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# Powerful Learning Conversations

Evaluation report and executive summary

May 2016

## **Independent evaluators:**

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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.

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## About the evaluator

This project was independently evaluated by a team from the National Institute of Economic and Social Research (NIESR) led by Dr Cinzia Rienzo.

Cinzia Rienzo (Research Fellow) is a quantitative researcher with focus on applying econometrics to issues related to education, migration and the labour market, policy evaluation and development. She has worked on a number of EEF projects (Mind the Gap, Changing Mindsets). She is currently leading the Healthy Minds project and will be leading Growing Learners.

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## Executive Summary

### The project

Powerful Learning Conversations (PLC) sought to improve the feedback that teachers give to pupils in Year 9, by training them to apply techniques used in sports coaching. It is based on the idea that feedback in sports coaching is often provided immediately after a task is performed, and delivered in a way that children are more likely to respond positively to. The training programme adopted a 'cascade' model: expert teachers were trained in the approach and then expected to disseminate their training to English and Maths teachers in their school. PLC was developed in the UK secondary school context by the Youth Sport Trust (YST) in collaboration with the University of Exeter.

This feasibility pilot study was conducted in 20 schools between January 2014 and November 2014. It had two aims: (1) to explore whether the programme is feasible and ready for a full-scale trial, and (2) to explore the effect on children's attainment and other outcomes of the programme.

### Key Conclusions

1. There was no evidence that the programme had an impact on English attainment.
2. The evaluation detected a positive impact on Maths attainment, but this result is not secure and we are not able to draw firm conclusions about the programme's impact.
3. Interviews and observations with teachers found the programme was implemented in different ways and with different levels of understanding in different schools. This could be avoided by ensuring the programme and its underpinning concepts are more clearly defined.
4. The intervention is not ready to be evaluated using a large-scale trial without further development. In particular, it is important that the programme is more clearly defined and less open to interpretation by teachers.
5. If the programme is taken to a full trial it is recommended that paper-based tests are used.

### What are the findings?

The pilot provided mixed evidence of promise. There was no evidence that PLC had an impact on English attainment. The evaluation did detect an impact on Maths attainment, which was equivalent to six additional months' progress over the course of a year. However, it is important to note that these results, particularly the Maths result, should be treated with caution. The number of schools in the control and intervention groups became unbalanced as five schools dropped out of the project and four schools were unable to complete the Maths outcome test due to technical difficulties. This could potentially bias the result, and so we cannot draw firm conclusions about the programme's impact on academic achievement.

The evaluation did not provide evidence of a differential impact on pupils eligible for free school meals or pupils with a low prior attainment.

The evaluation provided mixed evidence regarding the programme's feasibility. The training was well-attended by teachers and they appeared to be engaged. Nearly all teachers who took part in the training found it interesting, engaging and relevant to their teaching, and believed that their school as a whole would benefit from the programme. The programme is likely to be affordable if it was delivered at scale. The cost of the programme as it was delivered in this pilot was estimated as £70.00 per pupil in the first year and £2 per pupil per year over the two subsequent years. This estimate is based on 3,191 pupils (corresponding to the original number of pupils involved before any dropout), and includes two days of initial training for teachers. These estimates do not include direct salary costs, supply cover for training or the time required for teachers to develop the necessary resources.

However, there were also some implementation challenges. Teachers were not provided with a pack of resources or manual to follow, and for some teachers this appears to have been a barrier to delivery. The distinctive features of feedback in sport were insufficiently defined, as were the opportunities and challenges of applying such methods in the classroom. A lack of time was also identified as a key obstacle to promoting PLC across the whole school: project leads and teachers were not able to devote sufficient time to this work, since they were delivering the intervention as an additional activity. In some cases, lead teachers did not have the authority to ensure implementation throughout the whole school. Some teachers reported concerns that they could lose control of the class if they used the PLC approach, and a number of teachers referred to issues of class control when putting PLC into practice.

The intervention is not ready to be evaluated in a larger trial without further development, particularly to ensure that it is better defined and has a clearer structure.

### How was the pilot conducted?

A process evaluation was conducted involving interviews and observations in the delivery schools. The evaluation aimed to establish the ease or difficulty with which project leads and PE, Maths and English teachers implemented PLC and their perceptions of its impact. It also aimed to assess its appeal to Maths and English subject teachers and to assess training, preparation, support and resources.

A small impact evaluation was also performed. 20 schools were randomly allocated to either the intervention or a 'business as usual' control group, which did not receive any training related to the intervention. Teachers in the intervention schools received 'cascade training' between July 2014 and October 2014. Outcome data was collected between May and July 2015. English was assessed using the Progress in English test, provided by GL Assessment, and Maths was assessed using the Access Maths Test, provided by Hodder Education. Six of the intervention schools took the English test and five took the Maths test, while nine of the control schools took the English test and six took the Maths test. This missing data potentially introduced considerable bias into the trial results, especially for Maths.

Question	Finding	Comment
Is there evidence of promise?	Mixed	The programme did not have any effect on English. The evaluation did detect a positive effect on Maths, but this finding is insecure. Additional research is required to fully understand the impact of the programme on Maths attainment.
Was the approach feasible?	Mixed	The programme requires additional development to ensure it is more clearly defined.
Is the approach ready to be evaluated in a trial?	No	The programme requires a clearer structure and tighter specification before it is ready to be tested using a full trial.

## Introduction

This is a report of a pilot study of the Powerful Learning Conversations (PLC) programme, which was piloted in 20 primary schools in the South West between July 2014 and November 2015, of which 9 received the intervention.

### Background evidence

Although to the best of our knowledge there is no evidence of the effects of using the feedback approach used in sport to teaching English and Maths, existing studies<sup>1</sup> have analysed the importance of feedback on students' attainments. Feedback can be defined as '*all dialogue to support learning in both formal and informal situations*' (Askew & Lodge, 2000), emphasising the link between dialogue and learning, with feedback seen as '*a loop*', incorporating reflective processes and critical investigation. Moreover, feedback is viewed (Weissberg, 2006) as a series of dialogic moves resulting in scaffolding or, more specifically, '*linkage*' which allows the learner to move to higher levels of skill and knowledge by extending current competences (Morris, 2014).

Researchers spanning a range of curriculum areas endorse this view, while emphasising that not all feedback is good feedback (Black & Wiliam, 1998a, 1998b; Black et al., 2002; Hodgen & Wiliam, 2006; Marshall, 2004; Myhill et al., 2006; Owens, 2006; Lee, 2006; Fleming & Stevens, 2009). Feedback is considered effective if it is seen as contributing to improvements in learners' skills, competences and levels of understanding.

The highly systematic study of the effects of various types of feedback, conducted by Kluger and DeNisi (1996, 1998) is regularly cited by educationalists (e.g. Black et al, 2002) as supportive of the assertion that feedback improves performance, whereas in the absence of feedback, students assume they are '*doing just fine*' (Owens, 2006). Many researchers (Wiliam & Black, 1996, 2009; Gibbs, 2005; Irons, 2008; Wiliam, 2011) consider formative *feedback* to be an essential component of formative assessment.

The idea behind PLC is that, within specific learning contexts, effective feedback is associated with marginal learning gains, where marginal learning gains involve doing small things well and aggregating the gains.

The concept of marginal learning gains has attracted considerable interest (<http://marginalllearninggains.com>) and is well known in sport. As pointed out by Morris (2014), the basis of the attraction of the marginal gains philosophy is its immediacy since it offers ideas which can be implemented quickly. Morris (2014) clarifies that the small or marginal nature of each gain suggests that teachers are more likely to focus on 'micro' aspects rather than being more cognitively and physically overwhelmed by raising achievement.

As in sports, the role of timing in the feedback is considered to have an impact on the learning (Morris, 2014). Existing evidence although not conclusive considers that the use of immediate feedback versus delayed feedback is by far the best practice (Gadsby & Beere, 2012; Elder, 2012; Beere, 2012; Griffith & Burns, 2012).

The effectiveness of immediate feedback is based on the interference-perseveration hypothesis, first introduced by Kulhavy and Anderson (1972), which asserts that initial errors do not compete with the correct responses which are yet to be learned, if the corrective information is delayed. The reasoning

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<sup>1</sup> This section is based on the literature review prepared by University of Exeter for Youth Sport Trust. We are grateful to Debra Myhill for providing us with this.

behind this is that because errors are likely to be forgotten, they cannot interfere with the retention of information.

Phye and Andre (1989), in supporting the value of immediate feedback, point out the importance of offering corrective information earlier, to allow the information to be retained both efficiently and effectively. The effectiveness of immediate feedback has been demonstrated across a range of skills: specifically, the acquisition of verbal materials and procedural skills, as well as some motor skills (Anderson et al., 2001; Brosvic & Cohen, 1988; Corbett & Anderson, 1989; 2001; Dihoff et al., 2003). Cowan (2003) argues that research of this sort indicates that feedback must be provided “*within minutes*” of the task’s completion for it to be effective.

Existing meta-analyses exploring the effectiveness of feedback, show that feedback can have a powerful impact (Hattie & Timperley, 2007; Shute, 2008; Graham et al., 2011), although the effect can vary depending on the types of feedback (Hattie & Timperley, 2007).

Although the judgement involved in assessing students’ work in Maths and English may differ, students’ written work in both subjects is, nonetheless, taken as reflective of their cognitive ability (Morris, 2014). In Anglican Schools Partnership: Effective Feedback, a previous EEF evaluation, Gorard, See and Siddiqui (2014) showed that implementing feedback consistently is challenging, and found issues with implementing feedback in the classroom. For example, the evaluators pointed out that feedback should not be a substitute for classroom instruction.

## Intervention

It is with the above in mind that this evaluation seeks to explore the role and feasibility of Powerful Learning Conversations (PLC). The PLC intervention involves a training programme for Year 9 English and Maths teachers, with the aim of improving feedback practices by applying techniques used in sport. PLC is a feedback intervention which includes focused talk as a fundamental aspect of the learning process. It is based on the idea that feedback techniques used in sport are rapid and immediate and that children are less likely to respond negatively to criticism because of the way in which the feedback is delivered.

The importance of effective feedback is clear from the EEF Teaching and Learning Toolkit, which assesses it as having a very high positive impact on educational outcomes for a low cost. The challenge is in supporting teachers to adopt good feedback practices in their classroom. The training programme adopted a cascade model: expert teachers from each school in the three lead subjects were trained and then they in turn disseminated training to other English and Maths teachers back in their schools. These teachers then implement with their students what they learnt, as well as training the students in how to successfully respond to feedback. A full description of the intervention is presented below. The idea, or indeed feasibility, of taking feedback techniques used in sport and applying them in a classroom setting has never been tested before.

The intervention consisted of three phases as described below. In the process evaluation we consider the extent to which the programme was implemented as intended.

### Phase 1: Training lead teachers

Lead teachers from English, Maths and PE were identified by each school. These were respected members of staff with the skills and credibility to disseminate the PLC training across their school. The subjects were selected as they are core parts of the curriculum and the pedagogical expertise in providing verbal feedback. In particular, the link with PE was in recognition of the prevalence and skills of these teachers in providing opportunities for focused dialogue around feedback within lessons. The identification of three lead teachers per school provided additional peer support as well as cross-curricular application of the PLC approach. This was deemed to be an important aspect of the project. The lead teachers were asked to provide some context about their school and the use of verbal



feedback ahead of the initial training day by way of a pre-course task. The lead teachers were invited to attend a two-day residential training course delivered by the Youth Sport Trust (YST) education team and lead staff from Exeter University School of Education to (a) develop their understanding of the principles and applications of the PLC approach; (b) develop a network of teachers (same subject) and schools for peer support; and (c) support them with the subsequent dissemination of the PLC approach to the staff and students in their school. The training was held at the University of Exeter as a central/neutral base so the teachers would be receptive to the information shared, and would be able to assimilate the content over the two days and reflect on what needed to be achieved in their own specific school context.

This phase concentrated on developing the awareness of the lead teachers about the prevalence and quality of verbal feedback in their lessons and then providing them with a range of strategies and collaborative learning tasks to understand the implication of this approach on their own pedagogy. This involved delivery around the importance of timely and effective feedback as a stimulus for individual conversations about learning. The emphasis during this phase was on developing teacher understanding of the importance of making time for focused talk, using feedback as a context for discussions about learning (checking their understanding) in lessons as a fundamental part of the learning process. This included sharing theoretical principles as well as practical opportunities for teachers to apply this knowledge to subject-specific and contextual examples for a range of different abilities, cohorts and learning preferences. An additional emphasis was placed on the importance of making marginal gains and the opportunities for a significant change in outcome associated with an accumulation of relatively small changes to pedagogy, based on better self-evaluation.

