

**Family SKILLS Evaluation:  
Testing the impact of a family literacy programme to improve attainment  
of reception year EAL pupils  
Protocol for the Education Endowment Foundation, June 2016**

Evaluation Summary	
<b>Age range</b>	Reception year EAL pupils
<b>Number of pupils</b>	TBC but expected to be around 6020
<b>Number of schools</b>	140
<b>Design</b>	Cluster-randomised controlled trial (efficacy)
<b>Primary Outcome</b>	Literacy

### 1.1 Family SKILLS trial

Family SKILLS (Supporting Kids in Literacy, Learning and School) is a project which will develop and roll out a family literacy intervention for parents/carers and children for whom English is an additional language (EAL). The programme comprises parents and their children receiving support through 30 hours of family literacy sessions delivered in school with parents expected to conduct follow up activities at home. The sessions are typically three hours long, delivered over one term, with half of sessions involving parents only, and half parents and children learning together. The sessions will include an introduction to education in England and the culture of schools, reading strategies and phonics, home literacy practices, oral traditions (including storytelling, songs and rhymes), learning through play, and a focus on how to make the most of bilingualism.

The Family SKILLS family literacy programme aims to support families in developing their children’s English and literacy skills by equipping parents with greater knowledge of how their children are taught to read, developing parents’ English language skills and acquainting parents with strategies and activities to support their children’s literacy development at home. These new skills and knowledge should allow parents to grow in confidence and engage more closely in their children’s learning. Ultimately, this should lead to improvements in literacy among children.

The programme is funded by the Education Endowment Foundation, the Bell Foundation and Unbound Philanthropy and is being led by ‘Learning Unlimited’, working in partnership with and ‘Campaign for Learning’ and UCL Institute for Education. The programme will be implemented in collaboration with delivery partner teams across the country, fourteen of which will be selected for the evaluation.

The family literacy model on which Family SKILLS is based was previously funded by the Skills Funding Agency and is delivered by teams throughout the country to around 50,000 families a year. A recent matched comparison group study undertaken by the Institute of Education found that 30-hour family literacy programmes aimed at year 1 and year 2 pupils had a positive effect on children’s reading scores: children in the intervention group made greater gains in their reading than children in the control group (equal to around two months’ additional progress). However, little is known about the effects of family literacy programmes on outcomes for reception year pupils, and to our knowledge, there are no evaluations of family literacy programmes aimed at families for whom English is an additional language.

To help fill this evidence gap, EEF are funding this trial of the Family SKILLS intervention with Reception year pupils and their parents/caregivers in 140 primary schools across England.

The impact evaluation will run as a cluster randomised controlled trial, accompanied by a process evaluation. Eligible children will be those Reception year pupils identified as having English as an additional language. All eligible families in the intervention schools will be invited to take part in the intervention which will be delivered from January to April 2017. All parents/caregivers who wish to take up the intervention will be able to do so.

As the independent evaluator, NatCen will be responsible for the randomisation of pupils, organising pupil assessments (to be administered by Teaching Assistants in each school), providing the developers and delivery partners with information about the requirements of the evaluation, engaging schools in the evaluation, conducting surveys, interviews and school visits to inform the process evaluation, and carrying out statistical and other analyses of the trial and process evaluation data.

## 1.2 Evaluation design

The impact evaluation will answer four key research questions:

- What is the impact of the Family SKILLS programme over the course of one academic year on the literacy skills of Reception year pupils with EAL?
- What are the impacts of the Family SKILLS programme on key intermediate outcomes such as home literacy environment?
- To what extent is Pupil Premium Status, gender and baseline English language fluency/literacy attainment associated with differences in the effectiveness of the Family SKILLS programme?
- Are parent and pupil participation rates in the Family SKILLS programme associated with differences in intermediate and final outcomes among programme participants?

The evaluation will run as a cluster randomised controlled trial. Schools have been chosen as the unit of treatment and randomisation because the school is the main unit of programme delivery. Our aim is to test the effectiveness of the intervention in real life circumstances. In these circumstances, schools' choices and cultural and environmental factors will have a great impact on the extent to which an intervention can achieve its optimal outcome. Additionally, school-level randomisation avoids potential spillover effects which can bias effect estimates.

140 primary schools from around England are expected to participate in the trial. These schools will be randomly assigned (by NatCen) into one of two intervention conditions:

- Schools in **Group 1** (intervention schools) will receive the Family SKILLS programme
- Schools in **Group 2** (control schools) will continue with 'business as usual'

Business as usual will likely involve other interventions to help Reception year pupils with EAL. The evaluation will not stipulate that control schools cannot provide certain support to these pupils. The business as usual control allows the impact evaluation to specify the effect of Family SKILLS on the literacy learning of pupils EAL relative to what schools are currently doing.

Eligible children will be all Reception year pupils identified by schools as having English as an additional language (EAL). We are aware that there might be a diversity of definitions used by schools to identify EAL pupils. However, since the programme is aimed at EAL pupils as defined by schools, we believe that

this is a suitable way to identify the target population.<sup>1,2</sup> In the intervention schools, all eligible families will be invited to take part in the intervention, and all families who wish to take up the intervention will be able to do so. We would expect take-up of the trial to be less than 100%, so intention to treat analysis is appropriate though it should be noted that estimates of the average effect of intention to treat are likely to be different to the average effect of treatment on those treated. The key point, however, is that data which accurately measures take-up of the programme in the intervention schools will be needed. The NatCen team will be responsible for ensuring that delivery partners keep accurate records of attendance for this purpose (this should include whether attendees are the mother, father, both parents, or a main care giver such as a grandparent and for each relevant session whether the pupil attended).

