

Independent evaluation of Sci-napse/Uncertain Rewards (pilot and main trial)

Submission date 22/09/2017	Recruitment status No longer recruiting	☐ Prospectively registered ☐ Protocol
Registration date 02/10/2017	Overall study status Completed	☐ Statistical analysis plan ☒ Results
Last Edited 23/08/2019	Condition category Other	☐ Individual participant data

Plain English summary of protocol

Background and study aims

This study will test the impact of a game-based approach to whole-class teaching, developed by researchers at the University of Bristol and Manchester Metropolitan University (MMU), which uses uncertain rewards for correct answers. Questions, posed using an online platform, are integrated with class teaching in Year 8 science lessons, and students work in teams to answer these. The study explores three approaches to learning content: game-based (questions with uncertain rewards, where points are awarded for correct answers but teams can choose whether to keep their points or to risk doubling or losing them based on the chance spin of a wheel); test-based (questions with fixed rewards, i.e. a pre-determined number of points for being correct) and conventional teaching (teacher's usual practice). Although the points are not linked to any material reward, the state of heightened excitement over whether or not pupils will gain or lose points in the "uncertain rewards" condition may increase their receptivity to learning.

Who can participate?

Year 8 students at schools where at least 20% of students receive free school meals

What does the study involve?

Year 8 science classes are randomly allocated to one of three groups: game-based approach, test-based approach, or conventional teaching. Participating year 8 students are tested before the intervention begins and at the end of the intervention (summer term 2017) with the Progress in Science Test.

What are the possible benefits and risks of participating?

Participants may benefit from potentially improving their 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 York Trials Unit (Department of Health Sciences, University of York) and takes place in secondary schools located within the UK.

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

December 2014 to March 2018

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

Who is the main contact?
Louise Elliott
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Contact information

Type(s)
Public

Contact name
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Additional identifiers

Protocol serial number
2

Study information

Scientific Title
Independent evaluation of Sci-napse: engaging the brain's reward system - a three-armed within-school randomised controlled trial

Study objectives
Testing the impact of game-based rewards in secondary school science classes.

The trial is designed to establish:

1. The impact of the game-based teaching versus conventional teaching on academic achievement in science?
2. The impact of the test-based teaching versus conventional teaching on academic achievement in science?
3. The impact of the game-based teaching versus test-based teaching on academic achievement in science?
4. How the two approaches are enacted and received in the classroom, and how this compares with "business as usual"?

Ethics approval required
Old ethics approval format

Ethics approval(s)

School of Education, University of York, 08/12/2015, ref: 15/039

Study design

Three-armed within-school randomised controlled trial

Primary study design

Interventional

Study type(s)

Treatment

Health condition(s) or problem(s) studied

Pupils in Year 8 science lessons

Interventions

A minimum of three classes were recruited in each school. Classes within schools were randomised 1:1:1 using block randomisation with a block size of 3 to ensure balance as far as possible of the three allocations within each school.

This project will test the impact of a game-based approach to whole-class teaching, developed by researchers at the University of Bristol and Manchester Metropolitan University (MMU), which uses uncertain rewards for correct answers. Questions, posed using an online platform, will be integrated with class teaching in Year 8 science lessons, and students will work in teams to answer these. The study will explore three approaches to learning content:

Intervention 1: game-based. Questions with uncertain rewards, where points are awarded for correct answers but teams can choose whether to keep their points or to risk doubling or losing them based on the chance spin of a wheel

Intervention 2: test-based. Questions with fixed rewards, i.e. a pre-determined number of points for being correct

Intervention 3: conventional teaching, teacher's usual practice

Intervention Type

Other

Primary outcome(s)

Attainment in science, measured using the GL Assessment Progress Test in Science (PTS13) at baseline (before the intervention begins) and at the end of the intervention (summer term 2017)

Key secondary outcome(s)

No secondary outcome measures

Completion date

31/03/2018

Eligibility**Key inclusion criteria**

1. State secondary schools around Manchester and Bristol
2. At least half of the recruited schools should have 20% or more pupils with FSM
3. A minimum of 3 year 8 classes available to take part in the evaluation

Participant type(s)

Other

Healthy volunteers allowed

No

Age group

Child

Sex

All

Total final enrolment

4976

Key exclusion criteria

Schools that have not participated in the Sci-napse pilot trial

Date of first enrolment

01/01/2015

Date of final enrolment

30/09/2016

Locations**Countries of recruitment**

United Kingdom

England

Study participating centre

York Trials Unit

University of York

York

United Kingdom

YO10 5DD

Sponsor information

Organisation

University of York

ROR

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

Funder(s)

Funder type

Charity

Funder Name

Education Endowment Foundation (EEF)

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

Stored in repository

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Funder report results	results		23/08/2019	No	No
Study website	Study website	11/11/2025	11/11/2025	No	Yes