Within this phase the lead teachers were also supported with their planning and understanding of the core skills and competencies they would need to develop in phase 2 (dissemination to staff) and phase 3 (project evaluation). The content for phase 1 was developed and delivered with input from the Expert Advisory Group recruited for this project, Exeter University, athlete mentors from elite sport and the Youth Sport Trust.

To support this delivery an online training handbook was developed along with a project Virtual Learning Environment (VLE) for the recording and sharing of teacher reflection and relevant resources. All lead teachers were provided with an iPad to support them with accessing the resources and VLE as well as recording examples of Powerful Learning Conversations. The project team therefore ensured that teachers had the resources they needed. However, in practice, teachers made little use of these and alternatives were not put in place. There is evidence that teachers were left too much to their own devices in delivering the intervention.

### **Phase 2: Dissemination of PLC training**

This was aimed at supporting lead teachers to disseminate the PLC approach across their school. This allowed for flexibility based on the individual school context and drivers. An ongoing project timeline aimed to ensure regular contact points with the schools across the implementation period (i.e. academic year). This was a calendared schedule of the different data/information points from the teachers—these included reflections on the training, lesson observations, blogs and so on, in order to encourage discussion and shared learning through the project website. The timeline was intended to give additional focus momentum to the project and enabled the project management team to retain good relationships and shared expectations with all the teachers involved.

The project also included access to an athlete mentor to reinforce the key messages with teachers and/or students. Athlete mentors were used by the different schools in a variety of ways as deemed most appropriate by the school. These included running staff INSET in support of the PLC approach (jointly delivered with lead teachers), working with targeted students in PE, English or Maths, and school/year group assemblies to introduce the PLC.

### **Phase 3: Planning and delivery of PLC**

The initial delivery for this phase was over a 2-day residential training session in July 2014 at Exeter University. This was followed up by termly (x6) reflective tasks including blogs, questionnaires and examples of PLC in action via the project VLE (project timeline with further detail regarding the nature of these tasks available on the VLE). In addition to this there was a programme of school visits and regional (twilight) training events where teachers from the treatment schools had the opportunity to share challenges and successes in embedding PLC pedagogy. The resources for supporting the dissemination of the PLC approach were uploaded to the project VLE with open access for all staff to access. Regular and frequent direct (and indirect via VLE) communications were maintained by the YST team with all the treatment schools throughout the project evaluation period, though access by schools varied.

During this phase the project VLE was developed to share blogs and relevant articles as well as school-evolved practice and discussions. In addition to the planning, virtual support provided by the project VLE (where community forums, resources and project-related tasks were uploaded) as well as regular phone and direct email contact was maintained with schools by lead project staff from the YST and University of Exeter to retain engagement and adherence and as a vehicle for peer support among the teachers. Any member of staff in the intervention schools had access to the VLE.

One of the key areas of feedback from the pilot schools was to identify and share examples of what PLC looked like in the different subjects and across the school. Therefore following the regional twilight sessions, examples shared at these events were collated and disseminated to the schools via the website and direct email (newsletter style). This gave additional points of contact and stimulus for evolving PLC, particularly with those schools who had been unable to attend the twilight meetings.

The intervention was delivered by a core team of educationalists from Exeter University and the YST and experienced teachers (via the Expert Advisory Group) and coaches from elite sport.

Exeter University were recruited as a delivery partner in this project. Their expertise in verbal feedback and dialogic talk as well as their location as a lead provider of teacher training in the South West helped to develop and maintain a credible relationship with the schools involved. The partnership with Exeter also supported a process element to the evaluation of the feasibility pilot. This was seen by the delivery team as particularly important given the small sample size and inter and intra-school variability. Their input, as well as helping to shape the evolution of the project, was also aimed at ensuring the project design and content were underpinned by a valid evidence base. The evaluator team was also able to draw on their findings. This was particularly valuable because the risk of school dropout meant that additional caution was needed to limit the demands on schools.

### Research questions

The purpose of the current evaluation was to determine the feasibility of adopting, implementing, and evaluating this intervention using a full-scale effectiveness randomised controlled trial design.

Specifically, this study, aimed to:

1. assess the feasibility of applying the feedback practices from sport to other subjects;
2. get initial indications of the effect of PLC on children's attainment in English and Maths; and
3. assess how easy it is for teachers to implement the strategies within their lessons.

The study took place between Spring 2014 and November 2015 and comprised both quantitative and qualitative data collection.

Any differential impacts for pupils eligible for Free School Meals (FSM) and those with low scores on a pre-test (Key Stage 2) were also to be explored. Differences by ethnicity were also planned to be considered, but data on pupils' ethnicity was not made available to the research team.

The objective of the process evaluation was to examine implementation and to establish fidelity. It was also aimed at identifying factors which affect the impact of the PLC interventions and which might explain the findings of the impact evaluation. We aimed to look for evidence of effectiveness and issues which would need to be considered before a full-scale effectiveness trial of PLC.

### **Project team**

The project was conceived by the team at the Youth Sport Trust (YST), led by Matt Pauling. The YST team was supported by researchers at the University of Exeter in the recruitment of schools, in training the teachers to deliver the programme, and in providing ongoing support for implementation. The partnership with Exeter University in developing the Powerful Learning Conversations (PLC) involved them in providing the literature review associated with verbal feedback and dialogic talk, supporting the development of the training and support content (pre and post through the Virtual Learning Environment) and generating a process-focused evaluation of the project through school visits, interviews and questionnaires. As the project was based in the South West, Exeter University provided a local centre of teacher education as well as internationally recognised expertise in understanding the role of dialogue in learning.

The independent evaluation team was led by Dr Cinzia Rienzo of the National Institute of Economic and Social Research, supported by Dr Heather Rolfe and David Wilkinson, also of the NIESR. The evaluation team was responsible for the design of the evaluation methods and all data collection for both the impact evaluation and the process evaluation. They also drew on the findings of the internal evaluation carried out by Exeter University.

### **Ethical review**

The YST and Exeter University were responsible for recruiting the schools. They made the individual contact with each school and provided a full explanation of the evaluation during the scheduled set-up meetings. Headteachers were asked to give signed consent for their school to take part (Appendix 2). In signing up for the project, schools were fully aware that they were giving consent for the evaluation to take place and what this would involve.

At the onset of the project (February 2015), parents were sent an information letter about the project and an opt-out consent letter regarding data sharing (see Appendix 1) explaining linkage to the pupil data held in the National Pupil Database. The ethics were reviewed by an ethics committee organised by Exeter University.

## Methods

### Recruitment

The YST recruited schools from the South West region with a large rural and coastal population. Previously an under-represented region for EEF projects, it was deemed an appropriate area for the feasibility pilot to run. School recruitment took place between January 2014 and May 2014. Schools were eligible to take part in the evaluation if they: (1) were willing to be randomly assigned to the intervention or control group at the year group level; (2) were willing to engage with the programme and implement with Year 9 pupils; and (3) were willing to allow the evaluation team access to pupils for administration of tests.

Initially the schools in the South West were approached through a central mailing system and as recruitment progressed, additional contact was made with YST member schools and Achievement for All schools in the region in order to achieve the required sample size. All schools were invited to an information evening as well as being provided with FAQs and overview literature. The event was organised by the YST and Exeter University, and NIESR also participated.

School-level consent for the implementation of the intervention (from headteachers and participating class teachers) was sought prior to randomisation. A Memorandum of Understanding (MoU) detailing the school's responsibilities and rights regarding the project was signed by each participating headteacher (Appendix 2).

The schools informed the parents of all Year 9 pupils about the evaluation using information and consent forms provided by the evaluation team (Appendix 1). The consent letter asked for parents' permission to link test results to the NPD and permission for their child to take the tests. Consent forms were sent to parents in February 2014. Parents had the opportunity to withdraw their child from the test/evaluation by returning the opt-out consent form to the class teacher. Opt-out parental consent forms indicating no consent were returned for 31 pupils from 3 schools.

### Design

The evaluation was designed as a pilot study. A randomised control trial (RCT) design was used to generate potential effect size estimates. The study involved one year group (Year 9) in a sample of 20 schools. The unit of randomisation was the school, with each of the 20 schools being randomly allocated to either intervention or a waitlist control.

Teachers in the treatment schools received the Powerful Learning Conversation (PLC) training between July 2014 and October 2014. Teachers in the control schools did not receive the intervention, representing 'business as usual'. They did, however, receive a 'Living for Sport' visit and were trained in the PLC approach at the end of the intervention in July 2015. This was predominantly taken up by the treatment schools during the early stage of the intervention to launch PLC with the students and staff, though no direct stipulation was put on this and consequently the timing of the visit varied across the schools. Unfortunately, details of the timing of the visits to the treatment schools during the early stage of the intervention are not known to the evaluators.

The main aim of this pilot was not to determine the effectiveness of the intervention; rather it was to provide an assessment of the potential of the intervention for a full trial. With 20 schools to be recruited to the pilot, the minimum detectable effect size (MDES) was estimated to be 0.48 standard deviations. This MDES is high relative to the limited scope of the intervention, reflecting the small scale 'pilot' nature of the study.

The MDES was calculated assuming 160 pupils per school, 0.05 significance level, 0.8 power and an intra-cluster correlation of 0.25. However, the ICC for English and Maths was much lower in practice at

0.10 and 0.15 respectively (see Table 3) and, furthermore, randomisation was carried out in blocks which were also unknown prior to the schools' recruitment—factors which increase the power of the study.

The 20 schools were matched and paired according to regional location and low/high attainment based on Key Stage 2 achievement of feeder schools. Block randomisation was then used to allocate schools within each pair to either intervention or control group.

Specifically, the randomisation of schools (to achieve a 50:50 allocation) was performed as follows:

- Each school was assigned a randomly generated number.
- Schools were sorted by blocking variable (schools were grouped into four blocks with the four highest performing<sup>2</sup> schools in Devon and Cornwall being in one block; the remaining schools in Devon and Cornwall in a second block; the four highest performing schools in all other areas in a third block; and the remaining schools in the fourth block) and, within each block, by the random number.
- The first school was randomised into either the treatment or control group.
- Each subsequent school was assigned to have the opposite outcome of the previous school.

The evaluation team undertook the allocation process and the YST communicated the results to the schools.

## Data collection

As a feasibility pilot, the purpose of the evaluation was largely formative, to assess the design and approach of the PLC programme with a view to taking it to a full trial. It was intended to assess the feasibility of the approach, which we understood to be one of applying the feedback practices used in sports lessons to English and Maths lessons at Key Stage 3. Another feature of the project which we planned to evaluate was the 'cascade' system of training, whereby teachers trained in PLC pass on the knowledge and skills to English and Maths teachers in their own schools. We aimed to establish the ease or difficulty with which teachers implemented PLC in their schools and in the classroom. We also aimed to assess its appeal to subject teachers and to assess training, preparation, support, and resources.

We focused on a number of key questions of particular relevance to formative evaluation, taken from the EEF's document on process evaluation (EEF, 2013):

- Is there a shared understanding of the purpose of the intervention?
- What are the essential ingredients of the intervention?
- Is it attractive to stakeholders?
- Is the intervention of correct intensity?
- Are there ways that the intervention can be improved (eg, training / materials)?

We had originally planned to, among other methods, visit schools to interview project leads and teachers. However, because of dropout experienced over the course of the intervention, YST were concerned not to place additional burdens on schools. YST and NIESR therefore discussed alternative

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<sup>2</sup> Based on Key Stage 2 scores in the previous year.

ways in which NIESR might obtain independent evaluation data. It was agreed that NIESR could interview teachers from intervention schools at the end of the project day in July 2015 and at the same time collect data on 'business as usual' from control schools attending for training in PLC. We attended the project day and collected the data as planned. The data was therefore collected by NIESR using the following methods during the course of the intervention:

- attendance at schools' recruitment event in March 2014;
- attendance at the initial training course in July 2014;
- attendance at the training event for test and control schools in July 2015;
- interviews with eight staff in four intervention schools in July 2015; and
- survey of control group schools about usual practice carried out by Exeter University.

