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Trial to test the impact of Concept Cat, a whole class teaching methodology for early verbal concepts

Submission date 20/10/2023	**Recruitment status** No longer recruiting	[_] Prospectively registered [X] Protocol [X] Statistical analysis plan [X] Results [_] Individual participant data
Registration date 14/11/2023	**Overall study status** Completed	
Last Edited 03/03/2026	**Condition category** Other	

Plain English summary of protocol

Background and study aims
Existing research has shown a connection between early language support and how well children can use language (EEF, 2023). Also, there's proof that links learning words about ideas with being good at maths. For example, LeFevre and her team in 2010 saw that kids who heard more words about maths at home and in preschool were better at maths than kids who didn't. Another study by Verdine and her group in 2014 found the same thing with words about space and being good at understanding space.

There haven't been many good studies on these programs in the UK. This evaluation is funded by the Education Endowment Foundation (EEF) and forms part of the UK Department for Education's (DfE's) Strong Practice Hubs (SPH) policy, which was designed to promote evidence-informed practice in early years instruction. Therefore, the evaluation seeks to build evidence on effective early years practice to support SPHs.

Concept Cat is a way to teach a whole class to learn important words that help with science and maths in the first part of school. The program takes about 30 weeks, and they teach one new word each week. The teachers who use Concept Cat get special training and help to make sure they do it right.

The study will find out if doing the Concept Cat program makes a big difference for kids who are three to four years old. Some places will use Concept Cat, and others will do what they usually do. This will help us see if Concept Cat really helps kids learn more about words and numbers when they're young.

Who can participate?
Settings were recruited from three SPHs in England located in Birmingham, Trafford, and Everton. To be eligible for recruitment, settings are required to have a minimum of 15 children aged three to four years old enrolled to attend for at least 15 hours a week in the academic year 2023/2024.

What does the study involve?
To gauge how much Concept Cat impacts children's language and maths skills, we'll look at the changes in kids who participate in Concept Cat and those who stick to their usual lessons. We'll assess children's understanding of words and basic ideas with a test called the Basic Concepts sub-test from the Clinical Evaluation of Language Fundamentals Preschool-2 UK (CELF Preschool-2 UK). We'll do this test before and after they do Concept Cat.

We'll also check how well they understand early vocabulary and numbers using the Concepts and Following Directions sub-test from the CELF Preschool-2 UK and the Early Numeracy Assessment from the Early Years Toolbox. But we'll only do these tests after they've gone through the Concept Cat program.

What are the possible benefits and risks of participating?

Where is the study run from?
Education Endowment Foundation (UK)

When is the study starting and how long is it expected to run for?
January 2023 to November 2024

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

Who is the main contact?
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Contact information

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Public, Scientific, Principal investigator

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Additional identifiers

Protocol serial number
022807.015

Study information

Scientific Title
Concept Cat: A two-armed cluster randomised controlled trial

Study objectives
There is a significant difference in the early conceptual language development - as measured by the Basic Concepts subtest of the Clinical Evaluation of Language Fundamentals Preschool-2 UK (CELF Preschool-2 UK) - of children in early years settings receiving Concept Cat, in comparison to children in control settings receiving usual instruction.

There is a significant difference in the early numeracy development - as measured by the Early Numeracy Assessment from the Early Years Toolbox - of children in early years settings receiving Concept Cat, in comparison to children in control settings receiving usual instruction.

Ethics approval required
Ethics approval required

Ethics approval(s)
1. Approved 14/03/2023, RAND Human Subjects Protection Committee (1776 Main Street, Santa Monica, California, 90407-2138, United States of America; +1 (866) 697-5620; hspcinfo@rand.org), ref: 2023-N0010

2. Approved 07/03/2023, University of York Department of Education Ethics Committee (Heslington, York, YO10 5DD, United Kingdom; +44 1904 320000; education-research-admin@york.ac.uk), ref: 23/11

Primary study design
Interventional

Study design
Two-arm waitlisted cluster randomized controlled trial design

Study type(s)
Efficacy

Health condition(s) or problem(s) studied

Early conceptual vocabulary and early numeracy development in children ages 3-4

Interventions
Random allocation at the level of early years settings (pupils aged 3-4).