The use of a 'business as usual' control means that pupils in control schools are not worse off than those in intervention schools as they will not be denied access to existing support offered by schools as a result of the trial (other than access to the Family SKILLS programme). There are no ethical reasons why control schools should be offered the intervention as part of a wait list approach until we know that the programme is effective and cost-effective in achieving the intended outcomes. Instead, control schools will be offered a financial incentive for taking part in the evaluation. This incentive will reduce and help manage the risk of 'resentful demoralisation' and 'compensatory rivalry' of schools.

Control schools will not be offered a funded waiting list, but both treatment and control schools will be able to receive the intervention in subsequent years if they proactively seek this provision. As a result, there is a risk that children in the control cohort could receive some benefits of the intervention if their parents take up the intervention for younger siblings and that the treatment group pupils will be exposed again to the programme through a sibling. This can be problematic if the levels of exposure across the treatment and comparison groups are unequal, resulting in contamination of the long-term impact estimate by these indirect effects. We consider the overall risk that this would significantly affect the measurement of the long-term effects of the intervention (measured after two years, at the end of Key Stage 2, outside the scope of this current evaluation protocol) to be low because;

- Not all control and treatment schools will choose to take up the programme in subsequent years
- The number of children in the treatment and control cohort with siblings eligible for the intervention in the following two years is expected to be low
- Children in the control cohort would not be attending the intervention classes, which are aimed at Reception year pupils

Overall, the benefits of offering the programme to subsequent reception classes in control schools (in terms of school recruitment and retention) have been deemed to outweigh the risks.

### 1.2.1 Randomisation

While randomisation at individual level offers greater statistical power for a given sample size and therefore reduces the cost of the evaluation compared to a school-level randomised trial, it also poses risks related to the violation of the assumption of non-interference between groups. In the case of this trial, it is likely that treatment and control group parents will be members of the same social networks and that those participating in the programme will discuss their treatment with the control group members in

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<sup>1</sup> Note, the Department for Education (DfE) have recently introduced a new requirement for schools to record a Proficiency in English rating for all pupils' in reception year and above for whom Language has been recorded as anything other than 'English' or 'Believed to be English' in that census. Following an initial collection during the autumn 2016 school census, the collection of proficiency in English will move to an annual collection from the spring 2017 census onwards. The DfE anticipates that the initial collection of English language proficiency for the September 2016 will be challenging in terms of capacity to assess all pupils, and expects some pupils to be classified as 'Not yet assessed'. A full assessment of all relevant pupils using the 5-point Proficiency in English scale is expected by the time of the 2017 spring census. As a result, we opted to use a binary indicator for EAL status as defined by schools to define eligibility for the trial and the Family SKILLS programme.

<sup>2</sup> We anticipate that the way schools define EAL pupils will vary at random between treatment and control schools and therefore should not introduce bias to the effect estimate.

their social network. This can potentially influence their behaviour and thus outcomes for their children. There is also potential for classroom-level spill-over effects between treatment and control group children. Improvements in the literacy of treatment group children could change the classroom learning dynamics and affect teacher behaviour, providing more opportunity to support control group students. Such effects may result in the impact of the programme appearing less than it actually is. To avoid these risks, randomisation will take place at a school level.

Schools will be assigned at random to treatment and control conditions at the beginning of November 2016 once baseline data collection is complete. The intervention and control groups will be equal in size, with 70 schools in each with schools randomly allocated to treatment or control condition using stratified randomization, with delivery partner as the main stratification variable..

The randomisation process will be as follows: ahead of random assignment, participating schools will be stratified by a variable indicating the provider that recruited the school to the study. This is to ensure each provider has an equal number of treatment and control schools among those it has recruited.

Each school will then be allocated a random number drawn from a uniform distribution within an Excel spread sheet. Within each stratum, schools will be arranged in descending order on the basis of their allotted random number. Two groups of schools will be formed within each stratum through assigning the first school in the arrangement to group A and the second to group B and so on down the list until each school is assigned to one of the two groups across all strata. A coin toss will determine which of the two groups, A or B, are to be the treatment or intervention group.

This approach will ensure balance on delivery partner characteristics across the trial arms at randomisation<sup>3</sup>.

The randomisation will be carried out by an independent analyst within the evaluation team who will be blinded with respect to the identity of the schools at treatment allocation and remain blinded over the duration of the trial to prevent risk of bias during the statistical analysis.

### 1.2.2 Participants and recruitment

With support from NatCen and the Family SKILLS team, local delivery partners will identify and recruit schools prior to baseline testing and randomisation. Schools will be recruited on the basis that they have higher than average proportions of pupils with EAL<sup>4</sup> and a minimum of two form entry, in order to maximise the numbers of families opting into the trial. Schools will be identified and recruited from May 2016. In the summer term 2016, participating schools will be expected to complete a Memorandum of Understanding (MoU) which will also include school consent to be involved in the study (with an indication of willingness and capacity to facilitate and conduct testing for the trial).

In September 2016, eligible parents of EAL students will be informed about the possibility to participate in the trial, and asked to consent to their child being tested as part of the trial, and to their child's test data being linked to NPD data (via an opt-out consent process). Schools participating in the evaluation will identify to NatCen all pupils with EAL who have not been opted out of the research, as well as an indication of the proportion of families who did opt out.

Following this, baseline data from prospective treatment and control group pupils will be collected (detailed in section 1.5), prior to randomisation of schools into treatment and control conditions (detailed in Section 1.2.1 above).