The process evaluation also drew on the following sources of data collected by the YST and Exeter University:

- training evaluation data collected by YST from all 24 teachers present; and
- survey of teachers' backgrounds and experience of approaches similar to PLC with responses from 18 teachers in 8 schools; and
- a report of termly visits (x3) to all nine intervention schools by Exeter University. The third visit included interviews with 17 out of 25 teachers involved in the project, with a slightly smaller number interviewed in the first and second visits.

Reports of experiences of implementing the approach were loaded onto the Virtual Learning Environment (VLE), including responses to tasks set as 'reflective prompts' throughout the project.

The contribution of each of these components to the process evaluation is shown in Table 1.

**Table 1: Process evaluation elements**

Process evaluation component	Contribution to evaluation
NIESR evaluator attendance at schools recruitment and training events	Assessment of training, initial appeal to teachers through participant observation in events and unstructured discussions with teachers and YST staff
NIESR evaluator interviews with staff in intervention schools	Understanding of and appeal of PLC, ease or difficulty of implementation, intensity of use, preparation, training, resources and support
NIESR analysis of use of VLE and discussions with YST	Assessment of teacher engagement, take up, fidelity and implementation
YST training evaluation data collected through end of course survey	Training and preparation
YST survey of teachers' backgrounds and experience of approaches similar to PLC	Pre-existing exposure to or use of approaches similar to PLC as a factor in assisting implementation
Exeter University internal evaluation report from programme of visits to all implementation schools	Assessment of implementation and fidelity focused on providing support and link between delivery team and school

Data collected through the range of approaches described above was analysed using a framework approach. This enables the analysis of qualitative data in a written form, and is therefore appropriate for the analysis of transcripts of interviews with teachers, as well as research notes taken during observation of training. Qualitative responses to survey questions were also analysed in this way. The method entails coding the data into themes and issues. In this case, codes were a mixture of

predetermined ones, developed during the design of the process evaluation and taking account of the aims of the intervention, as well as those that emerged from the text of transcripts and observations. Codes identified different types of information, for example, more tangible ones such as understandings of PLC and previous approaches used, experiences of the training and of putting the approach into practice, as well as others such as views and values. Throughout the analysis process, we looked for similarities and differences in the data. The framework approach allows for tracts of text to be classified under more than one code, and codes were, in some cases, amalgamated to form wider groups, particularly where substantial issues were concerned.

The codes and groups developed in the analysis of data formed the analytical framework and were used to structure the findings into a preliminary report. We then restructured the report to follow the format required by the EEF.

## Outcome measures

The primary outcome was Reading while the secondary outcome was Maths; both were measured at post-test only. Both tests were administered by the teachers at the end of the academic year 2014/2015 and the initial plan was to administer all post-tests digitally. As part of scoping out the best possible design for a future efficacy trial, as well as to accommodate requests of schools who expressed concerns about the digital tests and considered access to computers a challenge, we decided to use one paper and one digital test. Reading was tested using the paper version of the Progress in English Test (PiE) published by GL Assessment ([gl-assessment.co.uk](http://gl-assessment.co.uk)). PiE is a summative test of English through spelling, punctuation, grammar and reading comprehension.

Maths was assessed using the digital version of the Access Maths Test (AMT) published by Hodder Education ([www.hoddereducation.co.uk](http://www.hoddereducation.co.uk)).

All tests were completed on a whole-class basis under exam conditions invigilated by class teachers who oversaw the administration. For the Maths test, one school completed the paper version of the test.

Analysis was conducted in Stata version13 (Stata Corporation, College Station, Texas, USA), on an intention-to-treat basis.

The analysis was performed using a two-level model to account for the cluster randomisation and robust standard error was used. Effect sizes were calculated using Hedges's  $g$ .

The outcome variables were the age-standardised test scores of English and Maths at the end of the intervention.

Models were estimated for each outcome measure. For each model, the relevant outcome measure at post-test formed the dependent variable and a number of independent variables were added: pupils, gender dummy, dummy for eligibility for free school meals (FSM), and Key Stage 2 (KS2) points. In addition, school-level variables were used as controls and were: proportion of pupils in the school with special educational needs (SEN), proportion of pupils in the school with English as an additional language (EAL), and dummy variables identifying the blocks of schools used in the randomisation of the schools.

Separate analyses were conducted for pupils eligible for FSM and those with low attainment at KS2, defined as those whose KS2 points were below the bottom third percentile of the distribution. Here the reduced sample size reduces the experimental power in these models.

The impact was estimated following the intent-to-treat principle. However, schools that dropped out of trials did not collect data on outcomes. Estimation results are considered in terms of effect sizes calculated by dividing the estimated impact coefficients by the level 1 standard deviation from the respective multi-level regression, and so control for covariates and the school-level random effect.

The original protocol stated that analysis would be performed for ethnic minority children compared to non-ethnic minority children. Although some data for ethnicity was collected, the large number of missing observations does not allow for a representative sample of the population. Data on ethnicity from the NPD was not available to the researcher with the consent forms used (opt-out parental consent form).

## Timeline

**Table 2: Timeline of activities related to the trial**

Date	Activity
March–May 2014	Recruitment of schools by Youth Sports Trust team
June 2014	Randomisation by evaluator team
July–Oct 2014	Lead Teacher training
Sept–June 2015	Programme delivery
May–June 2015	Post-tests completed in 15 of the 20 participating schools
July 2015	Outcome data collection
Nov 2015	Draft report to EEF
Jan 2016	Expected date of publication



## Findings

### Participants

Figure 1 summarises the number of schools and pupils involved in the trial.

YST initially approached 84 schools in the South West between March and May 2014. A letter was sent to each school outlining the purpose of the study and the implications of participation. Schools were then invited to an information evening during which YST and NIESR explained the intervention and their roles. Of those schools that attended the information evening (n=34) 14 declined to participate. Of the remaining (n=20) schools, 20 agreed to take part and each headteacher was asked to sign a Memorandum of Understanding (Appendix 2). This number of schools was deemed appropriate given the nature of the pilot study of an intervention in the early stages of development and the sample size calculation reported earlier. Originally, 23 schools were intended to be recruited, but only 20 agreed to participate. The 20 participating schools were then randomly allocated to either the intervention (10 schools) or the control group (10 schools). Of the 10 schools allocated to the intervention, one dropped out after the randomisation due to capacity and staffing challenges. This left us with 9 intervention and 10 control schools.

Unfortunately, 3 more intervention schools and 1 control school dropped out during the testing window, and after both the randomisation and the intervention had taken place (see details in the flow chart, Figure 1).

Reasons for dropout included: staff changes, capacity and staffing challenges, Lead teacher mobility, school Ofsted (and subsequent academisation).

Additionally, the requirement for online testing (AMT) raised issues of capacity for teachers to register students and to schedule the testing around the peak examination period in schools and access to ICT suites/computers, coupled with software glitches with the testing at critical times (i.e. first week in May and June). Technical difficulties with the digital version of the AMT (specifically, a software glitch limited the test time to 30 minutes instead of 45) represented a challenge to the schools. This was reported to the test provider and subsequently required a change to the software that involved delays in the administration of the test.

Unfortunately, those delays caused challenges to the schools involved, including finding capacity and resource to reschedule their online tests. Moreover, during the testing window the server of the test provider was no longer working, resulting in some schools (n=4) being unable to take the test.

This resulted in a final sample of 6 intervention schools and 9 control schools, meaning the groups were no longer balanced. In the intervention group 550 pupils successfully completed the Maths test, and 1,091 completed the Progress in English test. In the control group, 562 completed the Maths test and 1,013 completed the Progress in English test.

Of those pupils that took the test, in the intervention group 163 who took the Maths test and 381 who took the PiE test could not be found in the National Pupil Database, while in the control school 12 who took the Maths test and 24 who took the PiE test could not be matched. The reason for the high number of cases not found in the NPD appears to be related to incorrect information in the master file provided by the school. Consequently, the intervention and control groups are no longer balanced as a result of the incomplete matching, with only 6 out of 10 treatment schools for both English and Maths being in the final sample, and 9 out of 10 control schools for English and 5 out of 10 control schools for Maths being in the final sample. This resulted in a smaller sample: the final sample for Maths was 937 of which 387 and 550 were in the intervention and control group respectively, and 1,723 for English of which 710 and 1,013 were in the intervention and control group respectively.

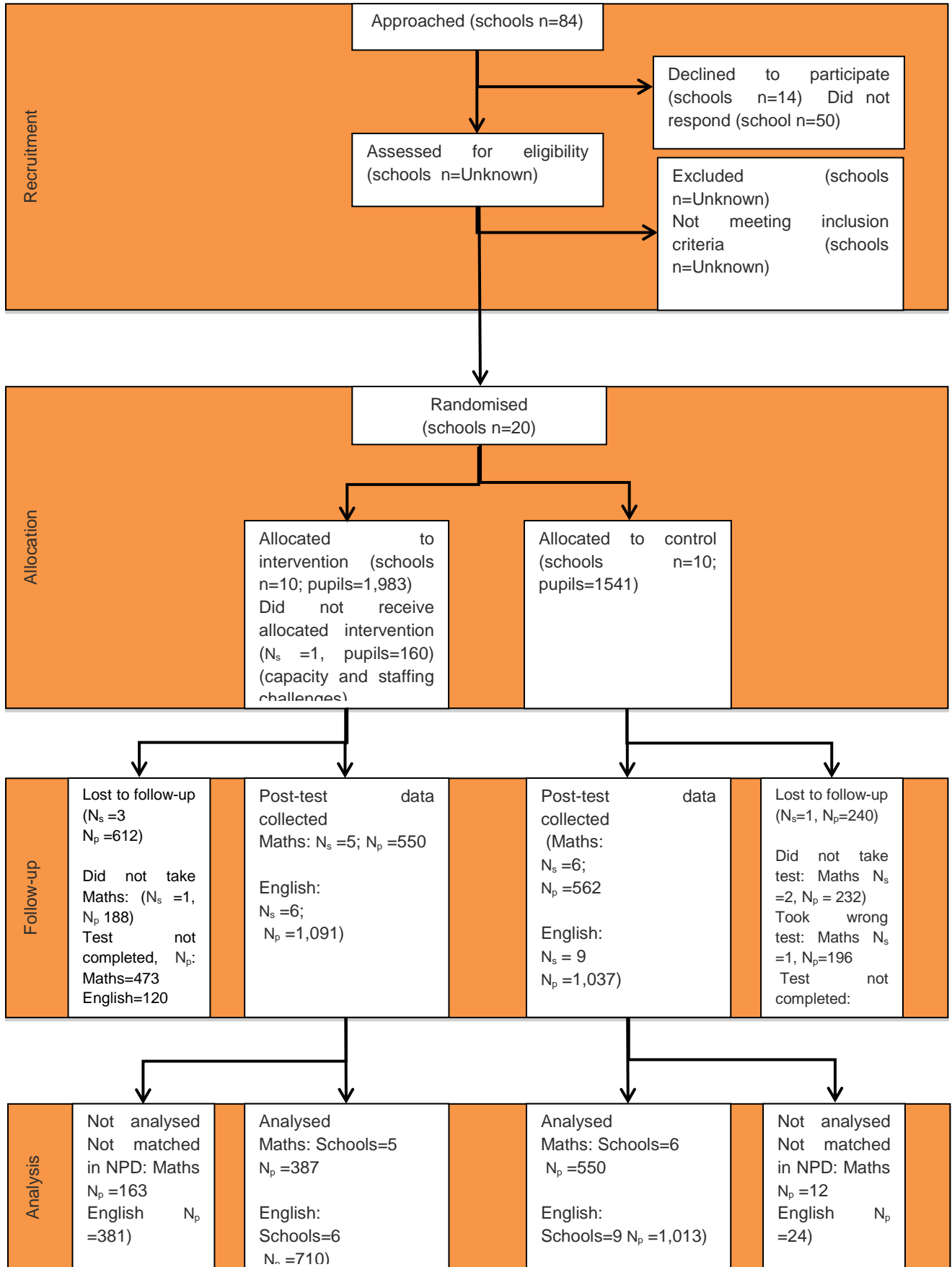
Table 3 below shows the predicted and actual (English and Maths) MDES and ICC and provides evidence of how changes in the sample size have affected the MDES and ICC. Moreover, the table also shows the attrition rate for English and Maths. The high rate of attrition in the Maths test was in part due to glitches in the web base of the Maths test provider.

