Effectiveness study of the Thinking, Doing, Talking Science Programme

Submission date	Recruitment status No longer recruiting	Prospectively registered			
01/06/2016		Protocol			
Registration date	Overall study status Completed Condition category	[X] Statistical analysis plan			
03/06/2016		Results			
Last Edited		Individual participant data			
03/03/2022	Other	Record updated in last year			

Plain English summary of protocol

Background and study aims

A recent report on science education found that the best science teaching in primary schools included scientific enquiry as a central focus of teaching and held pupil interest in the subject. However, primary school teachers often do not know how to create enquiry based science lesson plans. This study is testing a new teacher professional development program called "Thinking, Doing, Talking Science" (TDTS), which aims to teach primary school teachers to develop science enquiry based lesson plans. The idea is the TDTS professional development programme will support teachers in lesson planning so that they can better develop engaging lessons tailored to the interests of their pupils. This would then improve teacher self-efficacy and teaching practices, which in turn is thought to improve pupil engagement, content knowledge, and enquiry skills. The aim of this study is to find out whether the TDTS programme can lead to an improvement in pupil attainment, engagement and interest in science.

Who can participate?

Year 5 pupils who attend participating state primary schools in the UK and their teachers.

What does the study involve?

Schools are randomly allocated to one of two groups. Teachers in the first group take part in the TDTS programme. This involves a four day professional development course over the course of the school year, with a focus on learning how to create and deliver enquiry-based lesson plans. Teachers in the second group are continue as normal throughout the study but are given a chance to take part in the TDTS programme after the study is complete.

What are the possible benefits and risks of participating?

Teachers receiving the TDTS professional development will benefit from becoming more capable of teaching science to their pupils. Pupils may benefit from improved attainment in science. There are no notable risks involved with taking part in this study.

Where is the study run from?

The study is run from Science Oxford and Oxford Brookes University and takes place in around 180 primary schools (UK)

When is the study starting and how long is it expected to run for? September 2015 to December 2017

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

Who is the main contact?

1. Dr Raquel Gonzalez (public) rgonzalez@air.org

2. Dr Sami Kitmitto (scientific) skitmitto@air.org

Contact information

Type(s)

Public

Contact name

Dr Raquel Gonzalez

Contact details

American Institutes for Research 2800 Campus Drive Suite 200 San Mateo United States of America 94403 +1 650 376 6337 rgonzalez@air.org

Type(s)

Scientific

Contact name

Dr Sami Kitmitto

Contact details

American Institutes for Research 2800 Campus Drive Suite 200 San Mateo United States of America 94403 +1 650 843 8261 skitmitto@air.org

Additional identifiers

Protocol serial number

N/A

Study information

Scientific Title

Effectiveness Study of the Thinking, Doing, Talking Science Programme - a professional development programme about enquiry-based science for Year 5 teachers

Study objectives

- 1. The Thinking, Doing, Talking Science (TDTS) programme will lead to increased pupil science attainment
- 2. The TDST programme will lead to increased pupil enagement and interest in science

Ethics approval required

Old ethics approval format

Ethics approval(s)

American Institutes for Research Institutional Review Board, 30/03/2016

Study design

Cluster randomised controlled trial

Primary study design

Interventional

Study type(s)

Other

Health condition(s) or problem(s) studied

Interest and engagement in science

Interventions

Schools will be recruited within areas or sites by a trainer assigned to that area. Schools will be assigned to the control or intervention within site using minimisation methods to balance percentage of pupils eligible for free school meals (FSM) and school size as measured by the number of year 5 teachers.

Intervention group: Teachers will participate in the TDTS programme and receive 4 days of professional development over the course of the school-year. Teachers receive continuing professional development (CPD) over the course of the school year that supports their knowledge of and ability to conduct enquiry-based learning, and ability to plan engaging lessons that provide opportunities for deeper thinking. Since the trainings are held over the course of the year, teachers are expected to return to the classroom and implement what they have learned from the training to improve their lesson plans and pedagogy.

Control group: Teachers will experience "business as usual" and will not participate in this TDTS professional development (but may participate in any professional development typically provided by their schools) during the course of the study. Teachers in this group will receive the programme in the following year, after data collection for the study is complete.

At the end of year 5, pupils undergo a series of assessments in order to test their attainment and attitudes towards science.

Intervention Type

Other

Primary outcome(s)

Pupil science knowledge attainment is measured by a score on a science assessment administered as part of the evaluation, at the end of Year 5.

Key secondary outcome(s))

Pupil attitudes towards science which will be measured by a pupil-level survey administered at the end of Year 5.

Completion date

31/12/2017

Eligibility

Key inclusion criteria

Schools:

- 1. Regular (non-special) state school
- 2. Contain Year 5 students

Students:

Year 5 students attending participating schools

Teachers:

Those who teach a Year 5 class. In schools where there is only one year 5 teacher, a second teacher will be nominated to participate in the TDTS programme however that teacher and his /her students will not be part of the evaluation.

Participant type(s)

Other

Healthy volunteers allowed

No

Age group

Mixed

Sex

All

Key exclusion criteria

Schools:

Special schools.

Students:

No exclusion criteria.

Date of first enrolment

15/01/2016

Date of final enrolment

11/07/2016

Locations

Countries of recruitment

United Kingdom

England

Study participating centre Science Oxford

Oxford Centre for Innovation New Road Oxford United Kingdom OX1 1BY

Study participating centre Oxford Brookes University

Headington Campus Headington Road Oxford United Kingdom OX3 0BP

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 will be stored in a repository

IPD sharing plan summary

Stored in repository

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Participant information sheet	Participant information sheet	11/11/2025	11/11/2025	No	Yes
Statistical Analysis Plan		07/09/2017	03/03/2022	No	No