

## AMENDMENTS

Following analysis of interim data from the first three years of the efficacy trial, several changes have been made to the original protocol as detailed in full below:

- Page 2: Intervention. The protocol has been amended to reflect additional years of funding for the programme.
- Page 4: Attainment data will no longer be collected after at the end of Year 9 or 10. This is because of concerns about measurement burden and attrition that resulted from the testing in the first two years of the trial.
- Page 4: GCSEs will be the primary outcome measure to demonstrate the impact of the programme. This data is for accessible for all pupils through the National Pupil Database.
- Page 4: In addition to GCSEs the final report will also analyse the impact on exclusion and absenteeism, well-being, and other non-academic outcomes such as change in the Child Health Questionnaire (CHQ-87), and changes in depression and anxiety.
- Page 4: The sub-group analysis by ethnic minority children compared to white children has been removed since ethnicity information is not available for such analysis. This is because opt-in consent is required by the Department for Education to access this data.
- Page 5: Heather Rolfe is identified as the new project leader to substitute David Wilkinson. Alistair McGuire, LSE, will lead on the collection and analysis of the well-being outcomes. Alistair McGuire and Grace Lordan, LSE, will also provide advice and guidance on the academic outcome analysis.
- Page 6: Timeline has been amended to include work required for second half of the revised evaluation.
- Page 6: Updated process evaluation that has been extended to include evaluation for the final two years of the programme.
- Page 6: Updated analysis and reporting timetable.

## **BACKGROUND**

### ***Significance***

The project aims to test the effectiveness of the Developing Healthy Minds in Teenagers programme. This programme aims to boost pupils' academic achievement through improving their non-cognitive skills, which include motivation, resilience and self-regulation. How to Thrive, a unit of Hertfordshire County Council, is working with academics at the LSE, led by Lord Richard Layard, who have identified 14 evidence-based programmes for trial in secondary schools. The programme uses the principles of cognitive behavioural therapy to help students focus on and apply themselves to their learning.

The approach is based on the findings of Heckman and other economists that non-cognitive skills are as important as cognitive skills in determining a range of outcomes in life, including academic results. The main evidence for the programme's effectiveness is from a 2011 meta-analysis conducted by Durlak and colleagues<sup>1</sup>. This review found that across 35 controlled studies of whole-class social and emotional learning programmes there was an average effect on attainment of 0.27 standard deviations. Children from poorer backgrounds tend to have weaker non-cognitive skills than their better-off peers and the programme is therefore believed to have the potential to improve the performance of pupils in EEF target schools.

The first two years of the programme were initially funded by the EEF in October 2012 and the project has been delivering in schools since September 2013. The How to Thrive curriculum was designed to be delivered over four years and the EEF therefore made a decision to continue with the project funding to allow the impact of the full programme to be assessed. This decision was based on the continued high engagement of schools and the positive feedback received from the process evaluation of the first two years. The continued evaluation will allow the impact of the four year programme on GCSE outcomes to be assessed. In addition the evaluation will also collect data on the self-esteem, self-awareness and feelings of children, with academics from LSE collecting data on this using an adapted version of the Child Health Questionnaire.

### ***Intervention***

The trial is funded by the EEF to cover the Personal, Social, and Health Education (PSHE) curriculum from Year 7 to Year 10.

The intervention is a new PSHE curriculum for Year 7 to Year 10 pupils based on the programmes identified above. PSHE lessons take roughly one hour per week, and the intervention would replace schools' current PSHE lessons.

The programme is aiming to develop pupils' non-cognitive skills and improve their resilience. It is also aiming to show pupils how to apply the principles and techniques of social and emotional learning to their academic study.

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<sup>1</sup> Durlak, J. A., Weissberg, R. P., Dymnicki, A. B., Taylor, R. D., & Schellinger, K. B. (2011). The impact of enhancing students' social and emotional learning: A meta-analysis of school-based universal interventions. *Child Development*, 82(1), 405-432.