**Table 3: Predicted and actual MDES and ICC**

	Predicted	Actual		Attrition Rate	
		English	Maths	English	Maths
<b>Average number of pupils per school</b>	160	115	85		
<b>N school</b>	20	15	11	25%	45%
<b>School in treatment</b>	10	6	6		
<b>ICC</b>	0.25	0.10	0.15		
<b>MDES</b>	0.48	0.35	0.42		

**Figure 1: Flow diagram of participants through the study**

Note:  $N_p$  denotes number of pupils and  $N_s$  denotes number of schools.



## Evidence to support theory of change

### School and pupil characteristics

Table 4 presents the characteristics of the schools recruited for the intervention. Of the ten schools randomly allocated to the intervention, the Ofsted rating is outstanding for two schools, good for five and three schools require improvement. For the control schools, the Ofsted rating is good for three of them, requires improvement for five of them and for two there is no information available. This suggests that, on average, intervention schools have been assessed by Ofsted to be of slightly higher quality. Intervention schools appear to be slightly larger than the control, having on average 1,120 pupils enrolled compared to about 900 pupils enrolled in the control schools.

For both intervention and control schools, the average KS2 points of pupils is about 27. The percentage of pupils with special educational need (SEN) is less than 10% in both intervention and control groups, being 8.4% and 9.3% in the intervention and control schools respectively. The vast majority of schools have a very low proportion (less than 4%) of children for whom English is not their first language (EAL), and a low proportion of those eligible for free school meals (FSM), 14.2% and 13.9% in the intervention and control schools respectively.

**Table 4: Characteristics of participating schools**

Baseline Comparison	Intervention group		Control group	
	n/N (missing)	Percentage	n/N (missing)	Percentage
<b>Ofsted rating:</b>				
<b>Outstanding</b>	2/10 (0)	20%	-	-
<b>Good</b>	5/10 (0)	50%	3/10(2)	30%
<b>Requires improvement</b>	3/10(0)	30%	5/10(2)	50%
<b>Inadequate</b>	-	-	-	-
	n/N (missing)	[Mean]	n/N (missing)	[Mean]
<b>Number of Y9 pupils</b>	10/10 (0)	1121	10/10 (0)	900
<b>Average KS2</b>	10/10 (0)	27.0	9/10 (1)	27.4
	n/N (missing)	Percentage	n/N (missing)	Percentage
<b>SEN</b>	10/10 (0)	8.4	10/10 (0)	9.3
<b>EAL</b>	10/10 (0)	4.0	10/10 (0)	2.6
<b>FSM</b>	10/10 (0)	14.2	10/10 (0)	13.9
<b>Total</b>	10		10	
<b>National Average (England) for Secondary schools</b>				
<b>SEN</b>	7.7			
<b>EAL</b>	13.6			
<b>FSM</b>	16.3			

Notes: Based on School Performance Table 2012/13, Department for Education. For two of the control group schools there was no data on the Ofsted report.

Of the 15 schools remaining in the study, 733 pupils were in the 6 intervention schools and 1,049 were in the 9 control schools. This is presented in Table 5 which shows basic background characteristics of pupils. In both the intervention and control group more than 50% of pupils are male, with 47% and 40% in the intervention and control groups respectively being female. In both groups pupils are on average 13 years old, and have the same average KS2 points for both English (28.1) and Maths (28.2).

**Table 5: Characteristics of participating pupils in the final (analysed) data**

	Intervention N (%)	Control N (%)
<b>Gender:</b>		
<b>Male</b>	53	60
<b>Female</b>	47	40
<b>Age</b>	13.1	13.1
<b>Age in months</b>	162.65	162.15
<b>FSM</b>	11	10
<b>KS2 results</b>		
<b>English</b>	28.1	28.1
<b>Maths</b>	28.2	28.2
<b>N</b>	733	1,049
<b>N school</b>	6	9

*Notes: Based on the National Pupil Data. Department for Education.*

### Main analysis

One aim of the evaluation was to provide initial quantitative outcome data and analysis on the efficacy of the programme on English and Maths attainment (as measured by Progress in English and Access Maths Test).

In this study data was compromised owing to considerable and differential attrition. One school withdrew after the randomisation and four more schools withdrew during the testing window, resulting in a lower number of observations to be analysed than anticipated. In addition, four further schools were unable to complete the Access Maths Test owing to glitches in the server and the resulting shut down.

Additionally, a large number of pupils (n=580), of whom 544 were in the treatment group and 36 in the control group, were not matched in the NPD. The reduced sample size and imbalance in the number of treatment and control schools makes it more difficult to draw any reliable unbiased conclusions regarding the potential impact of the programme.

Based on the above and acknowledging a considerable caveat with the bias that it may involve (e.g. the threats to the internal and external validity), Table 6 presents the post-test differences between the intervention and control groups on the outcome measures. Full estimation results are shown in Appendix 3. Pupils with missing assessment data have not been included in the analysis. The results report the outcomes controlling for gender, FSM eligibility, KS2 results in English (Maths), the proportion of pupils in the school with SEN and the proportion of pupils in the school with EAL, as well as dummy variables identifying the blocks of schools used in the randomisation of the schools.

The results indicate that in this sample for the primary outcome (attainment in English) there were no differences between intervention and control groups with the effect size estimates close to zero (ES=

0.08, [95% CI, -0.40, 0.25]). With respect to the secondary outcome (attainment in Maths) the effect size is larger and results show a positive effect of the intervention on Maths (ES=0.49, [95% CI, 0.06, 0.91), suggesting that the intervention has a positive effect on Maths attainment. As indicated by the very wide confidence interval, this is a very imprecise estimate with the lower limit being very close to zero. However, with school dropout and technical problems with the completion of the Maths test, there is considerable scope for bias in these results and they need to be considered with caution. In addition, the process evaluation, discussed below, cannot explain these results. In fact, the PLC programme appeared to be fully implemented in three schools that did not actually take the Maths test.

In order to try to identify potential confounders, Table 7 repeats Table 4 in presenting school-level characteristics in treatment and control schools of the 15 schools used for the final analysis. However, as shown in the table there are no substantial differences in the variables compared to those of schools in the original allocation, with most of the variables appearing on average fairly similar.

Although both Tables 4 and 7 show the balance in observable characteristics of the analysed sample, the existence of a high attrition rate, particularly for Maths, as documented in Table 3, cannot rule out the possibility of imbalance in unobservables. As pointed out by Torgerson and Torgerson (2008), unless the attrition rate is random it cannot rule out the possibility of self-selection since participants leaving may be systematically different from those who remain. The balance of the analysed sample suggests that attrition is reduced, however never eliminated<sup>3</sup>.

The second panel of Table 6 reports the results by restricting the analysis to the FSM pupils. The sample is reduced and confirms the results found for the main sample except that effect size for Maths is now much larger. The same caveats discussed above apply to these subsample estimates, with the additional issues of considerably smaller samples, which does not allow us to be confident about the estimates. The third panel of the same table restricts the analysis to those who reported a low attainment (below the median) for Key Stage 2. No difference between the intervention and control group is found.

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<sup>3</sup> Torgerson and Torgerson (2008) also point out that the existence of attrition bias can change the direction of the effect, leading the researcher to conclude that a treatment was beneficial when it was harmful, or vice versa.

**Table 6: Summary of main effects of post-test<sup>4</sup>**

Outcome	Adjusted post-test mean		N in the model (intervention, control)	Interclass correlation coefficient	Effect size 95% CI	Sig.
	Intervention Mean (SD)	Control Mean (SD)				
<b>English</b>	100.86 (14.35)	101.17 (15.23)	1,722 (709, 1,013)	0.10	-0.08 (-0.40, 0.25)	P=0.65
<b>Maths</b>	103.87 (16.94)	99.52 (14.19)	936 (386, 550)	0.15	0.49 (0.06, 0.91)	P=0.03
<b>FSM subgroup</b>						
<b>English</b>	94.98 (12.31)	92.95 (15.42)	190 (97, 103)	0.04	-0.17 (-0.58, 0.24)	P=0.41
<b>Maths</b>	96.11 (17.77)	91.92 (13.89)	84 (36, 48)	0.32	0.97 (0.09, 1.86)	P=0.03
<b>Low pre-attainment</b>						
<b>English</b>	86.40 (10.93)	85.89 (10.76)	276 (101,175)	0.09	0.22 (0.33,0.77)	P=0.43
<b>Maths</b>	82.65 (11.10)	82.91 (8.29)	130 (60, 70)	0.17	0.32 (-0.43, 1.08)	P=0.40

**Table 7: Characteristics of schools in final analysis**

Baseline Comparison	Intervention group		Control group	
	n/N (missing)	Percentage	n/N (missing)	Percentage
Ofsted rating:				
Outstanding	2/6 (0)	33%	-	-
Good	3/6 (0)	50%	3/9 (2)	33%
Requires improvement	1/6(0)	17%	4/9(2)	44%
Inadequate	-	-	-	-
	n/N (missing)	[Mean]	n/N (missing)	[Mean]
Number of Y9 pupils	6/6 (0)	1139	9/9 (0)	879
Average KS2	10/6 (0)	27.2	8/8 (1)	27.5
	n/N (missing)	Percentage	n/N (missing)	Percentage
SEN	6/6 (0)	7.5	/9 (0)	7.4
EAL	6/6 (0)	3.4	9/*9 (0)	2.5
FSM	6/6 (0)	11.6	9/9 (0)	11.9
Total	6		10	

Notes: Based on School Performance Table 2012/13, Department for Education. For two of the control group schools there was no data on the Ofsted report.

<sup>4</sup> See Appendix 3 for details of full results.

## Cost

The cost estimates presented for this pilot study relate to the cost to schools if they had covered the costs of the intervention themselves, without receiving any funding from the EEF. The cost information used to calculate these estimates was provided by the Youth Sport Trust team. The cost estimates are based on 3,191 pupils (corresponding to the original number of pupils involved and before any dropout) and was estimated to be £70 per pupil in the first year, and £2 in the two subsequent years. Teachers required two half days of supply cover to participate in the teacher training, and they were provided with iPad to support them with accessing the resources and VLE as well as recording examples of PLC.

These estimates do not include direct teacher salary costs, supply cover for training, or the out of school time required for teachers to develop the necessary resources. Estimates also do not include the costs for schools of training delivered by project lead teachers through a 'cascade' system. Once all participating teachers have been trained to deliver the programme, either externally or internally, there are not obvious going costs to the school.

**Table 8: Costs of the intervention**

	Year 1	Year 2	Year 3
Athlete Mentor costs (AM)	5,200	5,200	5,200
Training (Schools) (TS)	42,000	-	-
Venue/Meeting costs (VM)	23,400	-	-
Project Management and delivery (PMD)	152,000	-	-
<b>Total EEF+YST contribution</b>	<b>222,600</b>	<b>5,200</b>	<b>5,200</b>
Number of pupils involved	3,191	3,191	3,191
<b>Total cost per pupil for intervention (including treatment and control schools for whom the training was delivered)</b>	<b>£70</b>	<b>£2</b>	<b>£2</b>



## Process evaluation results

In reporting the findings from the pilot project we have focused on implementation, feasibility and readiness for trial, taking account of the aims and potential to add to existing knowledge of effective approaches to feedback and classroom dialogue.

As described earlier, PLC is a feedback intervention which includes dialogue as a fundamental aspect of the learning process. The factors leading to success in these approaches are explained by the Sutton Trust Teaching and Learning Toolkit. Evidence from the toolkit on feedback approaches advises that the intervention is effective when it enables a learner to change what they were going to do, when it encourages a pupil to focus their effort in a different place or attend to specific areas of their subject. Effective feedback is therefore dependent on whether a pupil can hone in on areas that they can best improve. Existing research on feedback also suggests that it needs to be specific, giving pupils examples of things they need to do to improve at a fairly detailed level. Furthermore, it suggests that it is most effective when given in reference to something a pupil was doing before and is now doing better, thereby showing improvement. It should be given reasonably sparingly so that it is meaningful. Finally, to encourage a growth mindset, it should attribute improvement to effort, rather than ability.

No theory of change or logic model was produced as part of this evaluation. It was not included in the protocol. However, as described in more detail earlier, the model implied in the design involved:

- selected teachers attending training to understand and deliver PLCs;
- teachers cascading training to colleagues in PE, English and Maths;
- implementation of PLC in Year 9 lessons; and
- impact achieved on learning, resulting in improved performance in Maths and English.

The extent to which the project's theory of change was supported is discussed through an analysis of the implementation process and assessment of effectiveness. This is followed by an analysis of PLC's feasibility and readiness for trial.

