

Independent evaluation of the Maths Champions programme

Submission date 20/04/2016	Recruitment status No longer recruiting	☐ Prospectively registered ☐ Protocol
Registration date 16/05/2016	Overall study status Completed	☐ Statistical analysis plan ☒ Results
Last Edited 26/03/2019	Condition category Other	☐ Individual participant data

Plain English summary of protocol

Background and study aims:

Numeracy is an important skill, but many children underachieve in this area. The National Day Nursery Association (NDNA) has developed the Maths Champions programme, which focuses on maths within play and other activities in nursery settings. Research suggests that there are links between early mathematics achievement and achievement in mathematics and other areas in later life. This study focuses on the impact of Maths Champions on the mathematical development and skills of children who are three and four years old. Previous research about Maths Champions reported by the developer did show benefits including increased practitioner confidence, but the current evidence base is fairly weak. Maths Champions is a one year programme that aims to improve the knowledge, skills and confidence of nursery practitioners and the quality of maths provision in their nurseries. A designated Maths Champion in a nursery is a graduate nursery practitioner. The Maths Champions programme includes a variety of online training and resources that are designed to help the 'Maths Champion' to support their colleagues in evaluating their current practice, assess their own level of mathematical knowledge and skills and to develop their knowledge, understanding and confidence. The intervention helps nurseries to audit their maths learning environment and identify areas for improvement, developing action plans. The aim of this study is to evaluate the impact Maths Champions has on the mathematical skills and development of children aged 3 and 4 years old. Other aims include exploring the impact of the Maths Champions intervention on: practitioner confidence, the mathematical practice of different settings, the development of literacy and phonological awareness skills of children aged 3 and 4 years old.

Who can participate?

Private, voluntary and independent nurseries in areas of high deprivation, and three year old children attending these nurseries for at least 15 hours per week who due to start school in September 2017.

What does the study involve?

Nurseries are randomly allocated to one of two groups. The nurseries in the first group are offered the Maths Champions programme for one year. These nurseries are supported by NDNA to evaluate mathematics provision in their nurseries, which is facilitated by a graduate practitioner (the Maths Champion) who has access to a variety of support and online training

provided by the NDNA. The nurseries in the second group will continue as usual in their approach to mathematics. Nurseries in both groups receive £500 reimbursement for the time spent participating in the study, which is enough to continue to provide or to begin the Maths Champions intervention in the year following the study.

What are the possible benefits and risks of participating?

Participants may benefit from potentially improving their attainment in mathematics. There are no notable risks involved with taking part in this study.

Where is the study run from?

The study is run from York Trials Unit (University of York), Centre for Evaluation and Monitoring (Durham University) and the School of Education (Durham University), and takes place in nursery schools across the UK.

When is the study starting and how long is it expected to run for?

August 2016 to March 2018

Who is funding the study?

Education Endowment Foundation (UK)

Who is the main contact?

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Additional identifiers**Protocol serial number**

V2 7 March 2016

Study information**Scientific Title**

Independent Evaluation of the Maths Champions programme: A pragmatic two-arm cluster randomised controlled trial

Study objectives

Primary research question:

What is the impact of the Maths Champions intervention on the mathematical development and skills of children aged three and four years?

Secondary research questions:

1. How effective is the Maths Champions intervention at improving nursery practitioners' confidence in supporting children's maths development?
2. What is the impact of the Maths Champions intervention on the mathematical practice of settings as evaluated using ECERS 3 and ECERS E (Maths)?
3. What is the impact of the Maths Champions intervention on the literacy development and skills of children aged three and four years?

4. What is the impact of the Maths Champions intervention on the development of phonological awareness skills of children aged three and four years?

Ethics approval required

Old ethics approval format

Ethics approval(s)

1. Durham University School of Education Ethics Committee, 16/03/2016, ref: 2302
2. Chairs Action University of York Department of Health Sciences, 18/04/2016

Primary study design

Interventional

Study design

Pragmatic multi-centre two-arm cluster randomised controlled trial

Study type(s)

Treatment

Health condition(s) or problem(s) studied

Children at risk of underachieving in numeracy skills

Interventions

Randomisation will be implemented at nursery level, all children who have consent to participate will be tested at baseline (prior to randomisation) by a nominated member of staff in each participating nursery. Nurseries will be randomised to one of two study arms: intervention or control. The NDNA will provide all participating nurseries with £500 by way of reimbursement for time spent participating in the study. Nurseries allocated to the control group would be able to use this reimbursement to purchase the Maths Champions intervention the following year (the children participating in the study will have left the nursery by then).