## 1.3 Process evaluation

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<sup>3</sup> We have reviewed the possibility of additional stratification using area variables, but rejected this option due to the risk of over-stratification given the available sample sizes.

<sup>4</sup> With the average proportion of EAL pupils defined as 18% based on 2013 National Statistics (accessed at: <http://www.naldic.org.uk/research-and-information/eal-statistics/eal-pupils/>)

We will conduct a process evaluation alongside the RCT to evaluate implementation and fidelity of the Family SKILLS programme, as well as necessary conditions and barriers to success. The main research questions that will be answered are:

- How is the Family SKILLS family literacy programme delivered?
- What are the key success factors and barriers to successful implementation (including take up)?
- What are the direct and indirect costs of the programme?

The process evaluation will include a number of elements, detailed below.

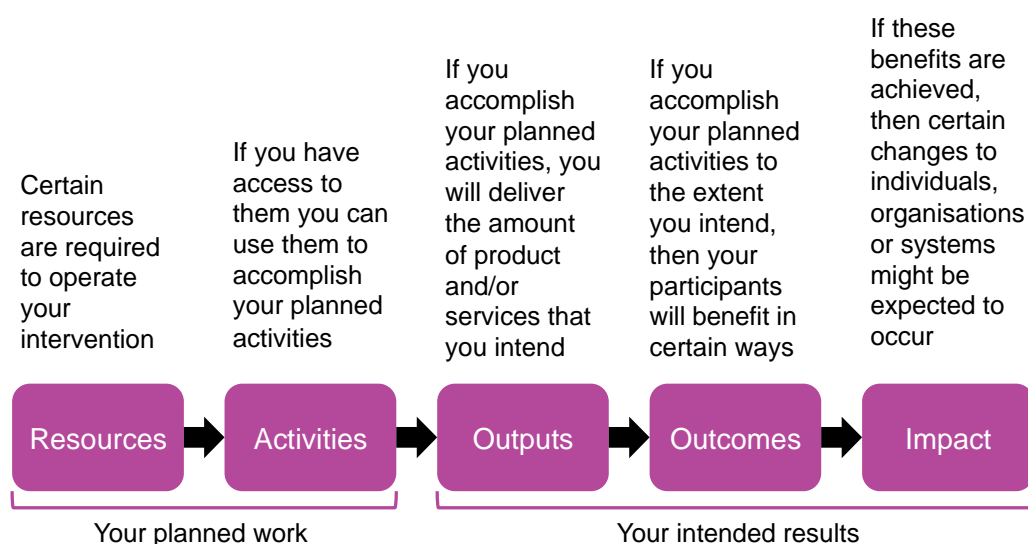
### 1.3.1 Theory of change

As evaluators, we will work with the Family SKILLS team to understand their delivery model and build up an ‘impact map’, or a theory of change.

A theory of change approach holds that programme interventions, in almost all cases, are based on an underlying logic or theory and a set of assumptions about how an intervention works. At its core, this approach provides an explanation of how a group of stakeholders expects to reach a commonly understood goal.

A theory of change builds on a logic model. This approach promotes a systematic and visual way to represent a shared understanding of the component parts of a programme. The development process considers the programme’s planned work and its intended outcomes. A logic model separates the key components of a programme, which are usually structured in a linear model as shown in the diagram below (see Figure 1). Mapping a programme in this way helps to visualise and understand how human and financial investments can contribute to achieving intended programme goals and can lead to programme improvements. A theory of change complements the logic model with explicitly stated assumptions at each stage of the model.

Figure 1. How to read a logic model (adapted from W. K. Kellogg Foundation)



A programme theory of change is useful in the design and planning stages of a programme and in implementing programme components and activities. It is used to identify data collection points for monitoring and evaluation purposes and to devise an evaluation plan. Finally, evaluations underpinned by a theory of change help to understand how well a programme is functioning, whether it is achieving the desired outcomes and where the programme has encountered delivery challenges.

We will develop a theory of change in collaboration with the Family SKILLS team and other key stakeholders. We will consult the academic literature on family literacy and the home literacy environment

and draw on programme and delivery plans and other programme documents and insights gained through ongoing consultations with the delivery and coordinating partners. We will set out the theory of change along a hypothesised causal chain, identifying key inputs and activities, outputs (goods and services produced through the intervention) and intended outcomes and impacts using a logic model approach. We will also identify key assumptions underlying the causal chain and assumed mechanisms of change, the role of contextual factors and the time frames over which effects are expected to occur.

Developing a theory of change for this programme yields a number of benefits. First through clearly articulating how the programme is to be implemented and its outputs, it will enable us to refine the design of the process analysis. It will also enable us to identify any departures from the intended implementation of the programme and therefore aid us in assessing fidelity to treatment – a key component of the process analysis. Third, it will enable us to identify the various costs of the implementation and delivery of the intervention. Finally, it will help us refine and confirm both primary and secondary outcomes, and how these relate to the underlying causal mechanisms that act between the intervention itself and the final attainment outcomes.

### 1.3.2 Session visits and delivery partner interviews

We will visit 10 Family SKILLS family literacy sessions over the intervention period. The visits will cover a mix of sessions (with and without children, at different points of the programme curriculum and across locations) and use a structured data collection form to capture information. The aim of the visits will be to collect data on how the programme has been delivered in practice, including quality of delivery, implementation fidelity and degree of programme adaptation.

### 1.3.3 Delivery Partner interviews

We will conduct 10 in-depth interviews with local delivery partners delivering the Family SKILLS family literacy programme. The interviews will cover delivery partners' experiences with delivering the intervention, their perceptions of parental and pupil motivation and engagement during the sessions, any challenges that they have faced in delivering the programme, and how the programme could be improved. We will aim to conduct six of these interviews with delivery partners following session visits, and four over the phone at the end of the intervention with delivery partners whose sessions were not visited, so that all delivery partners are included in the evaluation.