## Training and preparation

Teachers who took part in the pilot were introduced to the project through attending the two-day training course in July 2014. This was attended by 27 teachers from the nine intervention schools. In most cases, teachers representing the three subject areas of Maths, English and PE attended and in all cases a PE teacher was present. The training explained the idea of a PLC and how it would be implemented and included presentations from Exeter University and a motivational coach as well as the project team. It also included a number of practical exercises around feedback and dialogue, including producing a short video.

Most teachers had not been involved in their school's decision to sign up. Some were aware of the reasons for taking part, while others speculated on this. Teachers in a number of the schools said the project was seen to align with their school's aims around active or cooperative learning. In one school PLC became part of a cluster of three projects with complementary aims around independent learning and dialogic teaching.

Teachers in one of the schools, including the lead, felt that, on reflection, they were not the most appropriate teachers to be involved, because they were already heavily committed to other work and were therefore not able to devote the amount of time which they felt was necessary.

Teachers attending the course engaged well with the sessions, although they found the length of the training and degree of interaction required quite demanding. Evaluation data collected by YST through a self-completed questionnaire at the end of the training event found that almost all teachers either

agreed, or strongly agreed, with the following statements used in previous EEF evaluations and designed to capture overall views on the value of the training:

- *I found the Powerful Learning Conversation training interesting and engaging*
- *I think the Powerful Learning Conversation training was relevant to my teaching*
- *I think our school as a whole will benefit from the Powerful Learning Conversation training*
- *I feel that the Powerful Learning Conversation training was a worthwhile use of my time*

Participants were asked an open-ended question: 'What were the most valuable parts of the Powerful Learning Conversation training?' Their responses refer most frequently to sharing ideas with colleagues working in the different subject areas of English, Maths and PE. Participants also said it was useful to meet teachers from other schools and to share ideas. These discussions enabled teachers to reflect on their own practice and to think how they could apply PLCs to their lessons. A number of participants also said they had valued learning about 'marginal gains' and the sports focus which informed the project. Participants felt the least valuable parts were making the video. Comments also referred to the PLC acronym as confusing. It was also felt that some of the exercises lacked clarity, and some participants questioned the value of the project's emphasis on elite sports. Only a minority of respondents responded to the question of whether they thought there was anything missing or that could be changed in the training. Those who did said they would have liked more examples and models of how a PLC would look, and more time to practise and to plan the application of PLC in a classroom setting.

Teachers attending the training were also asked by the project team, in a separate questionnaire, about any previous training or experience in using verbal feedback. This survey collected additional information on the extent to which teachers were already trained in or using methods similar to PLC which might have given them a head start. Of the 18 teachers who completed the questionnaire, few had previously attended training specifically in verbal feedback. Where they had, this was mainly as part of teacher training, although a small number had attended CPD sessions while working in other schools. One teacher said she had been involved in a project specifically on 'Talk for Learning'. The same data found that despite lack of training, many teachers said they had experience of using verbal feedback. PE teachers in particular said they used it in most lessons, but although some English teachers said they regularly used verbal feedback, their responses indicate it was less embedded than in PE. As part of the training evaluation, teachers were also asked whether they were already familiar with the work of Carol Dweck (or Guy Claxton/Shirley Clarke), since these featured in the training. Around 1 in 3 said they were familiar with this work, some of them through CPD on the work of Guy Claxton.

Teachers reported finding the training motivational. They felt it had prepared them for returning to their schools and for working on the implementation of the PLC programme. Their intentions focused on facilitating students to play a more active role in their learning, through conversation. However, they planned to do this in different ways. A number said they intended to reduce the standard approach known as Initiation-Response-Feedback (IRF) where the teacher initiates, the learner responds and the teacher provides feedback, in line with this increase in conversation. They planned for more effective questioning and feedback with time for reflection. Greater use of feedback from pupils also featured in teachers' responses. As well as changes to teaching styles and methods, some planned changes to seating plans. All respondents said they intended to use the resources provided and that they would recommend the PLC training to other schools or teachers. As we explain later, while teachers came away from the training motivated and enthusiastic about the PLC programme, in practice they did not implement it as fully or systematically as they should for the pilot to be an adequate test of the concept and approach.

### **Project resources and support**

Beyond the two-day training event, the project did not provide a pack of resources or manual for teachers to follow. Some materials were provided, in particular PowerPoint presentations and videos which were stored on the project's VLE. Some participants found these useful. Teachers were also invited to write blogs for the VLE. Interaction and engagement with the VLE appears to have been limited. Teachers had been given iPads to facilitate use of the VLE. However, some experienced difficulty in using the VLE either because of their technical skills or its user-friendliness. Therefore, of around 45 or so teachers who signed up for the VLE, fewer than a third contributed. Teachers were also invited to attend two additional twilight training sessions during the year. Fourteen teachers from six schools attended these sessions. One message from these sessions was that teachers would like a toolkit to guide them through the process of implementing PLCs and resources to use in the classroom. This is being produced for future use of the intervention.

In interviews conducted by both the project and the evaluation teams some teachers commented on the support they received during the implementation period. Teachers told NIESR that they had felt well supported by the project team and had found the visits from Exeter University particularly useful. One school described these visits as 'motivational' and had clarified issues on which they had been 'a bit hazy'. Teachers interviewed by Exeter University during school visits felt that more support could have been given to manage the project and to maintain momentum. The VLE was widely agreed by teachers and the delivery team not to have worked well and teachers would have preferred email communication. Teachers said they would have benefited from a clearer structure with milestones and outputs. One teacher commented that the project was 'too open to do what you'd like'.

### **How PLCs were understood by teachers**

The Exeter University research found that even after the training teachers were uncertain about how to define a PLC and how to explain it to colleagues. This uncertainty was seen to stem from the initial training's emphasis on marginal gains in particular. Two quotes from Exeter University's research illustrate this problem:

'There was a bit of confusion at the beginning about whether we were focusing on marginal gains or feedback'

'I came away from Exeter a little bit hazy – so what is it?'

As a consequence, teachers began the work of implementing the project in their schools with different understandings of what PLCs were. This relied more on a set of techniques or approach rather than use of resources. Clarification on the definition of a PLC was achieved during the course of the project, largely by teachers themselves developing their own ideas about what it looks like but, as we explain later, there is no doubt that it differed in the relative emphasis on feedback and conversation/dialogue across the participating schools.

Visits to all nine intervention schools by Exeter University found teachers understood a PLC in a number of different ways. They included: less 'teacher talk' and more classroom discussion; pupils generating questions for each other and for themselves; and pupils working through a problem and reflecting on their learning. Teachers also interpreted a PLC variously as a way of building pupil confidence, independence and resilience. Reflexivity and critical thinking were seen as components of this process. Teachers felt that the term PLC should not be used with pupils, fearing that it would be seen as a new expectation. Applying a label or 'brand' was also seen to undermine its value and to make it less 'natural'.

The idea of what a PLC looks like evolved during the course of the project. By the time that teachers met at the close of the project in July 2015, the emphasis appeared to be more strongly on dialogue than on feedback. However, it was also apparent that some schools emphasised the feedback aspect

more strongly. In some cases it appeared that teachers were regarding dialogue and conversation as enabling feedback and therefore developing a more novel approach.

### **Extent of implementation**

As explained above, teachers had considerable freedom over how to implement the project in their schools. This included how they introduced the project to fellow teachers across the three departments of PE, English and Maths and trained them in its implementation. Some teachers described their approach as one of implementing PLC in their own way and then delivering it to colleagues.

Research by Exeter University found that the project was implemented to a different extent across schools and with varying degrees of success. Three of the nine implementation schools had been particularly active in implementing the project at departmental level. One of these schools had amended resources and schemes of work to incorporate opportunities for PLCs. Lead teachers were allocated time for planning, sharing good practice and observing lessons. Existing school policy emphasising dialogic teaching was a factor which helped implementation in this school.

In the second school with a high degree of implementation, the project was initiated by a whole Year 9 assembly which introduced PLCs and elicited pupils' views and experiences of classroom talk. The project was then gradually implemented, drawing on the project resources developed by YST and made available through the VLE, in particular the learning prompts. The small size of the school was seen as a factor enabling implementation.

In the third school, PLCs were used within the three specified subjects but also in the Drama department. As in the second school, lead teachers implemented the project gradually, for example by introducing strategies at intervals across the first term to help teachers' understanding and implementation of PLCs.

Outside of these three schools, the project was implemented much less systematically. It appeared in some cases to be left to individual teachers to put into practice rather than being coordinated. As we explain later, it was introduced less in Maths than in English and PE because it was seen as less applicable to teaching and learning in the subject.

Evidence collected by Exeter University and NIESR suggests that the project was implemented more fully where lead teachers and the core teams who had attended the training managed its introduction systematically and effectively. This was found to depend on time and also where the school ethos was in line with project aims. Implementing the project at whole-school level was seen to require additional time, including for planning.

The Exeter team collected examples of the use of PLCs to support learning during their visits. These included the use of pupils as spokespersons for prompting and repeating feedback and other strategies aimed at encouraging responses from pupils. Specific tasks designed to encourage pupil response included problem-solving tasks. Examples from the use of PLCs in English included written responses from pupils as well as discussions on the interpretation of texts. In another example, pupils were also encouraged to devise their own essay questions and write their response. While examples included written feedback, teachers found the discussion aspect of PLC valuable, particularly since speaking and listening no longer form part of the English Language GCSE.

Fewer examples were given of the use of PLCs in Maths. Those found by NIESR and Exeter University included discussion when introducing a new topic in order to establish existing knowledge, and discussion within investigation tasks. These examples show the variation in understanding and application of the term PLC and lack of specificity within the project. The extent to which these approaches were new was also not entirely clear.

### **The athlete visit**

The athlete visit, consisting of a motivational speech to pupils, was part of the offer to schools taking part in the project. One of the schools interviewed did not take up the offer, through an oversight on their part. Schools found this a valuable component of the project. The speaker was found to be inspirational and to motivate teachers to implement PLCs. The presentation had a particular focus on marginal gains. The focus on sport was translated into other subjects successfully in some cases, and less so in others. In one school, a teacher commented that:

'I'm not particularly sure that Year 9s made the connection between her and what happens in our [English and Maths] classrooms, if I'm honest. I think it was motivational, I think the students got a lot out of it, but I'm not sure how much they made the connections.'

Teachers in another school said they worked hard to make the talk applicable to academic subjects. In the school where this had not happened, teachers felt that they might have been able to do this had they known more about the content of the athlete's talk.

### **The 'reflective prompts'**

Participants were given a series of six 'reflective prompts' to assist implementation within the classroom and at whole-school level. These prompts included, for example, carrying out a 'pupil voice activity' and a 'questioning episode'. Teachers were asked to report back on these through a post on the VLE along with relevant supporting evidence such as video recordings. As explained earlier, the VLE was not used to any great extent by teachers. Fewer than a third of teachers who registered used it and reports were loaded by only four teachers in three schools. However, there was also evidence from the interviews that teachers did not fully engage with the reflective prompts. A teacher interviewed by Exeter University said they would have liked more 'goalposts' instead of reflective tasks, to support teachers in rolling implementation out across the whole school. We do not know whether this view was more widely held, but a system of milestones might have led to greater consistency in implementation.

### **Outcomes**

PLCs were reported by teachers to have a range of impacts on pupils through improved teaching and learning. While these were reported by small numbers, they do provide some insight into how the project could be of benefit if it were more systematically implemented. Research by Exeter University found a number of teachers felt they had improved their own practice through being involved in the project. In particular, they felt that the project had prompted 'meaningful reflection' which had both reminded them of good practice and how to improve in a general sense. More specifically, for some teachers, the emphasis on talk within PLC had placed them in a position of handing over to pupils at points in the lesson. The experience of being outside of their 'comfort zone' and less in control had been a useful one. Allowing pupils to make mistakes and leaving them to work through problems themselves was found to be challenging and rewarding. Teachers also reported improved relationships with pupils.

One teacher, interviewed by NIESR, described how implementing PLC had helped her to recognise that pupils are themselves a teaching and learning resource. The role of teacher in asking and responding to questions could then be shared to some extent by pupils. As she explained:

'It's built up my confidence actually just to go "do you know what, I don't need to be the one who is actually doing everything. You can have a go at doing it and talk amongst yourselves".'

