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Multiplicative Reasoning Cluster Randomised Controlled Trial

Submission date 06/03/2014	**Recruitment status** No longer recruiting	[_] Prospectively registered [_] Protocol
Registration date 24/04/2014	**Overall study status** Completed	[_] Statistical analysis plan [_] Results
Last Edited 07/03/2017	**Condition category** Other	[_] Individual participant data [_] Record updated in last year

Plain English summary of protocol

Background and study aims
The NCETM Key Stage 3 (KS3) Multiplicative Reasoning Project (MRP) aims to improve the teaching of mathematics at KS3. We aim to test the impact of the programme, why/how the programme worked or didn't work, and whether the programme is cost effective.

Who can participate?
Year 7, 8 and 9 pupils in 60 secondary schools in England who are taught mathematics by one of two nominated 'core' mathematics teachers.

What does the study involve?
Each school was asked to nominate two core KS3 mathematics teachers and provide detail on the Year 7, Year 8 and Year 9 pupils that the two nominated teachers taught. Initial data from Key Stage 2 will be obtained via the National Pupil Database (NPD) for all pupils agreeing to participate. The 60 participating schools will be randomly assigned to become intervention or control schools (30 in each). Within the 30 intervention schools, the two nominated core teachers will receive the NCETM multiplicative reasoning project. Outcome data will be collected in all 60 schools in June 2014. Progress between the start of the study and outcomes for pupils in the intervention schools will be compared with that observed for pupils in the control schools.

What are the possible benefits and risks of participating?
Pupils in the intervention group may improve their mathematical skills. Some of these benefits may spill over from the intervention group to other pupils (friends/siblings). There are no risks for participants.

Where is the study run from?
The study will take place in 60 secondary schools across England.

When is the study starting and how long is it expected to run?
The study started in September 2013 and will run until the end of the 2013/14 academic year.

Who is funding the study?
The Department for Education (UK).

Who is the main contact?
Sean Demack (Trial Director/ Statistical Lead) - s.demack@shu.ac.uk
Mark Boylan (Overall Study Director & Process Evaluation Lead) - m.s.boylan@shu.ac.uk

Contact information

Type(s)
Scientific

Contact name
Mr Sean Demack

Contact details
Centre for Eductation & Inclusion Research (CEIR)
Sheffield Hallam University
City Campus - Unit 7, Science Park
Sheffield
United Kingdom
S1 1WB
+44 114 225 6055
s.demack@shu.ac.uk

Additional identifiers

Study information

Scientific Title
A randomised control trial evaluation of a National Centre for Excellence in the teaching of Mathematics (NCETM) initiative focusing on multiplicative reasoning in Key Stage 3.

Acronym
MRP CRCT

Study objectives
Research Questions:
1. What is the impact of a National Centre for Excellence in Teaching Mathematics (NCETM) professional development programme around multiplicative reasoning on pupil progress and attainment in mathematics?
2. How does the NCETM multiplicative reasoning project (MRP) operate to produce these outcomes?

Ethics approval required
Old ethics approval format

Ethics approval(s)
Sheffield Hallam University Ethics Committee, 10/09/2013, ref. Am/SW/24C-2013

Primary study design
Interventional

Study design
Three level clustered randomised controlled trial

Study type(s)
Quality of life

Health condition(s) or problem(s) studied
No condition - this is an educational RCT

Interventions
Schools were clustered into 3 geographical areas with 20 secondary schools in each area. Prior to randomisation, schools were stratified into relatively high attaining and low attaining groups. Within the three areas, using the attainment stratification scheme, 10 schools were randomly selected to receive the Multiplicative Reasoning Project intervention and the remaining 10 schools formed a business as usual control group. A total of 60 schools are involved - 30 intervention and 30 control schools. Randomisation took place in October 2013 and after schools had provided details of two Key Stage 3 teachers and provided class lists of the Key Stage 3 mathematics classes that they taught.

Following randomisation, the 30 intervention schools began the MRP intervention by attending training events run by the National Centre for Excellence in Teaching Mathematics (NCETM).

Key Stage 2 Mathematics will form the pre-test measure for the planned analyses. In addition to an intervention/control identifier, other covariates included in the planned analyses are gender and FSM (whether a participant is eligible and claiming free school meals a proxy for socioeconomic position).

Intervention Type
Other

Phase
Not Applicable

Primary outcome(s)
Progress in Mathematics scores at age 11/12 (PIM12), age 12/13 (PIM13), age 13/14 (PIM14)

Key secondary outcome(s)
Baseline Covariate (Pre-test): Key Stage 2 Mathematics Score

Completion date
20/07/2014

Eligibility

Key inclusion criteria
Pupils listed as being taught by the two nominated core mathematics teachers at the start of the study (prior to randomisation).

Participant type(s)
Patient

Healthy volunteers allowed
No

Age group
Child

Sex
All

Key exclusion criteria
Any pupils (or their parents) who complete an opt-out consent form will not be included.

Date of first enrolment
01/09/2013

Date of final enrolment
20/07/2014

Locations

Countries of recruitment
United Kingdom

England

Study participating centre
Centre for Eductation & Inclusion Research (CEIR)
Sheffield
United Kingdom
S1 1WB

Sponsor information

Organisation
Department for Education (UK)

ROR
https://ror.org/0320bge18

Funder(s)

Funder type
Government

Funder Name
Department for Education (DfE) (UK) - Multiplicative reasoning professional development programme evaluation project; Reference: EOR/SBU/ 2013007

Results and Publications

Individual participant data (IPD) sharing plan

IPD sharing plan summary
Not provided at time of registration