

# Proposal to Evaluate ‘Huntington School – Research Leads Improving Students’ Education’

*Meg Wiggins, David Gough, Jan Tripney, Helen Austerberry and John Jerrim*  
**Social Science Research Unit, UCL Institute of Education, London**

## EVALUATION SUMMARY

Evaluation Summary	
Age range	Secondary
Number of pupils	c16000
Number of schools	40
Design	Randomized controlled trial, with randomization at school level
Primary Outcome	GCSE Maths and English

## Background

### (i) Significance

The Education Endowment Foundation (EEF) with the Department for Education are funding a variety of projects that are investigating ways to increase the use of research evidence in schools. These aim to determine the best methods for increasing knowledge, understanding and use of research within school leadership teams and classroom teachers. This project represents an opportunity to investigate the feasibility of a sustainable model of research use within schools, which utilizes a ‘hub’ school leading other schools through a process of school improvement, using research evidence as the driver for change. The project aims to equip schools with a way of helping teachers use educational research to develop their pedagogy in a way which maximises the positive impact on student outcomes. If this project demonstrates a positive impact on research use and pupil attainment, it could be replicated by teaching schools, leading their alliance schools in appraising, implementing and embedding research.

This model for school improvement has been piloted by Huntington School in York, who will be the ‘hub’ school leading the intervention in this study. The pilot indicated that a school-based research programme involving implementation, when properly supported, was feasible and valuable.

This efficacy trial will investigate whether the EEF cycle of research-based school improvement, led at individual school-level by a senior teacher in the role of research advocate, makes a significant difference to the influence of research on classroom practice and student outcomes in English secondary schools.

**(ii) Intervention**

The RISE intervention (Research-leads Improving Students’ Education), led by the Huntington School in York, will take place in English secondary schools. It will initially incorporate eight half-termly training conferences to support senior teachers nominated to represent their schools as ‘research leads’. The training conferences will be lead jointly by Huntington School and by Rob Coe and Stuart Kline from Durham University CEM.

Training workshops	Subjects to be covered
1. Jan 2015	Tasks, research cycle, expectations of intervention, induction to rest of programme (to be attended by Heads as well as research leads)
2. Feb 2015	Steps of school implementation model; context; priorities; data; values; professional judgement
3. March 2015	Eco system ; veracity of research; survey of what works
4. April 2015	Implementation
5. May 2015	Evaluation
6. June 2015	Stickability; CPD/PD; Prep for September
7. & 8. July 2015	Two days input from subject experts -English and maths department leads
Local intervention (s) 2015/16 & 2016/17	School-based evidence-based programme(s) follow research cycle: problem agreed; appropriate evidence based intervention identified; intervention implemented; evaluation of school impact.
Research leads support 2015-2017	<ul style="list-style-type: none"> <li>• Website for Research Leads – sharing of evidence and forum for experiences;</li> <li>• Four annual support meetings – with intervention team</li> </ul>

Following the training, Research Leads will work with teachers in their English and maths departments in their school to identify a critical area of need for development to improve attainment. They will identify an appropriate evidence-based intervention to address this need. The length and type of intervention will not be prescribed by the RISE intervention team, it will be locally determined, but they will suggest that it should have the potential to impact on the year 9s and 10s (even if others in the school may also benefit.) Additionally they will encourage the intervention to be one that can be evaluated by the school. Implementation of this local intervention should start early in the 2015/16 school year. More than one intervention may be undertaken by the school, with the expectation that interventions will be implemented in the 2016/17 school year as well. In between training

sessions, and beyond, support will be provided through a secure website; through four annual support meetings; and through two summer conferences where maths and English teachers will also be invited to attend.

## **The Research Plan**

### **i) Research Questions**

- (i) Do the schools taking part in the RISE intervention boost attainment at GCSE in maths and English for pupils versus those in schools that maintain the status quo?
- (ii) Does the RISE intervention change the use of research evidence by secondary maths and English teachers?
- (iii) What are the priorities for school improvement identified by each school and how is evidence sought to inform the development of a strategy to achieve these priorities?
- (iv) How is this evidence assessed, interpreted and applied to develop the school improvement strategy?
- (v) What is the strategy for the programme as a whole and its theory (or theories) of change (intervention components; necessary conditions for different stages of the intervention to be achieved; intermediary outcomes; outcomes of goals of intervention; necessary conditions for continuation of intervention process and outcomes)?
- (vi) How is the programme strategy implemented (and to what extent that the implementation itself is evidence informed)? How faithful is it to the original design?
- (vii) What are the barriers and facilitators for achieving each part of the theory of change?
- (viii) What outcomes are actually achieved (planned and unplanned) in terms of the priorities of the schools plus awareness, understanding and actions related to research more broadly (as this is uncontrolled it is simply mapping outcomes not causal effect)?
- (ix) How do schools self evaluate and respond to RISE intervention processes and outcomes?
- (x) What supports provided by the developers of the intervention best enabled these processes?
- (xi) How acceptable do Research Leads and maths and English teachers find the intervention?
- (xii) What components are critical for sustainability of the RISE intervention?