Control settings will deliver instruction as usual whilst treatment settings will deliver instruction using the Concept Cat methodology.

The Concept Cat approach teaches children concepts such as ‘first’, ‘wide’ and ‘empty’. This is taught in a structured and engaging manner with explicit teaching of vocabulary followed by implicit teaching in play-based learning. The teaching process includes staff acting out a scripted story with a toy cat. Small changes are made to the environment so that children have chances to experience the new word an increased number of times. For instance, if the target word for the week was ‘empty’ then sand and water trays would be out that week and staff would use the word ‘empty’ during children’s play. Families are engaged with simple home activities which will be available in a number of community languages.

This sequence is designed to be accessible to a wide range of children; including those with limited language. One word is taught per week; allowing opportunity for deep understanding to develop. Rather than general vocabulary, Concept Cat specifically teaches early verbal concepts (such as ‘before, early and through’) core to the curriculum of maths and science, with the ultimate aim of improving maths and science attainment at Key Stage 1.

Treatment settings will receive:
- key resources to run the programme;
- a free initial three-hour training session for a lead practitioner and one hour training for all staff (delivered remotely) by Thinking Talking;
- funding to cover staff attendance at the training; and
- visits from specially trained ‘Concept Cat Coaches’ to provide modelling and in-school support sessions. This will be delivered half termly with an additional session in the first half term. The sessions will provide support for staff to apply the learning in their setting, modelling teaching, quality checking, problem solving issues and sharing best practice.
- half termly one-hour on-line peer support sessions for the lead practitioners. This is facilitated by Concept Cat Coaches, supporting practitioners to share experiences of delivery in different settings and problem solve.

Intervention Type
Behavioural

Primary outcome(s)
Early conceptual language development will be measured by comparing children's scores on the Basic Concepts subtest of the Clinical Evaluation of Language Fundamentals Preschool-2 UK (CELF Preschool-2 UK) instrument before and after the delivery of the intervention.

Key secondary outcome(s)
1. Early conceptual vocabulary development will be measured using children's scores on the Concepts and Following Directions subtest of the the CELF Preschool-2 UK, administered after the intervention is completed.
2. Early numeracy will be measured using the Early Years Toolbox's Early Numeracy Assessment, administered after the intervention is completed.

Completion date
29/11/2024

Eligibility

Key inclusion criteria
To ensure that we are evaluating the programme's impact on pupils for whom Concept Cat is believed to be most suitable, the following inclusion will be applied in pupil selection:
1. Pupils who are in Foundation 1 and aged three to four during the academic year 2023/2024.
2. Pupils who are registered to attend the setting for a minimum of 15 hours per week.

Participant type(s)
Learner/student

Healthy volunteers allowed
No

Age group
Child

Lower age limit
3 Years

Upper age limit
4 Years

Sex
All

Total final enrolment
1049

Key exclusion criteria
Pupils will not be eligible to participate in the evaluation if, at baseline:
1. They are not between three- to four-years old;
2. They are judged by setting staff as unable to sit and follow a short adult-selected task. This is because these needs would prevent them from accessing the assessments;
3. They attend the setting less than 15 hours per week;
4.T hey are unable or unwilling to take part in baseline testing (i.e., because of speech and language difficulties or special educational needs).

Date of first enrolment
27/03/2023

Date of final enrolment
31/07/2023

Locations

Countries of recruitment

United Kingdom

England

Study participating centre
Various nurseries in England
-
-
England
-

Sponsor information

Organisation
Education Endowment Foundation

ROR
https://ror.org/03bhd6288

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 stored in a non-publicly available repository (i.e., ONS Secure Research Service).

IPD sharing plan summary

Stored in non-publicly available repository

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Funder report results	version 1	01/07/2025	30/12/2025	No	No
Participant information sheet	Parents info sheet version 3	23/08/2023	14/11/2023	No	Yes
Participant information sheet	Setting info sheet version 3	23/08/2023	14/11/2023	No	Yes
Protocol file	version 1.0	07/09/2023	20/10/2023	No	No
Statistical Analysis Plan	version 1.0		28/07/2025	No	No
Study website		11/11/2025	11/11/2025	No	Yes