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Can participation in the Maths-for-Life programme improve maths GCSE resit performance?

Submission date 08/01/2019	**Recruitment status** No longer recruiting	[ ] Prospectively registered [ ] Protocol [ ] Statistical analysis plan [ ] Results [ ] Individual participant data [ ] Record updated in last year
Registration date 09/01/2019	**Overall study status** Completed	
Last Edited 04/04/2023	**Condition category** Other	

Plain English summary of protocol

Background and study aims
Maths-for-life is a Professional Development (PD) programme for teachers that aims to improve GCSE mathematics retake outcomes for post-16 students (KS5) in Further Education Colleges, 6th Form Colleges, schools and training providers. It attempts to develop a more student-centred classroom approach based on problem solving and dialogic teaching. Dialogic teaching aims to simulate learning through classroom conversation, both peer-to-peer and teacher-to-student. The programme will be delivered by the Centre for Research in Mathematics Education at the University of Nottingham.

The trial aims to test whether the Maths-for-Life programme can improve students' maths attainment for KS5 resit students, along with whether it impacts their mathematical self-efficacy.

The intervention will be delivered in the academic year 2018/19. The impact of the programme will be assessed using the student outcomes of KS5 GCSE mathematics performance as measured by the moderated UMS point scores, and KS5 GCSE mathematics resit pass-rates, for two cohorts of students:

1. Cohort 1: Students resitting GCSE mathematics in Summer 2019 (Academic year 18/19)
2. Cohort 2: Students resitting GCSE mathematics in Summer 2020 (Academic year 19/20)

Who can participate?
Students re-sitting GCSE Maths in KS5 across approximately 100 KS5 Educational settings across England. Education settings include Further Education (FE) colleges, 6th Form Colleges, Schools and Training Providers.

What does the study involve?
Settings are randomly allocated to either the intervention or the control group. Teachers from settings allocated to the intervention group will receive the Maths-for-Life professional development programme whereas the control group will continue with "business as usual".

The Maths-for-Life intervention supports teachers by providing evidence-informed materials together with a professional development (PD) programme based on Wake and Swan's lesson study research . The PD takes an "action research" approach, led by a cadre of trained teacher PD Leads in which teacher research groups engage in five cycles of classroom-based inquiry into effective pedagogies, supported by an online toolkit. The programme aims to address a skill shortage amongst teachers and attempts to change how mathematics is conceptualised by young people, moving from a binary subject where thinking is 'right' or 'wrong' to one that is debated and discussed.

The control group will not receive any intervention and continue as usual.

What are the possible benefits and risks of participating?
The possible benefit to participants is that approaches such as the Maths-for-life programme may improve students' attainment outcomes, along with mathematical self-efficacy. There are no known risks to participants taking part in this study.

Where is the study run from?
The study is run by the Centre for Research in Mathematics Education at the University of Nottingham and the evaluation is led by the Behavioural Insights Team.

When is the study starting and how long is it expected to run for?
January 2018 to August 20200

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

Who is the main contact?
David Nolan (Research Advisor, The Behavioural Insights Team)
david.nolan@bi.team

Contact information

Type(s)
Public

Contact name
Mr David Nolan

Contact details
4 Matthew Parker Street
London
United Kingdom
SW1H 9NP

Additional identifiers

Protocol serial number
N/A

Study information

Scientific Title
Assessing the impact of participation in the Maths-for-Life programme on maths GCSE resit performance and student self-efficacy: a cluster randomised controlled trial

Study objectives
Participation by schools in the Maths-for-life programme will improve pupils' KS5 GCSE Maths resit attainment and mathematical self-efficacy

Ethics approval required
Old ethics approval format

Ethics approval(s)
Behavioural Insights Internal Ethics Committee, 13/09/2018, ref. BITER9.

