Evaluation of The OTTO Club: a two-arm randomised controlled trial
Evaluation Protocol
Evaluator (institution): National Centre for Social Research (NatCen)
Principal investigator(s): Helena Takala

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Evaluation summary

Project title	Evaluation of The OTTO Club: a two-arm randomised controlled trial
Developer *(Institution)*	The OTTO Club
Evaluator *(Institution)*	National Centre for Social Research (NatCen)
Principal investigator(s)	Helena Takala
Protocol author(s)	Helena Takala, Hayley Leonard, Enes Duysak, Abigail Rennick, Ekaterina Stoilova, Kate Wadsworth
Trial design	Two-arm cluster randomised controlled trial with random allocation at school level
Trial type	Efficacy
Pupil age range and Key stage	Pupils aged 5-6 in Year 1, Key Stage 1
Number of schools *(at design stage)*	138 primary schools
Number of pupils *(at design stage)*	3,670
Primary outcome measure and source	Accuracy of letter formation – Alphabet Writing task in The Detailed Assessment of Speed of Handwriting (DASH-2)
Secondary outcome measure and source	Ability to form letters through the correct process - Alphabet Writing task in the DASH-2 Fine motor control – Drawing Circles task in the Movement Assessment Battery for Children (MABC-3) Postural control – supine flexion and prone extension postures from the Clinical Observations of Motor and Postural Skills (COMPS-2) Handwriting confidence and motivation to practise – bespoke survey measure

Protocol version history

Version	Date	Reason for revision
1.0 [*original*]	10/03/2025	
2.0 [first revision]	14/05/2026	Updates to tester eligibility criteria on page 15, to include Educational Psychologists and NatCen researchers, and rationale Update to Table 3, adding in a research question under IPE4 which captures the IPE domain of Context/moderators Update to page 30 and Table 7 – changing endline developer interview from February to June 2026 Updates to page 27 and page 33, explaining the change in sample for the targeted follow-up survey, and rationale Update to page 33 and Table 7 – changing targeted follow-up survey to go live in July rather than April/May, and rationale

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Study rationale and background

Policy and scientific background

Writing is essential to academic success, with attainment in many subjects being assessed through written examinations. Less legible handwriting can be subjected to a 'presentation effect' where the same content is scored more harshly than for more legible writing (Graham, Harris, & Hebert, 2011). Teaching children to produce legible and fluent handwriting is therefore of great importance to academic achievement, and to later employment and life outcomes (Graham, Harris, & Hebert, 2011).

Research has shown that the COVID-19 pandemic had a negative effect on children and young people's enjoyment of writing (Clark, Best, & Picton, 2021). Alongside this, loss of learning opportunities during the pandemic impacted young children's gross and fine motor skills (Quenzer-Alfred, 2024) and the ability to form letters of the correct size and position (Schofield & Sims, 2021), all of which contribute to handwriting abilities. While many factors have affected young children's learning during the pandemic, a reduction in opportunities to learn and develop handwriting could go some way to explaining a negative impact on attainment seen for many children after the pandemic (Education Endowment Foundation (EEF), 2022). This could particularly be the case for those in younger age groups and from more disadvantaged groups, who are more likely to have poor motor control than their more socially-advantaged peers (McPhillips & Jordan-Black, 2017).

To commit knowledge or ideas to paper, pupils must learn to write fluently and legibly. The National Curriculum states that handwriting should be explicitly taught in frequent, discrete sessions (Department for Education, 2014). However, teacher training in handwriting instruction varies widely, as does the teaching of handwriting across Early Years and primary school settings (Molyneaux, 2019). Evaluating the different methods for teaching handwriting is therefore critical to aid educators in choosing the most effective teaching practices to support their pupils' writing and learning attainment.

Evidence suggests that practising handwriting increases automaticity, which happens when a process is performed with speed and accuracy but without conscious attention (La Berge & Samuels, 1974). This frees up cognitive capacity for thinking about the content rather than the process of writing (Graham, Harris, & Fink, 2000). However, there is some debate as to how handwriting automaticity is best achieved. While some interventions focus specifically on handwriting (e.g., by explicitly teaching letter formation and shape), others aim to develop the motor control most closely associated with handwriting (e.g., pen grip/fine motor skills, postural control) (Addy, 1996).

There is some evidence that elements of posture and core stability, such as body positioning and the quality of a child's seated position, can affect children's object manipulation skills (Smith-Zuzovsky & Exner, 2004; Rosenblum, Goldstand, & Parush, 2006), which may have an effect on pencil control during handwriting. However, according to a meta-analysis of handwriting interventions, focusing on motor skill instruction alone does not result in more legible or fluent

handwriting, while direct handwriting instruction has been found to positively impact quality, length, and fluency of handwriting among children (Santegelo & Graham, 2016).

