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Digital feedback in primary maths

Submission date
02/06/2017

Recruitment status
No longer recruiting

Registration date
20/06/2017

Overall study status
Completed

Last Edited
03/04/2020

Condition category
Other

[_] Prospectively registered
[_] Protocol
[_] Statistical analysis plan
[X] Results
[_] Individual participant data

Plain English summary of protocol

Background and study aims:
Of all possible teacher influences on pupil achievement, teacher feedback is among the most powerful. Some studies have suggested that computer-assisted feedback or feedback provided in the form of video or audio are among the most effective. The use of digital feedback will allow teachers to additionally improve their feedback in two ways. Firstly, it allows teachers to provide specific feedback, tailored to the needs of individual pupils. Secondly, it allows teachers to provide two different types of feedback: direct feedback, which is corrective in nature, and focuses on the work that is being conducted in the class at that time, and delayed feedback which aims at building a broader understanding of what is being taught in the curriculum. The aim of this study is to find out whether digital feedback has a positive effect of pupils attainment in mathematics.

Who can participate?
All Year 4 and 5 mathematics teachers and Year 4 and 5 pupils at participating state schools.

What does the study involve?
All year 4 or 5 classes in a given school are randomly allocated to one of two groups. Those in the first group continue with business as usual for the duration of the study. Those in the econd group take part in the digital feedback program. Teachers are provided with resources to quickly assess their pupils' understanding of a topic, for example, through multiple choice questions (MCQ). Teachers are then supported to provide effective feedback to help those pupils struggling with a topic, by using tablets to record video summaries of their feedback, rather than writing down comments. The pupils then have class time to review the feedback and develop from it.

What are the possible benefits and risks of participating?
There are no financial costs, nor financial benefits, for participating in the evaluation. By participating in the evaluation, teachers will be providing valuable information that may help other schools decide whether this form of feedback is effective and worth pursuing. There is minimal risk in this evaluation which largely consists of the completion of surveys. There is a small risk that confidential information is released to the public. Only RAND will have access to any of the information that is collected. RAND will monitor any concerns teachers may have through surveys and will report anonymous and aggregated results to the implementation team and schools. In schools where only small number of teachers participate the anonymity of

teachers will be guaranteed through combined reporting for schools with small numbers of participating teachers.

Where is the study run from?
The study is run from RAND Europe and Bishop Grosseteste University and takes place in 40 schools in the Lincolnshire area in England (UK)

When is study starting and how long is it expected to run for?
December 2016 to March 2019

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

Who is the main contact?
1. Dr Alex Sutherland (public),
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Contact information

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Public

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Additional identifiers

Protocol serial number
RR-1974-EEF

Study information

Scientific Title
The effectiveness of digital feedback on maths performance in children in year 4 and 5 of primary school

Acronym
Kyra

Study objectives
Hypotheses:
1. Digital feedback (both immediate and delayed) will have a positive effect on pupil outcomes (in mathematics) who are in randomly assigned intervention classes
2. Digital feedback will have a positive effect on improving outcomes for FSM pupils

Ethics approval required
Old ethics approval format

Ethics approval(s)
1. RAND's Human Subject's Protection Committee (HSPC), 28/04/2017, ref: 2017-0100-AM01
2. RAND Internal Review Board (IRB), 28/04/2017, ref: IRB00000051

Primary study design
Interventional

Study design
Two-arm randomised controlled trial

Study type(s)
Other

Health condition(s) or problem(s) studied
Maths performance in typically developing children in year 4 and year 5

Interventions
The study will consist of a two-arm randomised control trial (RCT) in 40 primary schools in England, using year 4 and year 5 classes as the unit of assignment. The intervention will start September 2017 and last for the duration of the school year 2017-2018. All year 4 or 5 classes in a given school will be randomly assigned to treatment or control. We will aim to stratify the randomisation by teachers' and students' performance, such as years of teaching experience, average baseline scores and the proportion of Free School Meals (FSM) students, depending on

the availability of data. All year groups which are part of the trial will have a 50% chance to be assigned to the treatment condition.

Control group: Schools in the control group will teach “business as usual”, apart from that pupils will be asked to make an external mathematics test that will be independently administered and invigilated in June 2018.

Intervention group: Year 4 and Year 5 mathematics teachers in the intervention group will receive initial training in the use of the app and in giving effective feedback, and take part in monthly “professional learning communities”, led by the intervention team and Bishop Grosseteste University. A Research Lead in each school will provide ongoing support and coaching to the teachers. Research Leads will also receive training in the use of the app and in giving effective feedback. The training will seek to familiarise teachers and Research Leads with the app to ensure they know how to work with it. In addition, teachers and Research Leads will be trained in giving high-quality feedback, which covers the content of feedback. Teachers will be expected to embed the approach into their normal class teaching and will receive additional support from the Research Lead in doing so. Two main procedures form the core of the intervention:
1. Diagnostic tests and video feedback
2. Coaching and professional learning communities (PLCs)
Pupils in the intervention group classes will receive digital feedback throughout the school year 2017-2018. The intervention will be evaluated throughout the year with the last data collection point directly after the intervention has ended (June-July 2018).

Intervention Type
Behavioural

Primary outcome(s)
Attainment in mathematics is assessed using digital tests administered and collected by the Australian Council for Educational Research (ACER) at the end of the academic year 2017-2018.

Key secondary outcome(s)
Pupil engagement is measured using a pupil engagement test administered to all pupils at the end of the academic year 2017-2018.

Completion date
01/03/2019

Eligibility

Key inclusion criteria
Schools:
1. State schools
2. Have enough tablets for one year group/class (roughly 1 tablet for every 4 or 5 pupils)
3. Have not had the Digital Feedback intervention before

Teachers:
All Year 4 and Year 5 mathematics teachers in schools taking part in the trial will be included in the trial.

Pupils:
All Year 4 and Year 5 pupils attending participating schools.

Participant type(s)
Healthy volunteer

Healthy volunteers allowed
No

Age group
Adult

Sex
All

Key exclusion criteria
Schools:
Have had the Digital Feedback intervention before.

Teachers:
Do not teach year 4 or 5.

Pupils:
Not in year 4 or 5.

Date of first enrolment
01/03/2017

Date of final enrolment
12/05/2017

Locations

Countries of recruitment
United Kingdom

England

Study participating centre
RAND Europe
Westbrook Centre
Milton Road
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Study participating centre
Bishop Grosseteste University
Longdales Road
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Sponsor information

Organisation
Education Endowment Foundation

ROR
https://ror.org/03bhd6288

Funder(s)

Funder type
Charity

Funder Name
Education Endowment Foundation

Results and Publications

Individual participant data (IPD) sharing plan
The datasets generated during and/or analysed during the current study are/will be available upon request from the Education Endowment Foundation (EEF) from Peter Henderson (Peter.Henderson@eefoundation.org.uk)

IPD sharing plan summary
Available on request

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Funder report results	results		03/04/2020	No	No