### 1.3.4 Parent surveys

Pre- and post- intervention surveys of parents in both control and treatment schools will be used to explore parent characteristics, intermediate changes in the home literacy environment (considered at the outset to be a key causal mechanism at the parent level) and attitudes to children's literacy learning that might contribute to the overall impact of the intervention. These surveys will be paper based, written in simple English and using infographics to aid understanding. They will also be made available in 15 additional languages to facilitate participation among as many parents as possible. The surveys will be distributed by schools, and returned to NatCen via freepost. Drawing on existing home literacy environment measures and informed by a review of relevant literature, the questionnaires will ask about learning-related activities that parents engage in with their children, as well as experiences of the programme among parents who attended Family SKILLS sessions and reasons for non-take up among non-participating parents in treatment schools. They will also collect proxies of parent's English proficiency, to inform the impact evaluation (see section 1.6.2).

### 1.3.5 Parent interviews

We also aim to conduct 20 in-depth phone interviews with parents participating in the programme in the spring and summer terms 2017, with some interviews taking place during the programme delivery, and some after programme completion<sup>5</sup>. To the extent possible, we will aim to select parents across a range

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<sup>5</sup> Should the delivery partner indicate that the English language proficiency of participating parents limit our ability to collect reliable data this way, we will consider alternative solutions such as face-to-face interviews with support from bilingual assistants. Note that this option is not currently included in the proposed budget.

of pupil and parent characteristics such as pupil baseline attainment, parental work status, family structure, parental education level, ethnicity and/or geographic location. The interviews will cover topics such as how parents have found the programme, its benefits and challenges, whether they feel the programme has led to changes in their behaviour and impacted their children, and how the programme could be improved. Parents invited to take part in the depth interview will be offered an incentive in the form of a £20 voucher for the completion of the interview.

### 1.3.6 Class Teacher interviews

We will conduct 10 in-depth phone interviews with class teachers in treatment schools during January - April 2017. Teachers will be asked to comment on their involvement with the programme, their perceptions of parental and pupil motivation and engagement, and perceived benefits / disadvantages on whole classroom performance.

### 1.3.7 School survey

All participating schools will be asked to fill out an online survey at baseline (pre-randomisation) in October 2016 and post-intervention in June/July 2017. The baseline survey will collect information about Reception year pupils with EAL who have not been opted out of the research, including date of birth and postcode (to enable linkage with the NPD), Pupil Premium status and fluency level where possible<sup>6</sup>. It will also collect information about the proportion of SEN pupils across Reception year, and about existing interventions/initiatives that schools plan to offer in the 2016/2017 academic year to support EAL pupils and their families. The follow-up questionnaire will also be conducted in both treatment and control schools, and will ask schools to comment on any services and support provided to EAL pupils and their families over the past academic year, and to provide up-to-date information about the proportion of SEN pupils in Reception year. In the treatment schools the survey will also ask about schools' experience liaising with the delivery partner and supporting the programme and any costs incurred through participation in the programme, and capture the extent to which schools make changes to their systems and processes as a result of this intervention.

### 1.3.8 Costs of delivering the Family SKILLS programme

In relation to the question on direct and indirect costs, the research will seek to evaluate the cost per pupil of the intervention. The approach set out in EEF's published guidance will be followed. Calculating the average cost of delivery enables comparisons to be made with other interventions based on both the average effectiveness and costs incurred. Cost data will be extracted from MI and administrative documents obtained from the developers and complemented and cross-checked by information from cost pro-formas filled out by delivery partners and information collected through the school questionnaire. The total cost per pupil will be calculated based on information provided by the delivery team and schools about attendance and direct and indirect costs incurred.

## 1.4 Data collection process

### 1.4.1 Parental consent

#### **Parental consent to pupil testing and data linkage**

To ensure that parents' and pupils' rights to confidentiality of personal information is protected, prior to the intervention starting, schools will send out opt-out letters to all parents of EAL pupils in Reception year. The letter will explain what participation in the trial involves (i.e. Who NatCen are, the trial, collecting background information about children, the testing and the fact that registers of attendance at Family SKILLS will be kept and that sessions might be observed) and will also explain the concept of data linkage. The letter will provide parents with the opportunity to opt out of pupil testing, including background information gathering. It will also allow parents to, separately, opt out of their child's data

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<sup>6</sup> From 2016/17, the government are asking schools to record 'Proficiency in English' levels for pupils with EAL as part of the school census. If the school has assessed pupils' fluency, they will be asked to record their stage.

being linked to the NPD (see below). If parents do not wish for their child to be tested, they will need to send an opt-out consent form to the school or opt out by informing the school via other means. If parents do not take these steps, they will consent to their child taking part in all components of the evaluation and testing. To ensure informed consent is obtained, the consent form will be made available in English and 15 additional languages and complemented with an infographic visually explaining key concepts such as pupil testing and data linkage. Additionally, school community outreach officers will be available to support parents with any queries. The opt-out letter will clearly state that parents can choose to opt out at any time during the trial. Parents who do not choose to attend the sessions will by nature be opting out of the intervention, observations and registers of attendance, but will still be invited to complete the surveys. Their children will still be tested unless they have explicitly opted out of the research.