## RESEARCH PLAN

### Research questions

There are three main research questions:

- 1) Whether the programme boosts pupil's academic achievement;
- 2) Whether the programme improves pupils' well-being, measured by the Child Health Questionnaire (CHQ-87);
- 3) Whether any impact of the programme on academic attainment is moderated by its impact on well-being; and
- 4) Whether there is a differential impact on disadvantaged pupils (as defined by eligibility for free school meals, EverFSM in the National Pupil Database).

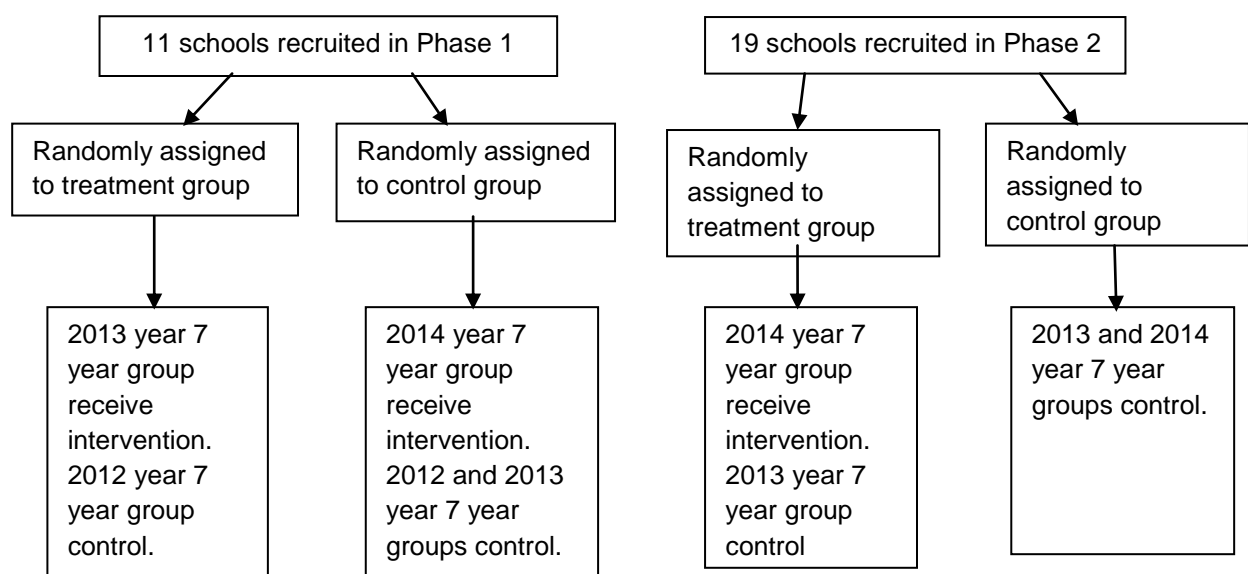
### Design

The trial is a cluster randomised trial, with school level randomisation. Randomisation is conducted using minimisation and schools are stratified according to whether the percentage of pupils eligible for Free School Meals (FSM) is less than 13 per cent, between 13 and 25 per cent or greater than 25%; whether the percentage of pupils with 5 GCSEs with grades A\*-C is below 59 per cent or not; and whether the school is single sex or mixed.

School recruitment takes place in two phases. Phase 1 schools enter the project in academic year 2012/13. Schools assigned to the treatment group implement the intervention with the Year 7 year group in academic year 2013/14, whilst schools assigned to the control group implement the intervention with the Year 7 year group in academic year 2014/15.

Phase 2 schools enter the project in academic year 2013/14. Schools assigned to the treatment group implement the intervention with the Year 7 year group in academic year 2014/15, whilst schools assigned to the control group do not implement the intervention with their 2014/15 Year 7 year group.

**Figure 1 The Intervention**



## ***Participants***

All pupils in selected Phase 1 schools in year 7 in 2013/14 are eligible along with all pupils in selected Phase 2 schools in year 7 in 2014/15. Additional control groups are taken from 2012/13 year 7 year group in Phase 1 schools and 2013/14 year 7 year group in Phase 2 schools.