The OTTO Club

The OTTO Club was set up by a team of Occupational Therapists in the wake of the pandemic to address the handwriting issues they were encountering in their daily practice with children. Based on principles of Occupational Therapy, the intervention incorporates direct handwriting instruction alongside activities to support postural/core stability and fine motor control.

The OTTO Club can be run as a whole-class intervention or a targeted intervention. Over the 10 weeks of the programme, a trained teacher or teaching assistant (TA) delivers a longer literacy lesson, plus daily activities that reinforce the lesson. The OTTO Club uses fun and engaging activities in the lesson and follow-up activities to build the skills that children need for effective handwriting such as posture, pencil grasp, and manual dexterity. Once the whole-class intervention is completed, teachers can select pupils who require further support or practice to participate in the targeted intervention. This takes place in small groups and is either led by the teacher or TA. It follows the same format as the whole-class delivery and repeats the full 10 weeks of the intervention.

Existing evidence

The EEF previously funded another handwriting programme called Helping Handwriting Shine (HHS) with Year 2 and Year 5 pupils which found an impact of 2 months' additional progress in Year 5 as a targeted approach, and a null impact in Year 2 as a whole-class approach (Stone et al., 2020).

The OTTO Club differs from HHS in several ways. The OTTO Club focuses on a younger age group: Year 1 (aged 5-6). It also examines the underlying skills that are required for quality writing (i.e., postural control and fine motor control), as well as handwriting itself. The delivery is also different: while HHS required teachers to deliver three 30-minute sessions a week, The OTTO Club requires teachers to deliver one long 45-minute to 1-hour session a week that is supplemented by 10-15 minutes of daily activities. Whilst it is not specified on which day of the week the longer lesson takes place, it's preferred for them to take place earlier in the week so that the shorter lessons can follow. Furthermore, HHS's outcome measure focused on a longer writing task and involved judgement of the quality of the writing as well as handwriting speed. In contrast, the outcome measure for The OTTO Club examines the accuracy of handwriting and the quality as perceived by the child.

The OTTO Club was previously piloted with Key Stage 1 as a whole-class programme and a targeted programme. Unpublished data from the pilot (Blumberg & Burstein, unpublished) provided some promising results in terms of improved handwriting and fine motor control. In the targeted programme pilot, more than 75% of children demonstrated improved fine motor speed and dexterity, with feedback questionnaires detailing noticeable improvements in children's handwriting abilities and confidence, as well as in TAs' skills for understanding and teaching handwriting. Qualitative data from before and after handwriting samples showed improvements

in writing quality (i.e., improved letter formation, spacing, and sizing) as well as writing ability (from illegible letters to sentence writing). No adverse effects were found in terms of the lesson length, with pupils remaining engaged throughout.

The OTTO Club whole-class and targeted programmes have not been independently evaluated and improvements in handwriting have not been compared to children who have not received the intervention. More robust methods of assessment in an efficacy trial are required to effectively evaluate any improvements in the targeted skills of postural control, fine motor control, and handwriting skills resulting from The OTTO Club intervention.

The OTTO Club efficacy trial

This evaluation of The OTTO Club will consist of an impact evaluation (IE) and an implementation and process evaluation (IPE) which will run between October 2025 and June 2026. This is an efficacy trial, which means that the intervention will be delivered in developer-lead, not real-life circumstances, and the evaluation focuses on testing the impact of the programme under ideal conditions.

The aim of the IE will be to assess whether The OTTO Club improves 5-6-year-olds' accuracy of letter formation, ability to form letters through the correct process, fine motor control, and postural control, in addition to exploring whether their confidence and motivation to practise handwriting improves over time. It will also assess whether the impact differs for students from disadvantaged backgrounds, as measured by eligibility for Free School Meals (FSM).

The IPE will aim to understand how the whole-class programme was delivered in practice, the experiences of teachers and pupils, and what the perceived impact was on teachers and pupils, including whether perceived outcomes were similar or different between disadvantaged pupils and their more advantaged peers. The IPE design explores whether the intervention can be implemented as intended and inspects whether the short- and long-term outcomes as well as causal mechanisms between components take place as described in the logic model. Lastly, we seek to understand the cost of the intervention.

The primary outcome measure for the IE focuses on the handwriting "product" (the accuracy of letter formation) and secondary outcome measures include the handwriting "process" (the ability to form letters through the correct process), fine motor control, and postural control.