### **Parental consent to parent surveys**

Both surveys will include a cover sheet explaining the purpose of the survey, how it fits with the full research of the programme, and how the information will be used. The cover letter will clearly explain that filling out the survey is voluntary and that no individual names or identifying characteristics will be included in any reports based on the research. The cover letter will explain that parents can participate in the survey anonymously and/or opt out of having their responses linked to the data collected about their child by not providing their child's name in the survey. Parents will return the surveys via a pre-paid return envelope addressed to NatCen supplied with the questionnaire. The cover sheet, along with the remainder of the survey will be written in plain English and translated into 15 additional languages most commonly spoken by parents and children in participating schools, with liaison officers providing additional support to parents with limited English language skills. To incentivise participation in both rounds of the survey, parents will be offered an incentive in the form of a £10 voucher for completing both the pre- and post-intervention questionnaires.

#### **1.4.2 Participation in the Family SKILLS programme**

Families eligible for the Family SKILLS programme will be all families of Reception year pupils with EAL (as identified by the school) in all treatment schools. All eligible families who wish to take up the intervention will be able to do so, and participation in the programme is not dependent on consenting for pupil testing or participation in any other aspect of the evaluation.

#### **1.4.3 Pupil data and eligibility for testing**

Pre- and post-intervention assessments will be carried out in October 2016 and June/July 2017 using the CEM BASE progress test, provided by the University of Durham's Centre for Evaluation and Monitoring (CEM).

NatCen will work with schools from the start of the evaluation to fully brief them on conducting the pupil assessments, to ensure that they understand the importance of the assessments and that these are completed by both control and treatment schools. All interested schools will receive clear information about the programme, the purpose of the evaluation and the activities that will be expected of schools participating in the research including the requirements around pupil testing, delivered in the form of recruitment documents and a detailed Memorandum of Understanding, co-designed by the developers and NatCen. NatCen will also provide opportunities for delivery partners and schools to seek further clarification about any aspect of the evaluation over the phone and email.

All schools that have agreed to participate in the evaluation and signed the Memorandum of Understanding will receive support in conducting the testing through provision of CEM guidance and instruction materials a phone call with each school to confirm that the assessment set-up has been successful and to agree an assessment timetable, and ongoing telephone and email support during the testing period (provided as standard from CEM for the test administration and by NatCen for other queries).

Any parents of pupils who join the trial schools in October, after the enumeration and randomisation processes will already be underway will not be eligible for the study (though they will not be excluded



from participating in the Family SKILLS programme). We don't anticipate this to be a problem given that not all the parents within the school will be taking part in the trial. It would, however, be worth exploring the typical level of pupil turnover for the schools taking part. The National Pupil Database records at the school and individual level will provide socio-demographic information about the pupils in the trial for use as control variables in the analysis (outlined in more detail in section 1.6 below). EEF may access National Pupil Database records at a later date to assess long term impacts of the Family SKILLS programme. The unique identifying information gathered by NatCen (full name, home postcode, gender and date of birth) will facilitate this process, and NatCen will obtain parental consent for data linkage at the same time as gathering consent for pupil testing (see above). NatCen will be responsible for applying for the NPD records in Summer 2017.

### **Effective collaboration**

At NatCen, we have built up valuable learning from the numerous projects we have conducted for EEF. One of the most important ways in which we can ensure high quality and cost-effectiveness is through the clear allocation of roles and responsibilities between EEF, the academic team, ourselves as evaluators, research participants and other stakeholders.

## 1.5 Outcome measures

### 1.5.1 Pupil measures

To assess the impact of the Family SKILLS intervention, Reception year pupils with EAL from all intervention and control schools will be assessed on their literacy proficiency at the beginning and at the end of reception year. The baseline test will take place in the October 2016, prior to randomisation, and the post-intervention testing will take place in June/July 2017, and will be conducted within a two-week period for each round. Both rounds of testing will use the CEM BASE Progress test. This test is an online literacy and numeracy assessment, which will be administered by Teaching Assistants or another member of school staff within the schools.

There are several advantages to using the CEM BASE progress assessment. The assessment explicitly assesses baseline literacy and captures comprehensively the key dimensions of literacy and English language skills that the programme aims to affect in an objective way, minimising measurement error. It is also adaptive, minimising the risk of floor effects when assessing literacy among Reception year pupils with EAL. Using CEM at both baseline and post-intervention phases minimises the burden on school staff involved in administering the tests compared to alternative available reception-year assessment options as it involves the same (adaptive) assessment at baseline and end-of reception. Staff implementing the tests therefore only need to become familiar with one test. It reduces the risk of failure for the end of year outcome assessments as schools will be set up and experienced in implementing the test from the baseline assessment round. It increases the likely predictive power of the baseline attainment variable in the analysis, increasing precision of the estimates and therefore the power of the trial to detect an effect. It will also enable the EEF to use additional follow up assessments at Key stage 1 and 2 to measure longer-term effects of the Family SKILLS programme if desirable. Finally, as a computer based test, the CEM assessment has the advantage of not requiring data entry and marking.

The lack of blinding of data collectors remains a limitation of the trial. However, we believe that the risk of bias is limited due to the programme being delivered by a third party with minimal support from teachers, teaching assistants and other members of staff likely to conduct pupil testing who should therefore not have a vested interest in the outcome of the trial. Additionally, due to the objective nature of the online pupil test, there is limited scope for teaching assistants to affect the outcomes of the assessment. To mitigate potential bias, schools will be advised to select a teaching assistant or other member of staff that is not directly involved in the Family SKILLS programme to conduct pupil testing.

### 1.5.2 Safeguarding Pupil Anonymity

Pupil testing requires schools to enter pupil data into the CEM testing software. The data required includes pupil names, full date of birth and UPN. Test data is also stored securely by CEM and may be used for research purposes by CEM or third parties.