Some improvements in learning were identified: a number of teachers reported higher levels of pupils' confidence resulting, for example, from taking the role of asking questions. The intervention was also found to help create a culture in which mistakes could be made, noted and used as learning points. The same teacher explained that:

'The most powerful learning is when you get something wrong because you can correct it and change it.... I think that even the most shy person now is not so afraid of saying something because they were worried about making a mistake... It's enabled us to do it, whether it's working as a small group and everyone having their say or whether it's working as a whole class.'

A teacher in another school described this process of learning through making mistakes as 'empowering' pupils, through challenging the idea that the teacher has all the knowledge. This recognition was seen as especially impactful for pupils making the transition into Year 12 where more independent thinking is required. Other outcomes identified by teachers included improved critical thinking and quality of written work in English.

While teachers in schools where the PLCs had been practised felt that the project had achieved some impact, they also said that the approach would take time to be embedded in practice. In many of the schools it was implemented sporadically, rather than consistently and systematically. Teachers also said that to impact on pupil attainment, it needed to be implemented across the whole school rather than confined to English, PE and Maths.

### **Control group activity**

We designed a survey for control group schools. This was distributed by YST and completed by 15 teachers from the six control group schools attending a separate training day at the end of the project in July 2015. This training was timed for the end of the intervention so that control schools would not adopt the approach and thereby weaken any effect. The purpose of the survey was to establish the current practice in schools in relation to feedback and classroom discussion. Responses were invited to six open questions:

1. What is your school's current approach to feedback in the classroom, and class discussion in particular?
2. Does the school use any particular approaches, such as Talk for Learning, Assessment for Learning?
3. Is there a whole-school ethos in relation to feedback in the classroom, e.g. to reduce teacher talk, to have a 'no hands up' approach?
4. Do departments and teachers use their own approaches?
5. Is practice in relation to feedback in the classroom shared between departments and teachers?
6. What do you see as the main barriers and enablers for improving your school's approach to feedback in the classroom?

### **Current approaches to feedback and classroom discussion in control schools**

Teachers in three of the schools described feedback as largely written rather than oral, with the extent of feedback varying between schools and teachers. One of the schools used 'dialogic marking'<sup>5</sup> which includes key questions and clear outcomes. In another school there had been a stronger focus on feedback at a wider level, also resulting in a more systematic approach. This school had developed a range of feedback strategies, and described an approach similar to PLC as 'use of questioning to elicit deep-order thinking'. While there was evidence of some use of feedback in a systematic way to promote learning, respondents made less reference to class discussion as a form of feedback. Discussions were described as largely between pupils, with one respondent referring to 'question and answer' format rather than conversation between teacher and pupils.

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<sup>5</sup> Dialogic marking is a process involving peer and self-assessment, marking of work by the teacher with questions and specific tasks and students answering questions and completing the tasks.

When asked whether particular approaches were used, such as Talk for Learning, teachers in four out of six schools said that Assessment for Learning<sup>6</sup>, Learning Habits<sup>7</sup> or Talk Factory<sup>8</sup>, were used either by individual teachers or across the school. In two cases these were encouraged throughout the school, while in others they were adopted by individual teachers. This is to be expected given the emphasis by Ofsted on Assessment for Learning and the presence of schools requiring improvement in the control group. At the same time, teachers in two of the control schools said either that no approaches were used or that many had been discussed but not used systematically.

Teachers in three of the schools said there was no whole-school ethos to feedback. In a fourth, one was described as 'emerging' as a means of encouraging conversation and reducing teacher talk. In a fifth school a strategy was also in place to reduce teacher talk, including a 'no hands up' policy but this was focused on improving teaching and learning rather than feedback as such. A sixth school used a system involving green and red pens, 'closing the loop' and stickers. These were approaches developed by the schools themselves. Teachers described a degree of variation in practice with departments and teachers using their own approaches. In one school, the focus on feedback was described as stronger in PE than elsewhere in the school.

There was little evidence of sharing of practice between departments and teachers. Some responses indicated that this took place to some extent, for example through observations, INSET and briefings. However, a number of responses suggest significant scope for more sharing of practice and a growing realisation of its value.

Teachers were also asked what they see as the main barriers and enablers for improving their school's approach to feedback in the classroom. Their responses, interestingly, anticipate some of those experienced in the pilot. Barriers were seen as: willingness and readiness of teachers to adapt their approaches. Fellow teachers were seen as potentially resistant to change, particularly where there is a perceived risk to performance. Pressure of time, both for training and in lessons, was also cited as a barrier to improving approaches to feedback. More positively, teachers in some schools were seen as keen to make improvements to feedback. Another enabler was identified in schools' interest in sharing good practice and focusing on good approaches to teaching and learning.

### **Conclusions of the control group survey**

The control group schools varied in their use of feedback and classroom discussion. In relation to feedback, most schools were using written rather than oral methods, with the exception of one school which was using a similar approach to PLC. With regard to classroom discussion, four further schools were using approaches with similarities to PLC, with Assessment for Learning used by a further four schools. In two of these, their use was encouraged throughout the school and elsewhere there was evidence of some sharing of practice. While there was undoubtedly scope for developing and embedding a more systematic approach, it is clear that the control schools were using approaches with some similarities to PLC. It is possible that this could have weakened the impact of the intervention, particularly given the limited application of PLC in some of the intervention schools. However, it is much more likely that the impact of the intervention was weakened by variation in practice, quality and intensity of implementation within the test schools.

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<sup>6</sup> Assessment for Learning emphasises effective feedback, involvement of pupils in their own learning and pupil self-assessment.

<sup>7</sup> Learning Habits has an emphasis on effective communication and reflective learning.

<sup>8</sup> Talk Factory is about talking and listening skills and includes the use of scaffolding around pupils' argumentation.

## Feasibility

As we noted earlier, there was no pack of resources or manual for teachers to follow. Some materials were provided through the project's virtual learning environment (VLE) but these were not widely accessed. For some teachers this presented a challenge to implementation and appears to have been a barrier to delivery. One message from participating teachers was that a toolkit, with resources, would have been useful to guide them through the process of implementing PLCs.

We also noted earlier a lack of clarity surrounding the term PLC. Teachers began implementation with different understandings of the concept, with varying emphasis on feedback and classroom talk. This lack of clarity was not generally viewed as problematic by teachers who developed their own ways of delivering the project. Teachers generally regarded the project's somewhat fluid nature as a strength rather than a weakness. This was largely because it allowed them to decide what a PLC should look like in the context of their own school, class and subject. One teacher reflected the views of some others in stating:

'I think the flexibility is a real plus in lots of ways.... There are different ways you can look at it, certainly, if you focus more on the verbal feedback aspect, or you're looking more at the conversation that take place in the classroom.'

At the same time, she felt there were core features which were common to any application of PLC, in particular creating the right environment in the classroom. A teacher in a different school felt that its flexibility made it easier to 'sell' to teachers and to get them on board in a way that a more prescribed approach might not. The alternative view was also expressed: that the project would have benefited from more structure, including lesson plans, activities or more specific guidance. Feasibility of the project was also affected by challenges to implementation, both school-wide and at classroom level.

### Challenges to implementation—school level

In addition to implementation within the departments of PE, Maths and English, YST also envisaged the approach would have a wider impact, including at whole-school level. The athlete visit was part of this intention. As stated earlier, the research by Exeter University found that the project was implemented to a different extent across schools and with varying degrees of success. It found that while all schools implemented PLCs to some extent within the specified departments, the project was more difficult to implement at whole-school level as had been suggested it might.

Time was identified as a key obstacle to promoting PLCs across departments at whole-school level. Project leads and teachers were not able to devote time to this work, since they were delivering the intervention as an additional activity. In some cases, teachers did not have the authority to steer implementation through. A second significant barrier was found in lack of fit between the project and school priorities. Some schools were undergoing a process of change, which in one case included academisation.

Our interviews with teachers found that a prerequisite to implementing PLCs was identified in the culture of the school, with it being more easily implemented where there is less teacher talk and more dialogue and conversation. At the same time, some teachers felt that the environment can be fostered. Positive relationships with pupils were also seen as a requirement to successful implementation of PLCs, including confidence among pupils that mistakes are not viewed negatively.

One school decided to carry out separate training for teachers in the three subject areas in order to tailor PLCs to their schemes of work. They were assisted in delivering this training through using the project's 'reflective prompts' and also through guidance by the Exeter University team. This was considered by the school to have worked well.

### Challenges to implementation—subject and classroom level



Teachers had varying experiences of using PLCs with pupils across ability groups and subject areas. We referred earlier to the importance of creating the right environment in the classroom. Challenges at classroom level included resistance from some teachers to the change in practice which PLC represents, and in particular its emphasis on increased pupil participation. Some teachers believed that some colleagues felt threatened by this change and that it clashed with their beliefs about teaching and learning.

Teachers reported concerns that they could lose control of the class. A number of teachers referred to issues of class control when putting PLCs into practice. Noisy classrooms and unproductive talk were particular concerns. In other cases, teachers were concerned that pupils' expectations of 'teacher talk' made class discussion difficult. Another view was that PLCs are 'just good teaching', that they take place in any case and are nothing new. This view was expressed particularly by English teachers.

PLCs were also seen as less applicable to Maths than to PE and English. Maths teachers interviewed both by NIESR and Exeter University saw PLCs as less suited to Maths because of the smaller scope for subjective interpretation and debate within the subject. Opportunities for discussion-based learning were seen as much more limited. Some Maths teachers did express an alternative view that the subject does lend itself to debate and problem-solving, and these were largely in two schools. Elsewhere, it appears that PLCs were used to only a limited extent in Maths teaching. As we have stated elsewhere in the report, it is therefore puzzling that the test results show an effect in Maths. It might be argued that where an approach represents a radical change, it could have a strong impact even if used to a limited degree. However, there is little evidence from either the external or internal evaluations that Maths teachers in schools recording an effect departed very far at all from their usual approaches.

There was discussion throughout the project as to whether pupil ability made a difference to the successful use of PLCs. Teachers generally felt that classroom discussion of more difficult concepts was more difficult with lower-achieving pupils. This was explained with reference to weaker listening skills but also challenges of engaging lower-ability pupils. A number of teachers expressed the view that PLC is particularly needed by higher-performing pupils in the top sets, who were often found to be passive learners. Fear of making mistakes was consistently identified as a barrier to implementation with some pupils, although this might be found in pupils across the ability spectrum. However, teachers also said that the extent and quality of class discussion was dependent more on group dynamics than anything else. One view was that PLCs require a level of maturity among pupils rather than ability level and that PLCs can help to foster that quality.

### **Readiness for trial**

The looseness of the PLC concept meant it was understood differently, leading to the application of a range of techniques and approaches in participating schools. It would be more accurately described as a set of approaches around feedback and conversation or dialogue. To be made ready for trial, a Powerful Learning Conversation needs to be more clearly defined. This should include who the conversation is between—teacher/pupil, pupil/pupil or both; what makes a conversation 'powerful' and beneficial to 'learning'; and the role of feedback in this process, again whether this is teacher to pupil, pupil to teacher, pupil to pupil or all of these. The nature of feedback and, again, how it can benefit learning, also needs to be more clearly specified. The project would benefit from a clearer underpinning in existing knowledge and theory about effective teaching and learning.

Teachers were not well prepared for the project, knowing very little in advance of the training. This meant that schools had not been able to consider how PLCs aligned with their own priorities and plans for improvement in teaching and learning. Not only did this mean that some teachers considered they were not the most appropriate lead, but also that the project was seen as an extra requirement rather than something which could further specific teaching and learning goals.

At school and classroom level the project encountered resistance from teachers who either felt threatened by aspects of the project, such as pupil participation, or alternatively felt they were already using PLC techniques. The project was intended to be used in the subjects of PE, English and Maths. However, it was implemented to a lesser extent in Maths than in the other two subjects because the subject is seen to have less scope for subjective interpretation and debate. It is therefore puzzling that the intervention was found to have a positive effect in Maths. At the same time, the views of some teachers that PLCs are less applicable in Maths are open to challenge: the elements of PLC in feedback, debate and group problem-solving have an important role to play in Maths teaching and learning. It is therefore apparent that any future trial will need to articulate this clearly to ensure take-up in the subject.

In developing PLC, the project team developed some resources. However, PLC is not a manualised approach consisting of a programme to be implemented. The lack of a manual in itself is not necessarily a problem. However, if it is to be made ready for trial, the intervention would need to be more clearly structured as well as more tightly specified. This would help to prevent the degree of variation in approaches and practices evident in the pilot. Lead teachers were given a free hand over how they trained colleagues. In some cases, this appears to have been light touch and, given the absence of clearer specification, may have compounded the variability of implementation. Any further trial should include more guidance for those teachers responsible for delivering training in schools.