## ***Outcome Measures***

Both the health and educational assessments will be reported respectively by the LSE and NIESR teams. In addition, a joint analysis will consider whether both distinct outcomes are moving in the same direction and whether or not improvements in character building, assuming this is achieved, correlate with the educational outcomes.

### **January 2019 report (authored by LSE)**

The primary outcome for the report in January 2019 will be the character measure captured by the change in the Child Health Questionnaire (CHQ-87), administered by LSE. The impact of the intervention, as compared to the control, will be achieved through the inclusion of an 87-item instrument on the baseline questionnaire that has been designed and normed for children from 5-to-18 years of age. Overall, the instrument measures unique psychosocial concepts that will be analysed at the scale level and also combined to derive an overall soft skill score.

The secondary measures for the character study will examine changes in depression and anxiety. This report will be authored by LSE.

### **July 2020 report (authored by NIESR)**

The primary outcome for the final report due in July 2020 will be the GCSE attainment level. Additional outcomes will be the character measure captured by the change in the Child Health Questionnaire (CHQ-87). The relationship between academic and health outcomes will be analysed, as described above.

Secondary outcomes maths and English measured by the Hodder Education Access Reading Test and the Hodder Education Access Maths Test, exclusion and absenteeism for end of Year 7 and end of Year 8. Both tests will be paper based. Pupils are randomly assigned to take either the Reading or Maths Test, so half of each year group in each school will take each of the tests.

The analysis will not be blinded. Assessors and data analysts will know the intervention status of each school. However, schools will be required to deliver the tests under exam conditions and to protect against bias, will follow instructions from NIESR rather than the delivery team (How to Thrive).

The report will cover the whole seven year programme, incorporating findings from each point of testing. It will also include implementation and process evaluation findings from the first and second stages of the project. As well as presenting data collected and analysed by NIESR, it will include information provided by How to Thrive, for example on training and on activities of control schools.

### ***Sample size calculations***

Our power calculations assume 160 pupils per year group per school (based on analysis of year group size in preceding year in selected schools). This means that 80 pupils per school will take the Reading test and 80 pupils will take the Maths test. We also assume an intra-class correlation of 0.13, significance level of 0.05 and power of 0.8. Based on these figures, the required number of schools to detect an effect size of 0.3 standard deviations is 23, whilst to detect an effect size of 0.25 standard deviations requires 32 schools. Meta analysis of similar programmes (Durlak et al. op. cit.) indicates an average effect size of 0.27 standard deviations.

### ***Analysis plan***

The analysis will be carried out using multilevel regression models to reflect the clustered nature of randomisation. The model will be specified in order to allow comparison of pupil outcomes for those attending intervention or treatment group schools.

We will consider in particular outcomes for children receiving free school meals (FSM) compared to non-FSM children.

NIESR will develop a detailed statistical analysis plan at least 3 months before analysis takes place, and do so jointly with LSE. The plan will be peer reviewed by members of EEF's Statistical Analysis Panel (SAP).

### ***Process evaluation methods***

NIESR is carrying out an independent process evaluation of the intervention to identify the factors which affect impact and which may explain the findings of the quantitative evaluation. The evaluation is using a range of qualitative approaches to assess evidence in relation to:

- the introduction of the programme in participating schools, including commitment of senior leadership
- contextual factors, including previous delivery of PSHE, other activities and initiatives with a resilience component and resource issues of relevance to the programme
- training of teachers in the programme, their understanding of the approach and commitment, their preparation for the emotional impact on pupils
- the application of the programme within the PSHE slot, size of groups and who it is delivered by
- views on the curriculum materials
- collaborative partnerships relevant to the operation and implementation of the programme

Interviews are being conducted with senior staff and teachers in schools as well as focus groups with pupils. The first round of interviews took place in Spring 2015 with findings forming part of the interim evaluation report. At that stage, schools had been delivering the programme for around 18 months and pupils were in year 8, the second in the 4 year programme. In the second stage of the evaluation NIESR will visit 10 schools, a mix of phase 1 and phase 2. These visits will include interviews with senior staff and teachers, as in 2015. They will also include focus groups with pupils. The 10 schools will include 4 or 5 of the 7 schools visited. In addition, we will visit 5 or 6 schools that joined the programme's second phase. These schools will be selected to include a range of school by location and context, in particular level of deprivation and under-attainment. The fieldwork will take

place in February 2017. At that point, phase 1 schools will be in the final year of the programme and teachers and pupils will be able to reflect on all years; phase 2 schools will be in the penultimate year and will have a better recollection of the latter part of year 2 and year 3 of the programme which was not covered by phase 1 of the evaluation.