Pupil-level tests results will be made available to schools to use as they see fit, for instance for monitoring or instructional purposes. The pupil-level test results will be collated by CEM across all schools participating in the trial and shared directly with NatCen to avoid burdening schools with the requirement to consolidate and share the data directly. CEM will provide NatCen with updates about how many pupils have been tested twice a week during the testing period to enable NatCen to monitor the progress of the testing and follow up with schools as necessary.

NatCen will anonymise test data once they have been linked to other information such as attendance data and parental characteristics. The evaluation will report on anonymised, aggregate test data, so that individual schools, pupils and parents will not be identifiable.

## 1.6 Impact analysis

### 1.6.1 Primary outcome

The primary outcome will be the standardised measure of literacy attainment of EAL pupils produced by the CEM test. We will obtain effect size estimates on the primary outcome using a three-level random effects model that accounts for the clustering of pupils within classes and classes within schools and include a delivery partner fixed effect in the model. We will conduct an intention to treat analysis. The main model will be estimated on the sample of Reception year pupils with EAL as identified by schools. The model will contain baseline attainment of participating EAL pupils as a level one covariate and the stratifying variable indicating the local delivery partner at level three in our model.

Subgroup impacts among EAL pupils will be estimated for pupil premium status, gender, and baseline English language Fluency rating if possible. From September 2016, schools will be required to record a Proficiency in English rating (using the 5-point Proficiency in English scale) in the School Census for all pupils' in reception year and above for whom primary language is anything other than 'English' or 'Believed to be English'. Schools with limited capacity to fully complete the assessment in September 2016 can classify pupils as 'Not yet assessed' in the first instance, with all schools expected to complete the assessment for all pupils by the Spring 2017 census. We will collect the English Language Fluency rating for each pupil in the school baseline questionnaire. If a sufficient number of pupils have been assessed at baseline, and the variation between treatment and comparison schools appears at random, we will estimate sub-group impacts by the baseline English Language Fluency rating. If the number of assessed pupils at baseline is deemed insufficient, we will estimate sub-group impact by baseline literacy attainment on the CEM BASE assessment.

Each sub-group impact will be estimated using a separate interaction test between

- the treatment indicator and a variable capturing pupil premium status, and
- the treatment indicator and a variable capturing gender
- Baseline English language fluency or baseline literacy attainment

It is worth highlighting that subgroup tests are likely to be underpowered given the proposed sample sizes so interpretation of the results will be limited. Where these tests are found to reach standard levels of significance, separate regression models will be estimated.

In addition to the primary analysis, we will also explore the variation in outcomes across the treated sample by parent and pupil participation rates in the Family SKILLS programme using multiple regression. We will construct measures of dosage/update for those attending at least one session from the registers co-developed by NatCen and the developers and collected by session instructors. We will consult with the developers on suitable categories of "dosage" for the analysis. The findings of this analysis will not be able to identify a causal effect between the number of sessions attended and

outcomes due to the non-experimental nature of the comparison. However, the findings can provide useful indicative evidence of the relationship between participation and outcomes that may warrant further research using more robust designs.

### 1.6.2 Intermediary outcomes

Pre and post data will also be collected from parents in both treatment and control group EAL schools, using the parents surveys detailed above. The Family SKILLS programme is expected to result in improved outcomes for pupils through intermediary changes to the home literacy environment. The home literacy environment can be interpreted as a causal mechanism that transmits the causal force of Family SKILLS and acts on the primary attainment outcome. The surveys will therefore use aspects existing home literacy environment measures, adapted to reflect the content of the programme and the context of EAL families and the programme theory of change to measure changes in the home literacy environment or parental behaviour. The surveys will also include measures of key parent characteristics including proxy measures of parental English language ability. Such data will enable experimental estimates of the effect of family literacy training on parent's skills and practice and quantitative exploration of certain elements of the underlying theory of change depending on the final sample sizes obtained.

Secondary analysis will proceed through estimating a multi-level regression model of a similar form that used for the primary analysis for the selected intermediate outcomes. E.g., a post-test measure of the home literacy environment will be the dependent variable in the model. Adjusted analysis only will be reported through the inclusion of pre-test measure of the home literacy environment. Subgroup effects by sex, pupil premium and categories of baseline literacy score on the CEM BASE assessment will also be estimated, should sample sizes prove sufficient, in a similar way to that described for the primary analysis.

The proposed impact analysis will be outlined in a pre-analysis plan that will be shared with the EEF in summer 2016 and reviewed at least 3 months before the initiation of the analysis in summer 2017.

### 1.6.3 Sample size and power calculations

The sample size calculations are focused on the main hypothesis, comparing the literacy of EAL pupils in the Family SKILLS treatment schools to EAL pupils in the control schools. The sample sizes and the associated minimum detectable effect sizes (MDES), expressed in standard deviations, are displayed in Table 1. The calculations assume 80% statistical power (or a type II statistical error rate of 20%), a statistical significance level of 95% for a one-sided test (or type I statistical error rate of 5%), an intra-class correlation coefficient (ICC) at school level of 0.11, and an ICC at class level of 0.05. The proportion of variance explained can be high for educational interventions if pre-test scores are used in adjusted analysis<sup>7</sup>. The values used for our power calculations have been supplied by a co-author of a recent study of the impact of 27 school-based family literacy programmes on young children's progress in reading and writing by the UCL Institute of Education<sup>8</sup>.