Intervention: The Maths Champions intervention will be offered to nurseries randomised to the intervention group. The intervention duration is one year. The Maths Champions intervention involves the identification of a dedicated Maths Champion who is a graduate practitioner working within the given nursery. The dedicated Maths Champion in each nursery is able to access a variety of online training and resources with the aim of using these to support non-graduate practitioners in evaluating their practice, current level of mathematical knowledge /skills and in developing their knowledge, understanding and practice around mathematics in their nurseries. The NDNA provide support to nurseries implementing the Maths Champions programme.

Control: Nurseries randomised to the control will continue with usual nursery provision. As part of the trial we will gather basic information about usual provision in order to be able to describe this.

Follow up for both study arms will be at the end of the intervention year (before the participating children leave nursery to attend school). All children who were tested at baseline (both control and intervention) will be re-tested using ASPECTs which will at post-test be collected independently by NATCEN. The Early Childhood Environmental Rating Scales 3 (ECERS-3) and the Early Childhood Environmental Rating scale (ECERS-E) will also be collected at nursery level at the end of the trial in both intervention and control groups. In terms of long term

tracking data will be accessed via the National Pupil Database (NPD), this will happen January – March 2018.

Intervention Type

Other

Primary outcome(s)

Maths attainment at the end of nursery is measured using the 'Assessment Profile on Entry for Children and Toddlers' (ASPECTS) assessment at baseline and 1 year.

Key secondary outcome(s)

1. Reading and phonological awareness scores are assessed using the 'Assessment Profile on Entry for Children and Toddlers' (ASPECTS) assessment at baseline and 1 year
2. The nursery environment (a snapshot of it) is measured using the Early Childhood Environmental Rating Scales 3 (ECERS-3) and the Early Childhood Environmental Rating Scale (ECERS-E, including a maths subscale) at 1 year
3. Practitioner confidence is measured using a questionnaire designed in the pilot phase of this trial at both pre (June 2016) and post (June/July 2018). In the analysis, practitioner confidence will be summarised descriptively by trial arm.

Completion date

31/03/2018

Eligibility

Key inclusion criteria

Nurseries:

1. Private, voluntary and independent (PVI) settings
2. Located in areas of high deprivation (less than 40% in accordance with the Indices of Deprivation)
3. Not previously involved with Maths Champions
4. At least one graduate practitioner
5. Willing to agree to randomisation and all of the other study requirements outlined in the Memorandum of Understanding

Children:

1. Aged 3 years at the start of the intervention and due to start school in September 2017
2. Attending nursery for a minimum of 15 hours per week
3. Opt-in consent from the parents/carers

Participant type(s)

Other

Healthy volunteers allowed

No

Age group

Child

Lower age limit

3 Years

Sex

All

Key exclusion criteria

Nurseries:

1. Not private, voluntary and independent (PVI) settings
2. Not located in areas of high deprivation (less than 40% in accordance with the Indices of Deprivation)
3. Previously involved with Maths Champions
4. Do not have at least one graduate practitioner
5. Not willing to agree to randomisation and all of the other study requirements outlined in the Memorandum of Understanding

Children:

1. Not 3 years old at the start of the intervention
2. Not due to start school in September 2017
3. Not attending nursery for a minimum of 15 hours per week
3. Parents/carers do not provide opt-in consent

Date of first enrolment

01/01/2016

Date of final enrolment

31/05/2016

Locations

Countries of recruitment

United Kingdom

England

Study participating centre

York Trials Unit

University of York

York

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Study participating centre

Centre for Evaluation and Monitoring (CEM)

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Study participating centre

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Sponsor information

Organisation

University of York

ROR

<https://ror.org/04m01e293>

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

The datasets generated during and/or analysed during the current study will be deposited in the EEF Data Archive (in association with the Fischer Family Trust). Enquiries to FFT's Datalab can be made via educationdatalab@fft.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		12/03/2019	No	No