## **PERSONNEL**

Lord Richard Layard, of the LSE Centre for Economic Performance and his LSE colleagues will oversee the project through a steering group that will be chaired by former No. 10 education advisor James O'Shaughnessy.

'How to Thrive' will be responsible for delivering training and ongoing support to participating schools. How to Thrive is a unit housed in Hertfordshire County Council Children's Services Team. Lucy Bailey, Head of How to Thrive will be leading the implementation of the project in schools.

NIESR is conducting an external evaluation of the project. Cinzia Rienzo who has overseen the delivery of academic pupil assessments, will conduct the quantitative analysis of the academic measures. The project leader Heather Rolfe will lead a qualitative process evaluation of the programme. Other key members of the NIESR team are Nathan Hudson-Sharp. Alistair McGuire and Grace Lordan, LSE Health, will provide expert advice on the quantitative evaluation of the academic outcomes. Moreover, they will also be responsible for the quantitative analysis of the well-being outcomes. Along with NIESR, they will have access to the NPD.

## TIMELINE

Phase 1	Jan-May 2013	May-Jun 2013	Sep 2013	Oct 2013 – Mar 2014	April 2014	June 2014	Sep 2014	June 2015	Sept 2015	July 2016	Feb 2017
Recruit Schools											
Assign Schools											
Teacher training											
Test 2012/13 year 7 cohort											
Curriculum starts in Treatment schools											
Test 2013/14 year 7 cohort											
Curriculum starts in Control schools											
Phase 2											
Recruit Schools											
Assign Schools											
Teacher training											
Test 2013/14 year 7 cohort											
Curriculum starts in Treatment schools											
Test 2014/15 year 7 cohort											
School visits											

- PLANNED ANALYSIS AND REPORTING TIMETABLE.

	June 2015	Sept 2015	Jan 2016	Nov 2016	Jan 2019	Jan 2020	May 2020
Analysis Phase 1 and Phase 2 (end of Year 1)							
Analysis of Year 2 (end of Y8)							
Report on character measures (LSE)							
Report on attainment, implementation and process evaluation (NIESR)							
Final report approved and data submitted to archive							

## Risks

- Risks to the evaluation and how they might be addressed.

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

Issue/risk	How risk might be addressed
Contamination of the random assignment design	Complications arise when the real-life behaviour of subjects in randomised control trials is at odds with the conceptual design of the experiment. Pupils may not receive all of the treatment. To achieve anything other than the effect of intention to treat will be difficult. However, to help understand the nature of the estimated impact better, monitoring information should be collected on programme attendance.
Confusion in evaluation tasks undertaken by LSE, How to Thrive and NIESR	Tasks and roles for each organisation have been agreed at the outset of the project.
Unexpected absence of team members	The team will substitute for each other during any short-term absence. In the event of longer periods of unplanned absence, NIESR will involve other NIESR experts in evaluation and education if necessary.
Low impact report	Our reporting will be aimed at ensuring maximum impact of findings through summaries and guidance for EEF schools. Reporting will focus on best practice and implications for policy and practice.

Data protection statement.

NIESR has established systems which comply with the stringent requirements of data protection legislation and best practice in data security and research ethics. This compliance includes the use of encryption, secure passwords, lockable paper files and secure entry to the office building (which does not have any public access). Computing facilities include secure data transfer through a VPN system and the use of stand-alone computers for data use. Through training, staff are made aware of the importance of ensuring that data security is not compromised.