Since all EAL pupils and their parents are eligible to participate in the intervention and everyone interested in taking up the programme will be offered a place, the intervention can be seen as being delivered to the entire population of eligible treatable pupils. As such, the sample size calculations use a cluster-randomisation approach to calculating MDES and we assume full compliance at the school level, in which 100% of the population in each cluster is part of the intervention. This we assume is also true for classes. At the pupil or family level, however, we cannot assume that all pupils assigned to the intervention go on to take-it-up. This is because we will not have sought parents agreement for them and their children to participate in the intervention prior to randomisation. Thus the intention to treat sample

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<sup>7</sup> Bloom, Howard S., Lashawn Richburg-Hayes, and Alison Rebeck Black. 2007. 'Using Covariates to Improve Precision for Studies That Randomize Schools to Evaluate Educational Interventions'. *Educational Evaluation and Policy Analysis* 29 (1): 30–59.

<sup>8</sup> Swain, J. Cara, O., Vorhaus, J., Litster, J. (2015) 'The impact of family literacy programmes on children's literacy skills and the home literacy environment'. Research report. National Research and Development Centre for adult literacy and numeracy. London. Available at: <http://www.nrdc.org.uk/wp-content/uploads/2015/11/Nuffield-Family-Literacy-Report.pdf>.

will include a proportion of pupils and parents who do not take up family SKILLS even though they are eligible for it. This will dilute the treatment effect and lower sample power to some extent, but to a much lesser degree than school or class non-compliance because the size of clusters at the individual level have a much more limited effects on trial power in a three-level cluster-randomised design.

Provisional analysis has been undertaken to attempt to assess the likely implications of different take rates among parents and pupils. Generally the loss in sample power does not decline appreciably until take-up at the pupil level drops below an average of 50% across schools<sup>9</sup>.

In order to provide sufficient power for the analysis to detect a minimum detectable effect of 0.2 standard deviations, 140 schools will be recruited to participate in the evaluation, with half randomly selected to receive the Family SKILLS programme. The developers are confident that they can establish partnerships with 14 delivery partners and that each will be able to recruit 10 schools to participate in the evaluation. Given that uptake of the Family SKILLS intervention is voluntary, we expect the number of classes and EAL pupils to differ across schools. Based on a sample dataset of schools likely to participate in the trial, we expect schools with 2 to 3-form entry and 21 EAL pupils per class on average at point of analysis.

**Table 1: Minimum detectable effect sizes – whole sample estimates – Intention to treat**

Delivery partners	12	14	<b>25</b>
Schools per delivery partner	10	10	10
Total number of schools	120	140	250
Total number of reception year EAL pupils	5160	6020	10750
<b>MDE</b>	<b>0.22</b>	<b>0.20</b>	<b>0.15</b>

Notes: Schools assigned 50:50 to treatment control; alpha level 0.05; two-tailed test, power 0.80. Rho at level 3 (between-school variance) assumed to be 0.11, at level two between class variance (ICC<sub>2</sub>) assumed to be 0.05. Proportion of outcome and variances explained by covariates assumed to be .54 at levels one (pupil level), 0 at level 2 (class level), and 0.02 at level 3 (school level). At level of school, we assumed full compliance of schools with treatment assignment. Alternative specifications with adjustment of cluster sizes to account for non-compliance at individual level indicate individual-level non-compliance to be negligible for MDE estimates. Calculations are performed using PowerUp: [http://repository.upenn.edu/cgi/viewcontent.cgi?article=1265&context=gse\\_pubs](http://repository.upenn.edu/cgi/viewcontent.cgi?article=1265&context=gse_pubs)

\*The MDE estimates are calculated using harmonic means (based on a sample dataset of schools that delivery partners engage with): schools per delivery partner = 7.72, classes per school = 2.6, EAL pupils per class = 11.33. In order to avoid underestimating the total number of schools required (due to the conservative nature of the harmonic mean), the numbers of schools, reception year pupils and EAL pupils above are calculated using arithmetic means from the sample dataset: schools per delivery partner = 10, reception year pupils per school = 68, EAL pupils per school = 43.

## 1.7 Ethics and Registration

NatCen has a robust ethics governance procedure. Research projects are scrutinised by the NatCen Research Ethics Committee (REC). The committee consists primarily of senior NatCen staff. If necessary external research experts or professional experts ('lay people') may also be invited to review individual studies. Depending on the nature of the research and the perceived level of risk, projects undergo either an expedited review (scrutiny by the REC Chair) or a full review by the sitting REC. For this evaluation we believe that a full review is appropriate.

The REC procedure is designed to provide ethical advice and guidance, and to ensure that all research undertaken by NatCen is ethically sound and meets the ethical standards of government and other

<sup>9</sup> For example, with a take up rate at the pupil level of 75% as opposed to 100%, we estimate that the MDES would rise to .21 from .20, for a take up rate of 50% it would rise to .23, but for a take up rate of 25% the MDES would be as high as .32. By contrast, the effects on sample power of schools failing to take-up the intervention where they are assigned to received it would be more serious.

fundere. The process provides reassurance to potential research participants and, where relevant, to gatekeepers through whom they are approached.

The REC has conducted a full review of the design of this project, provided guidance that has been incorporated into this final protocol, and will continue to be involved on an ongoing basis, reviewing any changes to the project design.

The trial will be registered at [www.controlled-trials.com](http://www.controlled-trials.com) and the trial registration shared with the Education Endowment Foundation and reported in the final report.