Study design
Interventional cluster randomised controlled trial

Primary study design
Interventional

Study type(s)
Quality of life

Health condition(s) or problem(s) studied
Academic Attainment

Interventions
The trial is set in four different KS5 education settings: Further Education (FE) colleges, 6th Form Colleges, Schools and Training Providers. Settings were randomised into trial arms in October 2018 following the recruitment process. Randomisation was conducted using the data analysis and statistical software Stata 14. The code used to carry out this randomisation will be recorded and reported in the final report. Randomisation was stratified on setting type to ensure an equal ratio of setting types in both arms. This was done for two reasons:
1. To ensure the total number of students is close to equal across both trial arms, given the number of students varies substantially between settings types. This will maximise our statistical power.
2. To prevent any bias in our analysis that may arise from systematic differences between FE colleges, 6th Form Colleges, Schools and Training Providers.

First, a random number was generated for each setting. Settings were placed in ascending order within each setting type using this random number . For each setting type, the upper half of settings were allocated to the intervention group, and the lower half to the treatment group.

Teachers from the settings assigned to the intervention group will participate in the Maths-for-Life Professional Development (PD) programme. The intervention begins and ends with an event, in which Class Teachers are assigned to small working groups (clusters), led by a trained Maths-for-Life teacher (Lead Teacher). In between these two meetings, the intervention goes through the following lesson study cycle:
1. Clusters of Class Teachers meet to learn about and plan a Maths-for-Life lesson, supported by their Lead Teacher.

2. Class Teachers deliver a Maths-for-Life lesson to their own class.
3. Class Teachers meet as a cluster to observe a peer from the cluster delivering the same lesson.
4. Clusters meet again with their Lead Teacher to reflect on the lesson delivered, and to learn about the next lesson to be delivered.

This cycle is completed five times, with a new lesson being delivered and studied each time. The five lessons are delivered between November and April. Each lesson is designed to last for one hour. The PD requires a total of 6 days of teacher time and breaks down as follows:
1. Launch event: 0.5 days
2. Lesson planning and reflection: 1 day per lesson (5 days in total)
3. Closing event: 0.5 days

Lessons are taught in regular classrooms in schools and colleges. Cluster PD sessions take place in a range of regional locations, such as participating schools and colleges.

Teachers from settings allocated to the control group will not receive any intervention.

Intervention Type
Behavioural

Primary outcome(s)
Overall KS5 mathematics GCSE resit performance for the academic year 2018/2019, as per the UMS score collected and provided to BIT from the settings directly as specified in the MOU. This assessment will take place in summer 2019 and 2020.

Key secondary outcome(s))
1. KS5 mathematics GCSE pass rates, as measured by a binary outcome variable indicating whether or not a student achieved a grade 4 or higher.
2. Student self-efficacy, as measured by Part E of the Year 10 Teleprism survey online in May 2019.

Completion date
01/08/2020

Eligibility

Key inclusion criteria
Teachers:
1. From one of the recruited educational settings
2. Teach KS5 maths resit classes

Students:
1. Re-sitting GCSE matchs in KS5

Participant type(s)
Mixed

Healthy volunteers allowed
No

Age group

Mixed

Sex
All

Key exclusion criteria
Students:
1. Not taught by a teacher on the Maths-for-Life Professional Development programme

Date of first enrolment
01/03/2018

Date of final enrolment
01/10/2018

Locations

Countries of recruitment
United Kingdom

England

Study participating centre
Behavioural Insights Team
4 Matthew Parker Street
London
United Kingdom
SW1H 9NP

Study participating centre
Centre for Research in Mathematics Education, University of Nottingham
Jubilee Campus, Wollaton Road
Nottingham
United Kingdom
NG8 1BB

Sponsor information

Organisation
The Behavioural Insights Team

ROR
https://ror.org/03mk5b468

Funder(s)

Funder type
Charity

Funder Name
Education Endowment Foundation

Alternative Name(s)
EducEndowFoundn, The Education Endowment Foundation (EEF), 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

Individual participant data (IPD) sharing plan
Participant level data is quite sensitive, as it contains personal and academic information that could be used to identify trial participants. As such, this data will not be made publicly available. However, participant level data will be transferred and stored with the Education Endowment Foundation (the project funder) and (in an anonymised form) the UK Data Archive.

IPD sharing plan summary
Not expected to be made available

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Study website	Study website	11/11/2025	11/11/2025	No	Yes