### **(ii) Design**

The evaluation will be a cluster randomised controlled trial with integral process evaluation. Randomisation will take place at the school level.

Recruited secondary schools will be stratified into approximately four strata of 10 schools based on prior attainment ( 3yr average GCSE scores, using the percentage receiving 5 GCSEs A\* - C including English and Maths, from published DfE data). The average scores of all recruited schools will be ranked from highest to lowest and the list separated into quartiles. Computer generated random allocation within strata will be conducted. Randomisation will take place after the teacher baseline survey is complete.

### **(iii) Participants**

Recruitment of schools will be carried out by the Huntington School team. Initial recruitment will focus on secondary schools in Yorkshire and the Humber, with a widening of recruitment area should an insufficient number be recruited from this geographic area. A memorandum of understanding will be signed by schools that want to participate, which will make clear the responsibilities and potential benefits of participation . The randomisation process will be described.

### **iv) Outcome measures**

*Primary outcome:* The primary outcome will be attainment in GCSE grades in English and maths. Specifically, our outcome measure will be a combined score made up of the pupil's English language GCSE score plus their maths GCSE score. In the new GCSE scoring system, this will be a score of 0-9 for each of the two domains. This will be measured for the first cohort (*Year 10 in 2014/15*) in May/June 2016, and for the second cohort (*Year 9 in 2014/5*) in May/June 2017. GCSE grades will be obtained from the National Pupil Database.

*Secondary outcome:* Our secondary outcome will be a measure of teachers' research knowledge and use, taken from the NfER-developed Research Use survey, administered in June 2017.

The survey will be conducted on-line with all teachers in the English and maths Departments in the study schools, and all senior leadership team (SLT) members in May/June 2017 . An administrator from each study school will provide the evaluation team with individual email addresses for teachers in the two departments and for the SLT members. An invitation email will be sent to the individual email addresses, which will include a link to an on-line survey and an individual code (linking to their baseline survey, where relevant). The survey to be used will be the outcomes Research Use survey tool developed by NfER for all the EEF Research Use evaluations. It will measure research awareness, understanding and action in relation to research.. For this evaluation, the survey will include additional process questions. (see process evaluation below). For non-responders to the survey, we will send an email reminder and if non-response persists we will offer an alternative of a postal questionnaire or completion over the telephone.

## **Baseline**

Young people: KS2 maths and literacy SATS scores will be used as a baseline. The KS2 test scores will be used as a covariate in regression analysis of the GCSE outcome data, thus reducing the possibility of any confounding factors whilst also sustaining power.

Teachers' outcomes: Prior to randomisation of the recruited schools, in October/November 2014, all teachers from the English and Maths Departments, as well as the Senior Leadership Team members, will be asked to complete the NfER-developed research use baseline survey. Schools will be asked to provide the research team with names and individual professional email addresses for these staff members. Individual access codes will be assigned to each teacher, and in their invitation letter to participate in the survey, each will be provided with their unique code and asked to enter this as the first question in the survey. This system will allow for anonymity within the on-line survey, but will also allow both targeted reminders to those who have not completed the survey, as well as a linking of baseline and outcomes data for teachers.

## **Ethical requirements for outcome data collection**

In order to gain access to baseline KS2 SATs scores and GCSE scores, we will require Unique Pupil Numbers to be provided to us by participating schools and for them to sign the consent documentation allowing the project to link their data to the NPD. We will ask schools to also provide gender, date of birth and free school meals status for use in analyses. Additionally, using school systems for passing on information to parents, we will send information sheets and opt-out consent forms to parents of all cohort young people in both intervention and control schools about access and archiving of test data.

### **(v) Appropriate control 'treatment'**

In this study the control schools will maintain the 'status quo'. (No alternative intervention will be provided, nor will a wait list design be employed.) Control schools will receive £500 to compensate them for their participation, half of which will be provided when schools provide UPNs for their pupils, and half at the end of the trial.

### **(vi) Sample size and power**

The intervention providers only have the capacity to provide the intervention to 20 schools. Agreement was made that the total sample size of schools would therefore be limited to 40. We have estimated power calculations for outcomes relating to a) pupil attainment at GCSE and for b) teachers research use and understanding (as measured by the survey).