Although schools were encouraged to feed back to the project team and to share their practice, there were no clear milestones so the teachers were not sure what they were working towards. Any further trial should include clearer steps to implementation with a timeline for reporting.

The findings of the pilot suggest that a Virtual Learning Environment may not be the most effective way to share information and that teachers might prefer other methods. Barriers were partly technical, despite the project issuing teachers with iPads and instructions in their use. Any further trial should consider other ways of sharing practice, for example through more twilight sessions.

## Conclusion

### Formative findings

As a pilot, it is to be expected that the project began with some elements quite loosely formulated and for these to become more defined during implementation. However, it is apparent that the focus of the project was, from the start, somewhat unclear and interpreted differently by its participants. In particular, it was not clear whether the focus was on feedback, marginal gains, or talk. The emphasis of the talk aspect, whether on teacher/pupil dialogue, pupil to pupil discussion or classroom talk, was also unclear. This lack of clarity undoubtedly led to wide variation in the activities carried out in participating schools. The project could be improved by a much clearer focus, with aims and objectives linked to existing evidence about the effectiveness of such interventions.

The focus on sports teaching has a strong appeal but the distinctive features of feedback in sport were also insufficiently defined, as were the opportunities and challenges of applying such methods in the classroom. The athlete visit was found to be motivational by schools, but schools were left to develop links to English and Maths for themselves. In particular, schools were not clear whether they should be reinforcing messages about marginal gains, instant feedback, or resilience.

YST acknowledged the conceptual challenge of the project, for example stating at the training given to control schools in July 2015: 'If you leave here feeling slightly foggy, that's a good place to be.' Equally, the project's looseness was viewed as a positive feature by some teachers, who welcomed the opportunity to decide what they felt a PLC might be. They also liked the idea that it could be tailored to the needs of their schools and subjects. However, this resulted in wide variation in the nature of interventions in schools. The absence of a specified approach, for example in a manual or guidelines and clear timetable with specified activities, also resulted in large differences in dosage; a small number of schools and teachers appeared to use PLCs reasonably frequently, but others much less so. The project team recognised these inconsistencies and decided to produce a toolkit, but this was not produced during the period of implementation. This resource and other supporting materials are essential for future implementation of the project.

An additional learning point from the pilot concerns the role of the lead teachers. A number suggested they were not the most appropriate lead and had been given little preparation for taking part in the project. It was also felt that the project should have advocates in schools, in addition to a project lead, to drive it forward and coordinate the intervention. Teachers would also have valued more collaboration or mentoring across schools to share good practice.

### Interpretation

The evaluation consisted of two components, related to (1) the feasibility of applying the feedback practices from sport to other subjects; and (2) the impact on children's attainment and other outcomes of training teachers to improve feedback practices. The results relating to the programme's impact on Reading and Maths outcomes show that the programme did not have a significant impact on Reading, but had positive effects on attainment in Maths. However, there is a strong likelihood of bias in these results. Bias could have been introduced with schools dropping out of the programme, and other schools being unable to complete the Access Maths tests due to technical difficulties with the test server. The conclusions we can draw are therefore limited.

The evidence on whether the approach is feasible or not is mixed. Where the project was implemented to any extent, in three schools, it was considered by teachers to be successful and to be having a positive impact on teaching and learning. In the other schools its application was much less systematic. Moreover, test results for the three schools where it was applied more systematically are either partially missing or unavailable. We are therefore not able to assess whether the intervention

was in fact stronger in these schools than in those with less active engagement. In the other schools, it was implemented only partially. The loose definition of PLC and the absence of a structured approach, for example using a toolkit or manual, were two contributing factors to this.

This study was designed as a pilot and was not therefore designed as a fully powered efficacy trial. This evaluation has attempted to provide some indication of effect by analysing the outcome data that was collected.

The main threat to the internal validity of this trial is the fact that findings are at risk of bias due to the high attrition. This is particularly the case for the Maths outcomes, since outcomes for only 11 schools out of 20 were analysed. Due to the reduction of the sample size we cannot be sure that missing data and attrition have no bias on the results. Therefore, it is not possible at this stage and given the size of the study to generalise the results to the wider population.

### Learning from process evaluation

The process evaluation found that the project was interpreted in different ways by teachers responsible for its implementation. Interpretations of a PLC included: less 'teacher talk' and more classroom discussion; pupils generating questions for each other and for themselves; and pupils working through a problem and reflecting on their learning. The looseness of the PLC concept was evident from the training and was reinforced through the absence of clear guidance, for example in the form of a manual. A series of 'reflective prompts' were given but schools did not engage with these consistently. This was partly because most teachers did not engage with the Virtual Learning Environment through which they could access the resources and contribute to the project. While making the resources and activities available through this format gave it potential to be collaborative and dynamic, it effectively hampered the project.

We have referred throughout our report to the project's somewhat fluid nature which allowed for teachers to decide on the relative emphasis on feedback and talk. Evidence from our own evaluation and from visits by Exeter University show variation in schools' implementation of PLCs. The idea of what a PLC would look like evolved during the course of the project and became more strongly focused on dialogue than on feedback. However, it was also apparent that some schools emphasised the feedback aspect more strongly. These variations make it likely that schools and individual teachers were engaged in various approaches. Teachers tended to see the lack of clarity about a PLC as a strength, enabling them to develop the idea in a way which suited their schools and pupils. However, it is arguable that it was so adaptable that it lacked coherence. This also makes it difficult to be certain about what might result in impact.

A second limitation is that it was implemented to a different extent across schools and with varying degrees of success. Three of the nine implementation schools had been particularly active in implementing the project at departmental level. Outside of these three schools, the project was implemented much less systematically. It appeared in some cases to be left to individual teachers to put into practice rather than being coordinated. It was also introduced less in Maths than in English and PE because it was seen as less applicable to teaching and learning in the subject. In one school it was implemented alongside two other projects with a similar focus on promoting dialogue. Stronger, more consistent and more proactive project management could have reduced this degree of variation. Clearer milestones and timelines might have led teachers to focus more seriously on implementation and delivery. Teachers did not complain at the loose supportive approach of the project team, but systematic implementation of the project suffered as a result.

A third limitation is the use of similar approaches to PLCs in the control schools. While these schools did not all have an organised and systematic approach to feedback and dialogue, the use of particular approaches with similarities to the PLC approach was common, developing and becoming embedded in whole-school approaches.

The process evaluation cannot explain the positive outcome for the Access Maths test. It is feasible that teachers' involvement in PLC improved their practice, resulting either directly from PLCs or more generally through improved performance resulting from increased motivation. However, because of variations in practice we could not be certain of what practices were effective and how they impacted on pupil performance. Given the lack of systematic implementation in most of the schools, it seems unlikely that any improved pupil performance could be explained by elements of the PLC project. It is even more unlikely that it could explain improvements in Maths, than if improvements had been found in English, since the project was applied even less to this subject area than to either PE or English. We have considered the possibility that the effect on Maths was produced because PLC represented a radical change and could have a strong impact even if used to a limited degree. However, there is little evidence from either the external or internal evaluations that Maths teachers in schools recording an effect departed very far at all from their usual approaches.

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## Appendix 1: Parental Consent



9 February 2014

### **Assessing the Powerful Learning Conversation - working with schools to help children succeed at school.**

Dear Parent or Carer,

Your school has kindly sent this letter out to you on our behalf.

The National Institute of Economic and Social Research needs your help to complete some important education research.

Your child's school is a research-active school: one of only twenty that was recently selected to take part in a national education research programme "*Powerful Learning Conversation*" in partnership with Youth Sport Trust.

#### What is the project?

The programme involved training English and Maths teachers in 20 schools, with the aim of improving feedback practices by applying feedback techniques used in sport. The Powerful Learning Conversation is based on the idea that the feedback techniques used in sport are rapid and immediate and that children are less likely to respond negatively to criticism due to the way the feedback is delivered. The project is funded by the Education Endowment Foundation, a charity dedicated ensuring that children from all backgrounds can fulfil their potential.

#### What does this mean for my child?

In order to measure the impact, as a whole, we need students from all the schools involved, including your child to take two academic tests in May/June 2015.

#### What are the tests?

Pupils will be taking Maths and English tests either online and/or on paper. The tests will last about an hour and the test results will then be accessed by the National Institute of Economic and Social Research.

#### How will the results be used and shared?

The results will only be used for the research and will not influence your child's level or place in school. The individual test results will not be available to anyone in your child's school as they will only been seen by the research team.

The completed tests will be securely sent to the National Institute of Economic and Social Research (NIESR), where they will be stored securely and confidentially (without student names), in accordance with the Data Protection Act. The data will only be used by the researchers from NIESR to determine the impact of the Powerful Learning Conversation.

For the purpose of research we are now writing to ask your permission for the National Institute of Economic and Social Research to obtain information about your child from the records held in the

Department for Education's National Pupil Database and match this to the information/tests that we will be collecting during the project. During the tests pupils will be asked to insert their Unique Pupil Identifier that will be used to match test results to the NPD.

The information that we intend to obtain from the Department for Education's National Pupil Data Base is what is called tier one data. For the evaluation we will require details about age, gender, eligibility for free school meals and attainment in previous Key Stage assessments".

The responses will be in an anonymised form and your pupil'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, or for any other purpose. In accordance with the Data Protection Act all information that is given to us will be securely transported and stored.

Does my child have to take part in the research?

We expect that your child will enjoy doing the tests and being part of the programme. If you are content to allow us to progress you do not need to do anything. As with any research your child does not have to participate in the testing if they do not want to, and this will be made clear to them before they are asked to complete the tests. Parents are also entitled to refuse permission for their child to participate. If you do not want your child to participate, please fill in and return the slip below

Also, if you do not wish us to link your child's details to the NPD, please fill in and return the slip below. If you are happy for us to do so you do not need to do anything.

Your child may withdraw at any time. If you would like to opt your child out and/or you do not wish us to link the data from the National Pupil Database, please inform their teacher by **Friday 6<sup>th</sup> March 2015**.

If you would like more information about the project, please contact:

Dr Cinzia Rienzo **on tel. 0207654 1910 or by email at c.rienzo@niesr.ac.uk**

Yours faithfully

Dr Cinzia Rienzo,

Project Lead at the National Institute of Economic and Social Research

National Institute of economic and Social Research

2 Dean Trench Street, Smith Square,  
London SW1P 3 HE

**Title of Project: Powerful Learning Conversation**

**If you DO NOT wish your child to participate in completing the academic test return this form to your child's class teacher.**

**Child's name:** .....

**Child's class Teacher:** .....

**I DO NOT wish my child to participate in the research**

Parent name (BLOCK CAPITALS) .....

Parent signature: .....

Date .....

Title of Project: Powerful Learning Conversation

If you I DO NOT wish to link my child's details to the National Pupil Database return this form to your child's class teacher.

Child's name: .....

Child's class Teacher: .....

I DO NOT wish to link my child's details to the National Pupil Database

Parent name (BLOCK CAPITALS) .....

Parent signature: .....

Date .....

## Appendix 2 Memorandum of Understanding



### Youth Sport Trust Powerful Learning Conversation



## Memorandum of Understanding

### Agreement to participate in the Evaluation of Powerful Learning Conversations

School Name: \_\_\_\_\_

***Lead project contact:***

Name:

Email:

Phone:

#### **Aims of the Evaluation**

The aim of this project is to evaluate the impact of rapid, effective feedback with a focus on marginal gains, developed from Physical Education and sport on attainment in English and mathematics in Key Stage 3 (*see project information sheet.*) The results of the research will contribute to our understanding of what works in raising the pupil's attainment and will be widely disseminated to

schools in England. Ultimately we hope that the evaluation will equip school staff with the knowledge, skills and resources to provide a consistent language and process for giving, receiving and owning feedback effectively.

### **The Project**

The effective use of feedback has been identified as a highly cost-effective means of improving attainment. We aim to create a new tool to explore the impact on attainment in English and Mathematics of using elements of the pedagogy of sport and Physical Education.

These include:

- The rapid feedback loop between teacher and student
- The separation of objective feedback from self confidence and esteem
- The consistent application of meaningful, appropriate language used by teachers and students when providing feedback
- The use of marginal gains to search for continual improvement

A team of specially trained athlete mentors will participate in all three stages of the project (see Evaluation focus below). They will help teachers and students understand the value of honest, objective feedback and use their experience of high performance environments to support them in developing the key attributes of empathy and resilience when giving, receiving and acting upon feedback. Our links with the National Governing Bodies of Sport will enable us to draw upon the expertise of the very best elite coaches, who will be able to contribute a great deal to the practice of using feedback effectively, and provide inspiration and insight to the lead teachers in particular.

