An evaluation of the Mathematical Reasoning programme

Submission date 08/07/2016	Recruitment status No longer recruiting	Prospectively registered[X] Protocol
Registration date 12/07/2016	Overall study status Completed	[_] Statistical analysis plan[X] Results
Last Edited 19/08/2022	Condition category Other	Individual participant data

Plain English summary of protocol

Background and study aims

Many children struggle with numeracy (mathematics), and fall behind their classmates at school. The Mathematical Reasoning programme helps to develop children's understanding of the logical principles underlying mathematics. Developed by Professor Terezinha Nunes and Professor Peter Bryant at the University of Oxford, the programme consists of 10 teaching units, delivered to pupils as part of their normal mathematics lessons, taking up approximately 12 lessons. Teachers receive training and are provided with lesson plans and materials to deliver the programme. Learning is also supported by online games, which can be used by pupils both at school and at home. The aim of this study is to find out whether the Mathematical Reasoning programme can help to improve attainment in mathematics in Year 2 children.

Who can participate?

State-funded primary schools in England, located within the eight Maths Hubs and Year 2 pupils whose parents have not opted for them to not be included in the study.

What does the study involve?

Schools participating in the trial are randomly allocated to one of two groups. Among schools in the first group, Year 2 teachers are trained in the delivery of the Mathematical Reasoning programme, which they then deliver to their pupils in the academic year 2016/17. Schools in the second group are expected to deliver 'business as usual' mathematics teaching for the duration of the study. They are then offered the opportunity to take part in the programme in the following school year (2017/18). At the end of Year 2, pupils attending all schools undertake a mathematics exam to test their mathematics attainment.

What are the possible benefits and risks of participating?

The main potential benefit of participating in the trial is the opportunity to improve pupil's mathematical attainment. The schools who do not take part in the programme during the study period also benefit from being able to run it in the following academic year. A potential risk of participating is that schools who do not receive the programme will have to wait another year to receive it.

Where is the study run from?

The study is run from the University of Oxford in partnership with the National Centre for Excellence in the Teaching of Mathematics. The study takles place in state-funded primary schools in England. The evaluation is being led by the National Institute of Economic and Social Research (NIESR). Administration of assessments is being undertaken by the National Centre for Social Research, working in partnership with NIESR. (UK)

When is the study starting and how long is it expected to run for? August 2015 to March 2018

Who is funding the study? Education Endowment Foundation (UK)

Who is the main contact? Ms Lucy Stokes l.stokes@niesr.ac.uk

Study website https://educationendowmentfoundation.org.uk/projects/mathematical-reasoning/

Contact information

Type(s) Scientific

Contact name Ms Lucy Stokes

Contact details

National Institute of Economic and Social Research 2 Dean Trench Street Smith Square London United Kingdom SW1P 3HE

Additional identifiers

EudraCT/CTIS number

IRAS number

ClinicalTrials.gov number

Secondary identifying numbers N/A

Study information

Scientific Title

Among Year 2 pupils, does the Mathematical Reasoning programme (compared to pupils not receiving the programme), improve mathematical attainment?

Study objectives The Mathematical Reasoning programme will improve children's mathematical attainment.

Ethics approval required Old ethics approval format

Ethics approval(s) Departmental Research Ethics Committee of the Department of Education at the University of Oxford, 26/02/2016

Study design Multi-centre cluster randomised controlled trial

Primary study design Interventional

Secondary study design Cluster randomised trial

Study setting(s) School

Study type(s) Other

Participant information sheet

https://www.ncetm.org.uk/files/31886588/Mathematical+Reasoning+-+school+information+sheet+FINAL+-+web+version.pdf

Health condition(s) or problem(s) studied

Mathematical attainment in Year 2 pupils

Interventions

Schools are randomly allocated to one of two study arms.

Treatment arm: Year 2 teachers will be trained in the delivery of the Mathematical Reasoning programme through Maths Hubs, working with the National Centre for Excellence in the Teaching of Mathematics (NCETM). Within each participating hub, Work Group leaders will be identified and trained in delivering the intervention. This will include Work Group leaders using the programme materials in the schools in which they work. Work Group leaders will then train teachers within the participating schools that have been randomly allocated to receive the intervention. These teachers will receive one day of training; Work Group leaders will provide further support to the teachers through a school visit during the period in which they are delivering the programme. Teachers in the intervention group will also have access to online resources made available by the Oxford team. Pupils attending these schools will receive the Mathematical Reasoning programme from the start of Year 2. Developed by Professor Terezinha

Nunes and Professor Peter Bryant at the University of Oxford, the programme consists of 10 teaching units, delivered to pupils as part of their normal mathematics lessons, taking up approximately 12 lessons.

Control arm: Schools will be expected to deliver "business as usual" mathematics teaching and will be offered the opportunity to take part in the programme in the following school year.

Children in both groups have their mathematical attainment measured at the end of Year 2 (July-July 2017) using the GL Assessment Progress Test in Maths.

Intervention Type

Behavioural

Primary outcome measure

Mathematical attainment is measured through the GL Assessment Progress Test in Maths (Level 7) post-intervention, towards the end of Year 2 (June-July 2017).

Secondary outcome measures

No secondary outcome measures

Overall study start date 20/08/2015

Completion date

31/03/2018

Eligibility

Key inclusion criteria

School inclusion criteria:

 All English state primary and infant schools (includes schools with one class per year group as well as schools which have classes with mixed year groups) within selected Maths Hubs
 Willing to fully comply with the requirements of the trial, including supplying the necessary pupil data

Participant inclusion criteria: All Year 2 pupils attending participating schools are eligible to participate

Participant type(s) Other

Age group Child

Sex Both

Target number of participants

160 schools, with an estimated 45 pupils per school

Key exclusion criteria

Schools exclusion criteria: Independent schools.

Participant exclusion criteria: Children whose parents have opted them out of participation in the study.

Date of first enrolment 01/02/2016

Date of final enrolment 30/04/2016

Locations

Countries of recruitment England

United Kingdom

Study participating centre National Institute of Economic and Social Research 2 Dean Trench Street London United Kingdom SW1P 3HE

Study participating centre National Centre for Excellence in the Teaching of Mathematics (NCETM) Tribal Education St Mary's Court 55 St Mary's Road Sheffield United Kingdom S2 4AN

Study participating centre

University of Oxford, Department of Education University of Oxford 15 Norham Gardens Oxford United Kingdom OX2 6PY

Sponsor information

Organisation Education Endowment Foundation

Sponsor details

9th Floor Millbank Tower 21-24 Millbank London United Kingdom SW1P 4QP

Sponsor type

Charity

Website https://educationendowmentfoundation.org.uk/

ROR https://ror.org/03bhd6288

Funder(s)

Funder type Charity

Funder Name Education Endowment Foundation

Alternative Name(s) EducEndowFoundn, Education Endowment Foundation | London, EEF

Funding Body Type Private sector organisation

Funding Body Subtype Trusts, charities, foundations (both public and private)

Location United Kingdom

Results and Publications

Publication and dissemination plan

The results of the evaluation will be published in Spring 2018. The report will be available from the website of the Education Endowment Foundation.

Intention to publish date

31/03/2018

Individual participant data (IPD) sharing plan

Not provided at time of registration

IPD sharing plan summary

Other

Study outputs

Output type	Details results	Date created	Date added	Peer reviewed?	Patient-facing?
Funder report results				No	No
<u>Protocol file</u>			19/08/2022	No	No