	0.03	Y
Thinking, Doing, Talking Science	2012	RCT	2	School	42	1264		0.28	Science attainment	Bespoke science test (no science KS2 test)	0.22	Y
Thinking, Doing, Talking Science (re-grant)	2016	RCT	2	School	200	7806		0.16	Science attainment	Bespoke science test	0.01	N

Study	Year	Design		Unit				Domain	Measure	Effect size	Security
Tutor-Trust - Affordable Individual and Small Group Tuition (Primary) - English	2013	RCT	2	Pupil	21	775	0.51	English attainment	Progress in English 12 (PiE)	-0.08	N
Tutor-Trust - Affordable Individual and Small Group Tuition (Primary) - Maths	2013	RCT	2	Pupil	21	676	0.53	Mathematics attainment	Progress in Maths 12 (PiM)	-0.04	N
Tutor-Trust - Affordable Tutoring (re-grant) - English	2016	RCT	2	School	102	1195	0.28	English attainment	KS2 English	0.14	N
Tutor-Trust - Affordable Tutoring (re-grant) - Maths	2016	RCT	2	School	102	1201	0.28	Mathematics attainment	KS2 Maths	0.19	Y
Tutoring with Alphie	2013	RCT	2	Pupil	6	72	Highly underpowered (high attrition)	Reading attainment	NGRT	0.11	N
Units of Sound	2012	RCT	2	Pupil	33	427	0.19	Reading attainment	NGRT	-0.08	N
Vocabulary Enrichment Intervention	2013	RCT	2	Pupil	12	570	0.2	Reading attainment	NGRT	0.06	N
Writing About Values	2015	RCT	2	Pupil	29	5086	0.06	General educational attainment	Combined GCSE scores	-0.01	N

Youth United - English	2014	RCT		2	School		71	3170	Not disclosed	English attainment	KS3 English	-0.09	N
Youth United - Maths	2014	RCT		2	School		71	3170	Not disclosed	Mathematics attainment	KS3 Maths	-0.09	N
Zippy's Friends	2015	RCT		2	School		82	3312	0.15	Reading attainment	Hodder Oral Reading Test	-0.02	N