- a. For pupil attainment in English and maths at GCSE, with school level randomisation of 40 schools, we have assumed an intra-cluster (between schools) correlation of 0.15 (authors' calculations using NPD), 200 pupils per school, a baseline of KS2 SATS, and a pre-post correlation (KS2 to KS4) of 0.5 (authors' calculations using NPD database). Given these assumptions, if 40 schools were retained in the trial, one could detect a minimum effect size of approximately 0.30.
- b. For teacher research understanding and use outcomes using the NFER devised research use tool, with school level randomisation of 40 schools, we have assumed an intra-cluster (between schools) correlation of 0.05, 20 teachers per school, a baseline using the same tool, and a pre-post correlation of 0.8. Given these assumptions, if 40 schools were retained in the trial, one could detect a minimum effect size of approximately 0.17 (80% power for 95% CU).

#### **(vii) Statistical Analysis Plan**

Following recruitment of schools we will assess external validity. This will be done by comparing the characteristics of schools (and pupils) in the sample to those in the English state school population. To check whether randomization has indeed balanced observed potential confounding factors, we will be able to compare characteristics of pupils in treatment and control groups through the additional information included in the NPD (e.g. FSM status, KS2 scores).

We will also be able to include these variables into our analysis of student attainment outcomes to (i) further reduce the possibility of any confounding and (ii) limit the decrease in statistical power from not having a baseline test. The model will take the form:

$$Y_{ij} = \alpha + \beta.T_j + \gamma.P_{ij} + \delta.X_{ij} + \varepsilon_{ij}$$

Where:

$Y_{ij}$  = Post-test test scores / outcomes

$T_j$  = A dummy variable for treatment status (0 = Control; 1 = Treatment)

$P_{ij}$  = The pre-test score

$X_{ij}$  = The baseline covariates (FSM, gender, KS2 score)

$\varepsilon_{ij}$  = The error term. Clustering of pupils / teachers within schools will be accounted for by a Huber-White adjustment to the estimated standard errors

$i$  = School  $i$

J = School j

Analysis on both teacher and student outcomes will be by intention to treat in the first instance. Secondary analysis will explore the differences in effect based on dose of intervention, differences between schools which selected maths and English interventions, on maths vs English GCSE grades, and between maths vs English teachers. A sub-group analysis will be performed by Free School Meal (FSM) status, via an interaction with treatment status.

Our comparative statistical analyses will be carried out using Stata.

### The Process Evaluation

Our process evaluation will assess the feasibility and acceptability of the proposed intervention, in order to determine the scale of adoption, the mechanisms for action and the potential for future scalability. It will also work alongside the impact evaluation to help understand the presence or absence of treatment effects. The process evaluation will address a variety of questions listed below.

#### (i) Process evaluation design

1. **Clarification of the logic model.** The evaluation team will work together with the Huntington team to clarify the nature of the programme being piloted and how they expect it to be effective. From this information provided by them we will develop a theory of change and a logic model. These will provide the process evaluation with clear processes to check and questions to ask throughout the evaluation. As this is an intervention in development, this work will be conducted prior to the 2015/16 academic year
2. **Observation of the training workshops for Research Leads and Department Leads.** One researcher will carry out non-participant observation of each of the nine proposed Research Leads training workshops as well as department lead conferences in order to describe the training process, understand what is required for achievement of fidelity and assess feasibility and satisfaction from the perspectives of trainers and trainees.
3. The workshops will provide an opportunity for conducting brief **surveys with the Research Leads** from each intervention school. A brief (one page) questionnaire, structured in such a way to allow quantitative analysis, will be completed at 4 of the training workshops/support meetings, so the evaluation team will be able to compare global experience with the more in-depth data collected in case study sites (see below).
4. **Online survey of teachers.** As described above, in the spring of 2017, English and maths department teachers, as well as Senior Leadership Team members in both control and intervention schools will be asked to complete an on-line survey to collect outcomes data. Additionally this survey will include some specific additional process questions. From the comparison schools we will aim to gather data to

understand what research initiatives they have implemented and the methods used for identifying, implementing and evaluating such initiatives. Teachers in the intervention group will also be asked these questions and, in addition, be asked about their experience of the training for, and the delivery of the intervention, including their views on fidelity to original intervention plans and current and future acceptability and feasibility.

## 5. Case studies

Four intervention schools will be purposively selected using selection criteria such as previous approach to research use in their school; different contexts and experiences of for implementation of the ). geographic region, previous school attainment, and percentage of FSM, as well as The case study schools will each have the following components, with different key informants providing relevant information to help answer different research questions:

- **Site visits in case study schools to gain information on processes employed and the intervention in practice.** One researcher will visit each case study school in order to collect key materials and correspondence relating to the processes used and the delivery of any chosen intervention. Additionally this visit will provide, where appropriate, some data on how the school's selected intervention programme is received by the children. A researcher will spend a day in each of the schools, at two time points (once in 2015/16, once in 2016/17).
- **Interviews with case study school teachers, Research Lead and head teacher).** These interviews will be carried out in the case study schools. Ideally they will be conducted face to face during a school visit when observation is taking place – but if some are not possible a date will be set to complete these over the telephone. The interviews will provide the opportunity to clarify issues of interest arising from other sources of data and will be used to illuminate the processes incorporated by schools, the extent of knowledge transfer, the challenges involved and the perceived benefits of the evidence cycle. Interviews will be digitally recorded. Notes will be taken during the interviews and typed up afterwards. This will be supplemented with selective transcription to ensure accuracy of quotes. These data collection decisions are informed by our previous experience and based on an awareness of the high cost of transcribing interviews.
- **Focus Groups with case study teachers.** One focus group with teachers will be held near the end of the intervention in each case study school. These will be used to assess the extent to which the research cycle has incorporated the whole of the targeted department (English or maths). Groups will be recorded and transcribed, as per interviews.



## (ii) Process evaluation analysis

We will use Framework Analysis for the analysis of the qualitative data. This involves the construction of frameworks based on key themes that answer the main research questions. This method affords the possibility of exploring the data by both theme and respondent-type, so we might better describe and explain the data through the identification of patterns and associations across and between themes and types of respondents.

### The Project Team

The project will be lead by **Meg Wiggins**, Senior Research Officer in the Social Science Research Unit at the UCL Institute of Education. Meg will oversee the impact and process evaluations, conduct process evaluation analyses and lead on the study report.

**Dr John Jerrim**, a Lecturer in Economics and Social Statistics at the IoE, will be involved in the design of the impact study and randomization of the schools. A further statistician will be brought onto the study to carry out the analysis of the NPD data.

**Professor David Gough** and **Jan Tripney** will provide subject expertise. Together they run the UCL Institute of Education, Research Advisory Service, to support the use of research in decision making and the European Commission projects on evidence use in education in Europe (<http://www.eippee.eu/>) and edit the journal Evidence and Policy. They will help develop appropriate fieldwork tools, work on the logic model and be involved in the analysis of study data.

**Helen Austerberry**, an experienced Research Officer who has worked on the EEF's Foreign Language Learning evaluation will lead the process evaluation and manage a junior research officer.

### Risks to the Evaluation

The following table summarises the main risks to the evaluation and how they might be addressed.

<b>Risk</b>	<b>Means of minimising risk</b>
Difficulties in recruiting and retaining sufficient numbers of schools	The evaluation team will work with the Huntington project team to develop recruitment materials that are clear about both the intervention and the evaluation responsibilities. The evaluation has been designed to limit disruption to schools to minimise drop out.
Contamination of random allocation	Through the process evaluation we will monitor the degree to which programme schools deliver the intervention. Additionally we will determine from control schools what 'business as usual' is in

	relation to research use training amongst SLT and teaching staff.
Low response to teacher survey	The evaluation will utilise two email reminders for the teaching survey, but will also use paper copy reminders and phone completion as necessary to achieve the greatest response rate from teachers.
Unexpected absence of research team members	Research team members will cover for short term absence. IOE has a large staff team from which to fill any longer term absences of evaluation staff.

## Ethics

The IOE has developed systems to ensure that we comply with the data protection act in terms of data security and research ethics. This involves the use of password protected computers, limited access drives, the use of ID codes instead of names on data, encryption and password protection of sensitive documents, lockable filing cabinets for storing paper files and secure entry to our office building (which does not have any public access). Ethics approval has been given by the Institute of Education Faculty Research Ethics Committee.

## Timeline

June 2014 – September 2014	Project design finalised; development of recruitment tools with Huntington; ethics approval secured.
June 2014 - October 2014	Schools recruited into trial
September 2014 - December 2014	development of baseline survey (using NFER tool)
October/November 2014	Baseline staff survey in all recruited schools; Parental opt-out letter sent to parents of cohort in all schools.
Late November 2014	Treatment and control schools randomly assigned and notified. Identification of senior representative from schools to attend training conferences
January 2015 – October 2015	Research Leads and Department heads (English and maths) trained. Observe training workshops select case study sites Conduct occasional short process surveys with Research Leads

October 2015 – July 2016	Trial intervention cycle begins in schools – schools select local intervention(s)
March –July 2016	Case study site visits (year 1)
May/June 2016	English and maths GCSEs (cohort 1); analysis of process data
October 2016 – July 2017	Observations of continued intervention training and support
March – July 2017	Case study interviews (year 2)
May -July 2017	On-line teacher survey -intervention and comparison schools - KT outcomes and process
May/ June 2017	GCSEs (cohort 2); data analysis of process data
Nov 2017 – February 2018	Analysis of student data (cohort 1 & 2)
Jan – March 2018	Write draft of EEF report, submit report

**Contact:**

Meg Wiggins (m.wiggins@ucl.ac.uk)