### ***Project Partners:***

In order to maximise the quality of provision and support for this evaluation the Youth Sport Trust have identified a number of key partners in the design and delivery of this project to work with the schools involved. These include;

Youth Sport Trust: The Youth Sport Trust is an independent charity devoted to changing young people's lives through sport. Established in 1994, we are passionate about helping all young people to achieve their full potential in life by delivering high quality physical education and sport opportunities.

We work to:

- Give every child a sporting start in life through high quality PE and sport in primary schools;
- Ensure all young people have a sporting chance by developing opportunities for those with special educational needs and disabilities; and
- Support all young people to achieve their sporting best in school and their personal best in life.

University of Exeter:

The Graduate School of Education is a leading centre for educational research. The School is committed to the generation of knowledge which makes a positive difference to understandings of teaching and learning, through illuminating and informing decision-making at every level: teachers, parents, community leaders, local authorities, educational consultants and commercial enterprises, and government ministers. Our goal is to generate research of the highest quality, drawing on a range of methodological, theoretical and disciplinary perspectives, transforming educational outcomes for young people, and promoting education which is democratic, participatory and inclusive

National Institute of Economic and Social Research (NIESR)

NIESR is Britain's longest established independent research institute, founded in 1938 to influence policy through quantitative and qualitative research. Education is one of NIESR's key areas of research. NIESR has extensive experience in a range of policy evaluation methods, including randomized control trials and qualitative process evaluation. Along with colleagues, the team evaluating Powerful Learning Conversations are involved in a number of other EEF projects.

### **Structure of the Evaluation**

*Target cohort:*

This project will run for one year and will focus on year 9 pupils, specifically their progress in English and mathematics and the sustainable changes in teacher pedagogy in these subjects.

*Evaluation focus:*

The intervention provided through this project will be delivered through three strands;

1. A lead teacher delivery model focused on embedding high quality and effective feedback
2. The development of expert teacher professional learning communities, within each of the intervention schools and across lead staff involved in the project, for the dissemination of the effective feedback model in English, Maths and Physical Education.
3. The in-school delivery of a standardised training programme in giving and receiving feedback.

This evaluation project will involve 20 schools located within the South West region. This will include 10 schools which will receive the intervention and 10 schools that will form the control group. The schools will be randomly allocated for treatment or as a control in May 2014. A condition of any school that signs up to be part of this evaluation will be to complete the post CEM (University of Durham) tests in July 2015 regardless of whether they are allocated to the random or intervention group.

The cost of data collection from these tests will be funded by the project, but the school will provide lesson time to complete the assessments. The data/information for individual pupils will be shared with the respective schools as an additional benefit for being involved in this feasibility pilot. Additional interviews and school visits will be undertaken with a sample of schools.

The pupils/schools in the control group receive the Living for Sport visit during the academic year 2014/2015 at a time to be negotiated by the school.

Teachers in treatment schools will receive the full training in July 2014, with roll-out taking place in September 2014.

All pupils in the evaluation will be post-tested for English and Maths in April - August 2015. In addition, in order to measure the prior attainment of all pupils, KS2 outcomes (English and Maths) available from the National Pupil Database (NPD) will be used.

Random allocation is essential to the evaluation as it is the best way of outlining what effect Powerful Learning Conversation has on children's attainment. It is important that schools understand and consent to this process.

### Use of Data

Pupils' test responses and any other pupil data will be treated with the strictest confidence. The responses will be collected online by the Centre for Evaluation and Monitoring and accessed by Cinzia Rienzo and David Wilkinson. Named data will be matched with the National Pupil Database and shared with NIESR and EEF. No individual school or pupil will be identified in any report arising from the research.

### Responsibilities

The Youth Sport Trust will:

- Be the first point of contact for any queries about the evaluation project
- Produce a synthesis of existing literature and core principles for effective feedback in developing learning.
- Establish an expert advisory group to the project to ensure the curriculum content, teacher professional development, elite sport and school leadership contributions inform the training and resources produced. This group will meet a minimum of three times.
- Provide an information evening about the project for the Headteacher and a project lead member of staff from all schools involved (prior to randomisation) to be held at the University of Exeter (date)
- Send out regular updates about the evaluation to schools as well as sharing the evaluation findings with all schools.

### *Intervention group:*

- Develop a training resource to support delivery to the lead teachers and their dissemination of the training across the school



- Deliver and evaluate a two day (residential) training at the University of Exeter (date) for three lead teachers (English, Mathematics and PE) from the schools selected for the intervention.
- Support an additional two further half-day (twilight) meetings to be held at the University of Exeter (date 1 – October) (date 2 – February) to support the dissemination of the project to relevant staff and enable the sharing of effective practice across the intervention group schools.
- Ask schools to complete a delivery log to record how Powerful Learning Conversations is implemented and practice is shared

### Control group:

- Enable those schools not selected for intervention to receive two athlete mentor visits through the Sky Sports Living For Sport programme during the 2014/15 academic year at a time to be negotiated by the school.
- Share with all control group schools the resources, key information and evaluation findings once the project has been completed.

### ***NIESR will:***

- Conduct the random allocation.
- Conduct the random allocation
- Collect and analyse all the data from the project

- Carry out a process evaluation, to include a survey of existing practice and visits to schools, as well as analysis of materials and data provided by Youth Sport Trust, including materials, training evaluation and school delivery logs
- Ensure all staff carrying out assessments and making research visits to schools are trained and have received CRB clearance
- Provide head teachers with all attainment data after the tests have been completed
- Produce an evaluation report
- Disseminate research findings

### ***The School will:***

- Consent to random allocation and commit to the outcome (whether treatment/intervention or control).
- Allow time for the testing phase and liaise with the evaluation team to find appropriate dates and times for testing to take place (May-July 2015)
- Identify and Release three lead staff (including, but not limited to, PE, English & Maths teachers) so that they can attend the five days (training and networking sessions.)
- Ensure the shared understanding and support of all school staff for to the project and personnel involved.

- Commit to enabling professional development opportunities for the dissemination of training and planning time to all teachers of English, Maths and PE during term 1 (Sept-Oct 2014)
- Support project evaluators to collate project information (eg surveys, sample visits, timely response to communications etc)
- Through lead teachers, fill in a delivery log, provided by Youth Sport Trust, to record how Powerful Learning Conversations is implemented and practice is shared
- Be a point of contact for parents / carers seeking more information on the project.

**All parties will complete and return all communications and project information in a timely and prompt manner and ensure all project deadlines are met.**

***Declaration of commitment:***

We commit to the Evaluation of the Powerful Learning Conversations project as detailed above

Head teacher [Print Name]: \_\_\_\_\_

Signed: \_\_\_\_\_

Other relevant schools staff:

Lead teacher (English) \_\_\_\_\_

Lead teacher (Mathematics) \_\_\_\_\_

Lead teacher (Physical Education) \_\_\_\_\_

Date: \_\_\_\_\_

Please sign both copies, retaining one and returning the second copy to:

Katie Todd

Youth Sport Trust

Sport Park

3 Oakwood Drive

Loughborough University

LE11 3TU

## Appendix 3: Full results

The tables reports the full results of the estimates, and report the coefficients of the main control variables used in the estimations, with robust standard errors in [.]

### Appendix 3a: Models for English and Maths

	English		Maths
<b>Impact</b>	-1.125	<b>Impact</b>	7.545
	[2.494]		[3.379]*
Female	2.947	Female	0.026
	[0.574]**		[0.680]
Free School Meal	-4.715	Free School Meal	-4.528
	[0.882]**		[1.165]**
SEN	-0.146	SEN	0.674
	[0.472]		[0.903]
EAL	0.501	EAL	-0.394
	[0.399]		[0.490]
KS2 English	1.762	KS2 Math	2.205
	[0.057]**		[0.069]**
Paper version	-	Yes	Yes
<b>Blocking variables</b>	Yes	Yes	Yes
<b>Constant</b>	51.870	<b>Constant</b>	32.348
	[5.420]		[9.589]
<b>Log likelihood</b>	-6622.9249	<b>Log likelihood</b>	-3484.2656
<b>Chi-squared test of RE</b>	56.61	<b>Chi-squared test of RE</b>	33.53
<b>Chi-squared p-value</b>	0.000	<b>Chi-squared p-value</b>	0.000
<b>N</b>	1722	<b>N</b>	936
<b>Random effects</b>		<b>Random effects</b>	
- <b>School level variance</b>	13.748	- <b>School level variance</b>	17.29
	7.675		[15.161]
- <b>Pupil-level variance</b>	127.307	- <b>Pupil-level variance</b>	101.579
	[4.362]		[4.733]
<b>N schools</b>	15	<b>N schools</b>	11
<b>N observations per school</b>		<b>N observations per school</b>	
min per school	38	min per school	23
max per school	185	max per school	179
mean per school	114.8	mean per school	85.1
<b>ICC</b>	0.10	<b>ICC</b>	0.15

## Appendix 3b: Models for English and Maths for Free school meal only

	English FSM		Maths FSM
<b>Impact</b>	-2.422	<b>Impact</b>	15.312
	[2.962]		[7.074]*
Female	2.106	Female	-2.561
	[1.875]		[2.368]
SEN	-0.593	SEN	1.821
	[0.493]		[1.699]
EAL	0.956	EAL	-2.924
	[0.416]*		[1.021]**
KS2 English	1.535	KS2 Math	2.185
	[0.190]**		[0.254]**
Paper version	-	Paper version	Yes
<b>Blocking variables</b>	Yes	<b>Blocking variables</b>	Yes
<b>Constant</b>	57.613	<b>Constant</b>	19.429
	[7.604]		[19.388]
<b>Log likelihood</b>	-728.382	<b>Log likelihood</b>	-293.43952
<b>Chi-squared test of RE</b>	0.66	<b>Chi-squared test of RE</b>	1.05
<b>Chi-squared p-value</b>	0.21	<b>Chi-squared p-value</b>	0.1527
<b>N</b>	190	<b>N</b>	84
<b>Random effects</b>		<b>Random effects</b>	
- School level variance	5.894	- School level variance	48.751
	[9.681]		[77.016]
- Pupil-level variance	140.767	- Pupil-level variance	104.298
	[15.130]		[17.834]
<b>N schools</b>	15	<b>N schools</b>	11
<b>N observations per school</b>		<b>N observations per school</b>	
min per school	2	min per school	1
max per school	22	max per school	21
mean per school	12.7	mean per school	7.6
<b>ICC</b>	0.04	<b>ICC</b>	0.32

## Appendix 3c: Low pre-attainment

	English		Maths
<b>Impact</b>	2.184	<b>Impact</b>	3.109
	[2.801]		[3.708]
Female	0.244	Female	-1.397
	[1.412]		[1.554]
Free School Meal	-0.052	Free School Meal	-5.335
	[1.616]		[2.135]*
SEN	0.167	SEN	1.316
	[0.465]		[0.981]
EAL	-0.384	EAL	-0.323
	[0.414]		[0.628]
KS2 English	-0.563	KS2 Math	1.139
	[0.134]**		[0.286]**
Paper version	-	Yes	Yes
<b>Blocking variables</b>	Yes	Yes	Yes
<b>Constant</b>	92.400	<b>Constant</b>	52.856
	[5.810]		[11.673]
<b>Log likelihood</b>	-873.798	<b>Log likelihood</b>	-447.26989
<b>Chi-squared test of RE</b>	3.65	<b>Chi-squared test of RE</b>	2.03
<b>Chi-squared p-value</b>	0.028	<b>Chi-squared p-value</b>	0.077
<b>N</b>	240	<b>N</b>	130
<b>Random effects</b>		<b>Random effects</b>	
- <b>School level variance</b>	9.423	- <b>School level variance</b>	15.337
	[8.750]		[19.903]
- <b>Pupil-level variance</b>	91.020	- <b>Pupil-level variance</b>	72.318
	[8.647]		[9.518]
<b>N schools</b>	15	<b>N schools</b>	11
<b>N observations per school</b>		<b>N observations per school</b>	
min per school		min per school	3
max per school	28	max per school	22
mean per school	16.0	mean per school	11.8
<b>ICC</b>	0.09	<b>ICC</b>	0.17

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