## 1.8 Project team

The project is managed in the Children, Families and Work Group at NatCen. The trial manager will be Martina Vojtkova (Research Director), assisted by Lydia Marshall (Senior Researcher) who is experienced working on school based, and other EEF projects. Lydia and Martina will be supported by Sarah Frankenburg (Researcher) and Michael Lumpkin (Research Administrator). Stephen Morris, (NatCen Research Associate) will lead on the evaluation design and provide quality assurance on the randomisation process and impact analysis. The researchers will work closely with other departments and specialists at NatCen including the evaluation team, statisticians and the Operations Department. CVs and experience of the project team are available on request.

## 1.9 Timeline

Date	Activity
Feb 2016	First set up meeting, evaluation design and cost revisions
Mar – Apr 2016	Second set up meeting, evaluation design and cost revisions, finalise primary outcome measures
	Design MOU and recruitment documents
	Ethics approval
May – Jul 2016	School Recruitment, signing of MOUs,
	Production of protocol, development of data collection tools and procedures (school information form, parent survey)
	Purchase pupil assessments, school scheduling appointment with NatCen and assessment set up checks
Aug 2016	Finalise data collection tools.
	Intervention Delivery and Evaluation Analysis meeting with delivery partners, finalise theory of change and analysis plan, design cost collection tools and processes
Sep 2016	Obtain parental consent, Baseline school information form and pupil enumeration
Oct 2016	Baseline pupil testing of an est. 6020 EAL pupils in 140 schools
	Baseline pen-and-paper survey of an est. 6020 eligible parents of EAL pupils in 140 schools (treatment and control schools)
Nov 2016	Randomise schools (70 Family SKILLS treatment schools, 70 control schools)
Nov – Dec 2016	Parent recruitment, development of process evaluation data collection tools
Jan – Mar 2017	Family SKILLS programme delivery
	Process evaluation – MI data collection, session visits in 10 schools, telephone interviews with 10 instructors, in-depth telephone interviews with 10 parents
Apr – May 2017	Process evaluation – 10 teacher interviews, 10 parent interviews, cost data collection
	Post-intervention School Information Form
May – Jun 2017	Post-intervention parent survey of an est. 6020 parents of EAL pupils in 140 schools (treatment and control group)
Jun – Jul 2017	Post-tests for an est. 6020 EAL pupils in 140 treatment and control schools
Aug – Oct 2017	Data management, Analysis and Reporting
Jan 2018	Comments and final report



## 1.10 Main risks to evaluation and mitigating actions: Analytical, procedural and managerial

Risk	Likelihood	Impact	Mitigation
Crossovers - schools participating in groups they were not allocated to, due to error/subversion	Low	Medium	It is highly unlikely that local delivery partners will deliver the intervention in control schools. We propose to monitor allocation to groups carefully to ensure the integrity of the study design is maintained and ensure that crossovers are minimised
Drop out – school may decide to leave the study thus reducing the study sample size	Low	High	We will draw on our experience of working closely with schools to ensure interest in and cooperation with the study is maintained, addressing practical concerns as necessary, and ensuring the benefits of continued participation are made clear.
Difficulty in obtaining informed parental consent for testing, access to pupil data and data linkage– risks to sample size and under-representation of pupils with certain characteristics. Consent rates may vary across schools.	Medium	Medium	We will work with schools and research partners to obtain consent from as many parents as possible, ensuring parents are aware of the benefits. The consent letter will be written in plain English, translated into 15 other languages (most commonly spoken across the participating schools) and provide an infographic explaining key data linkage concepts to ensure that informed consent can be gathered from as many parents as possible. School liaison officers will also provide dedicated “office” time during the weeks when consent will be sought to enable parents to raise and questions or concerns and ask for support.
Variations in quality of local delivery partners – could lead to false conclusions regarding effectiveness of interventions.	Medium	High	At randomisation, we will stratify the sample by local delivery partners using the local delivery partner as the blocking variable and adjust for delivery partner effects in the analysis. We will also explore variation through the survey and observations and will explore ways in which the analysis can be adjusted for instructor effects. We will ensure for each school that we record the instructor they were assigned to.
Loss to follow-up – could be a problem if overall sample loss is large (reducing absolute sample numbers)/patterns of loss differ between study groups.	Low	High	The best way to tackle loss to follow-up is through well-designed fieldwork procedures. Our approach to data collection minimises teacher burden and our communication procedures are of a high quality.
Variations in treatment delivery – significant departures from Family SKILLS curriculum may affect interpretation of treatment effects/or reduce effectiveness.	Low/ medium	High	This risk will be controlled by the Family SKILLS team who will manualise the programme and train local delivery partners who will deliver the treatment. The process evaluation will explore variation in treatment delivery across schools and consider the implications for study results. There may also be potential for feedback/corrective action.
Difficulty scheduling interviews or visits	Medium	Low	We will schedule session visits and interview over the period of the programme delivery so as to allow flexibility in rescheduling if necessary. Interviews can be completed by phone. Parent interviews will be scheduled by NatCen staff during session visits with support and additional follow-up by session instructors. Parents will be advised that interviews are voluntary and an interpreter will be made available.
Changes to project specification affecting timetable/costs	Medium	Medium	We have allocated sufficient resources to the set-up stage for the design to be clarified in detail allowing us to revise costs/timing where necessary and provide a robust estimate.

Poor project management	Low	Medium	We have proposed a strong team experienced in managing complex evaluations. We will monitor progress closely and identify areas of concern early.
Staff illness / unavailability / turnover	Low	Low	We forward-plan research capacity, and have a sufficient number of experienced staff members. Our procedures ensure that decisions and progress are fully documented.
Loss of or damage to data	Low	High	NatCen has high quality data security procedures with which team members are experienced. EEF will be notified of any breaches and contingency plans put in place.