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An independent impact and process evaluation of a flipped learning approach (MathsFlip) implemented by primary school teachers in Year 5 maths lessons

Submission date
30/09/2014

Recruitment status
No longer recruiting

Registration date
10/11/2014

Overall study status
Completed

Last Edited
10/05/2021

Condition category
Other

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

Plain English summary of protocol
Background and study aims
We are trying to determine the effectiveness of the Flipped Learning approach to be implemented by Shireland Collegiate Academy in Smethwick, UK. The approach will involve innovative teaching and learning strategies, making use of new technology applications in mathematics for Year 5 in primary schools in Birmingham and the Black Country. Flipped Learning (often referred to as the Flipped Classroom) is an approach in which pupils are given assignments to do at home on computers or tablets. These may include video lessons made by the teacher. This enables the teacher to use classroom time for activities such as co-operative learning, problem solving, projects, and attending to individual difficulties. Flipped Learning is currently being widely discussed, but rigorous research on it is lacking. Recent reviews suggest good rationales for why Flipped Learning might improve learning, but they do not present actual comparisons of Flipped Learning and traditional teaching. For this reason, a study of a Flipped Learning model could be very important as a first rigorous test of this attractive idea. The evaluation is likely to be of benefit to a number of audiences, including practitioners, education advisers, and the new technologies research community.

Who can participate?
All Year 5 pupils and teachers in 24 participating schools.

What does the study involve?
Participating schools will be randomly allocated to one of two groups: either the treatment group or the control group. The treatment group will receive the online learning environment, the necessary devices, and Shirelands training and resources, and the control group will receive none of these, but will carry on learning mathematics in the usual way. The control group will be provided with the Flipped Learning approach one year later, making this a delayed treatment group and helping their motivation to take part in the study. Initial data will be collected from all Year 5 pupils before allocating them to a group. The results of the pupils in the treatment group will be compared to the results of the pupils in the control group to find out the effect the

approach had on improving attainment. We will carry out face-to-face interviews with key members of staff at Shireland Collegiate Academy, an online staff survey for all participating schools and telephone interviews with some of the participating staff. There will also be four full-day school visits to include, where possible, lesson observations, focus group interviews with some of the participating staff, and focus group discussions with some of the participating pupils.

What are the possible benefits and risks of participating?
By participating in this study, pupils will experience an up-to-date online approach to learning Mathematics that has been designed to be interactive, fun and engaging. Steps have also been taken to minimise the burden of data collection on pupils and schools through the use of routinely collected attainment data (Key Stage SATs scores). There are no known disadvantages or risks in participating in this study. Teachers in both groups will continue to teach to the usual lesson objectives throughout the evaluation period.

Where is the study run from?
The schools involved are in the Birmingham and Black Country area of the UK.

When is the study starting and how long is it expected to run for?
January 2014 to December 2015.

Who is funding the project?
The Education Endowment Foundation, UK.

Who is the main contact?
Dr Peter Rudd
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Contact information

Type(s)
Scientific

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Additional identifiers

Study information

Scientific Title
An independent evaluation of the efficacy of a flipped learning approach (MathsFlip) at improving numeracy and KS2 mathematics attainment: a randomised controlled trial and process evaluation

Study objectives
What is the effectiveness of the MathsFlip approach compared with a delayed treatment control group on numeracy and KS2 mathematics scores of Year 6 children?

Ethics approval required
Old ethics approval format

Ethics approval(s)
University of York Ethics Committee in Summer 2014

Primary study design
Interventional

Study design
Parallel-arm randomised controlled trial design incorporating a delayed treatment control group

Study type(s)
Other

Health condition(s) or problem(s) studied
Education, numeracy, mathematics, attainment

Interventions
The intervention involves Shireland Collegiate Academy working with primary schools in the local area of Birmingham and the Black Country. The approach will involve innovative teaching and learning strategies in mathematics for Year 5 (Maths Flip). Flipped Learning involves teacher and pupil access to a virtual learning environment (VLE) and the use of laptops to carry out work both at home and at school. The intervention will be delivered during the Summer term of 2013-14 and the Autumn term of 2014-15.

Control: delayed treatment when control pupils enter Year 6, Year 5 teachers will commence delivery of MathsFlip with Year 5 pupils.

Intervention Type
Other

Phase
Not Applicable

Primary outcome(s)
Achievement in mathematics as measured by Key Stage 2 SATs exams taken by pupils in the spring term of Year 6. This outcome will be measured at baseline using Key Stage 1 SATs scores and the GL Assessment Progress in Maths 10 test.

Key secondary outcome(s)

1. Achievement in KS2 English and overall KS2 scores as measured by SATs exams taken by pupils in the spring term of Year 6.
2. School attendance over the course of the intervention + part of Year 6.

Completion date
31/12/2015

Eligibility

Key inclusion criteria
1. Primary schools in Birmingham and the Black Country willing to work with Shireland Collegiate Academy to implement the MathsFlip approach and willing to undertake all related research procedures
2. Year 5 pupils (during the 2013/2014 academic year) in participating schools

Participant type(s)
Patient

Healthy volunteers allowed
No

Age group
Child

Sex
All

Key exclusion criteria
1. Primary schools in Birmingham and the Black Country NOT willing to work with Shireland Collegiate Academy to implement the MathsFlip approach and/or NOT willing to undertake all related research procedures
2. Year 5 pupils (during the 2013/2014 academic year) in participating schools whose parents have opted them out of the study

Date of first enrolment
01/01/2014

Date of final enrolment
31/12/2015

Locations

Countries of recruitment
United Kingdom

England

Study participating centre
Institute for Effective Education
York
United Kingdom
YO10 5DD

Sponsor information

Organisation
University of York (UK)

ROR
https://ror.org/04m01e293

Funder(s)

Funder type
Research organisation

Funder Name
The Education Endowment Foundation

Results and Publications

Individual participant data (IPD) sharing plan

IPD sharing plan summary
Not provided at time of registration

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Funder report results		01/11/2017	10/05/2021	No	No
Study website	Study website	11/11/2025	11/11/2025	No	Yes