We will also be conducting two follow-ups. The first is an IE longitudinal follow-up for the whole-class intervention that uses end-of-year writing attainment to measure the impact of The OTTO Club on children's later writing attainment. The second is an IPE follow-up of the targeted programme that will aim to explore how the targeted follow-up was delivered in practice, the experiences of teachers and pupils, and what the perceived impact was on teachers and pupils.

Intervention

Name

The OTTO Club: Occupational Therapy TO bridge the handwriting and motor skills gap for Year 1s

Who (recipients and provider)

The developers of The OTTO Club (hereafter referred to as the delivery team) will recruit and provide initial online training to a cohort of Year 1 teachers and/or TAs. Teachers will then proceed to teach the 10 weekly lessons and brief daily follow-up activities of The OTTO Club programme to Year 1 pupils between November 2026 and February 2026. Teachers who choose to take part in the targeted intervention may choose to deliver the programme again in the following term to a smaller group of pupils they have selected who continue to require support with their handwriting. The aim of the targeted intervention is to continue providing focused, personalised handwriting support to these pupils. If a different teacher/TA delivers the targeted intervention, the delivery team will deliver the initial training again.

What (materials and procedures)

The OTTO Club is a programme designed to improve Year 1 children's handwriting, as well as the underlying skills of postural control and fine motor control. Alongside this, the aim is for pupils to increase in their confidence and motivation to practise handwriting. Through the teacher training and delivery of the programme, The OTTO Club also aims to build teacher understanding of how postural stability, fine motor control, and writing techniques affect handwriting quality, and to increase their knowledge, skills and confidence in implementing these activities within handwriting lessons.

The delivery team will deliver initial online training to the Year 1 teachers/TAs, to introduce them to The OTTO Club approach and familiarise them with the necessary materials. These include a manual, which is a workbook including weekly sets of activities; lesson equipment, such as beads, playdough and beanbags, and weekly demonstration videos that teachers can use for their own information or present to their pupils. Schools will receive access to the printable teacher manual/pupil workbook and the online video resources. Any additional equipment needed for the programme, such as the lesson equipment, must be purchased by the school, but these costs will be covered by the 'thank you' payments. Further information on these payments is detailed under Recruitment. Teachers will learn how to use the manual and equipment correctly. Teachers will also be trained on the basics of the intervention, such as how children should hold their pencils or sit at their desks when writing.

Following training, teachers will deliver The OTTO Club lessons to their Year 1 class, in place of either their usual literacy lesson or a handwriting lesson; this will be dependent on the school. Lesson delivery will span 10 weeks, with the longer lesson each week lasting 45 minutes to 1 hour. Alongside these, teachers will also deliver daily 10 – 15-minute follow-up activities instead of any usual practice handwriting that takes place. These will be in addition to usual literacy

teaching. These reinforce the skills and content learned during the main lesson, with each day alternating between a core exercise and a fine motor exercise. Positive reinforcement is used; each week, the pupil will receive a sticker to say they have completed the classwork and follow-up. The aim of this is to encourage motivation. If pupils have all of the stickers by the end of the programme, they will receive a prize, decided by their teacher.

Throughout intervention delivery, the delivery team will run two monthly online support sessions. These will allow for teachers to ask questions or raise issues they have experienced during delivery. Teachers will also be able to email the delivery team at any time with questions.

For teachers who take part in the optional targeted sessions, they will deliver the same intervention again, but to a smaller group of pupils who require extra support in the following school term.

How

The OTTO Club activities will be delivered through a combination of online and in-person activity. The initial 1.5 – 2-hour teacher training will take place online, as will the two monthly 45-minute support sessions offered to teachers. The delivery of The OTTO Club lessons to Year 1 pupils within primary schools will take place in person by the teaching staff, as will the daily 10 – 15-minute follow-up activities. Lessons will take the place of usual handwriting teaching in intervention schools.

Where

The intervention will run in primary schools across England. Between 40-50% of schools will be in Education Investment Areas, due to the trial being part of the Department for Education's Accelerator Fund.[1]

When and how much (dosage)

The delivery team will provide a 1.5 – 2-hour online training session to Year 1 teachers/TAs in October 2025.

From November 2025 to February 2026, Year 1 teachers in the intervention group will teach weekly 45 minute – 1 hour The OTTO Club lessons to their whole class. This will last for 10 weeks. They will also deliver daily 10 - 15-minute follow up-activities to the whole class. While this is ongoing, the delivery team will provide teachers with two 45-minute online support sessions per month, of which they must attend at least one.

From the end of February 2026 to May 2026, teachers who choose to go on to deliver the targeted intervention will repeat the programme again, but to a smaller group of pupils who require additional support with their literacy.

[1] https://educationendowmentfoundation.org.uk/projects-and-evaluation/accelerator-fund-2022-23

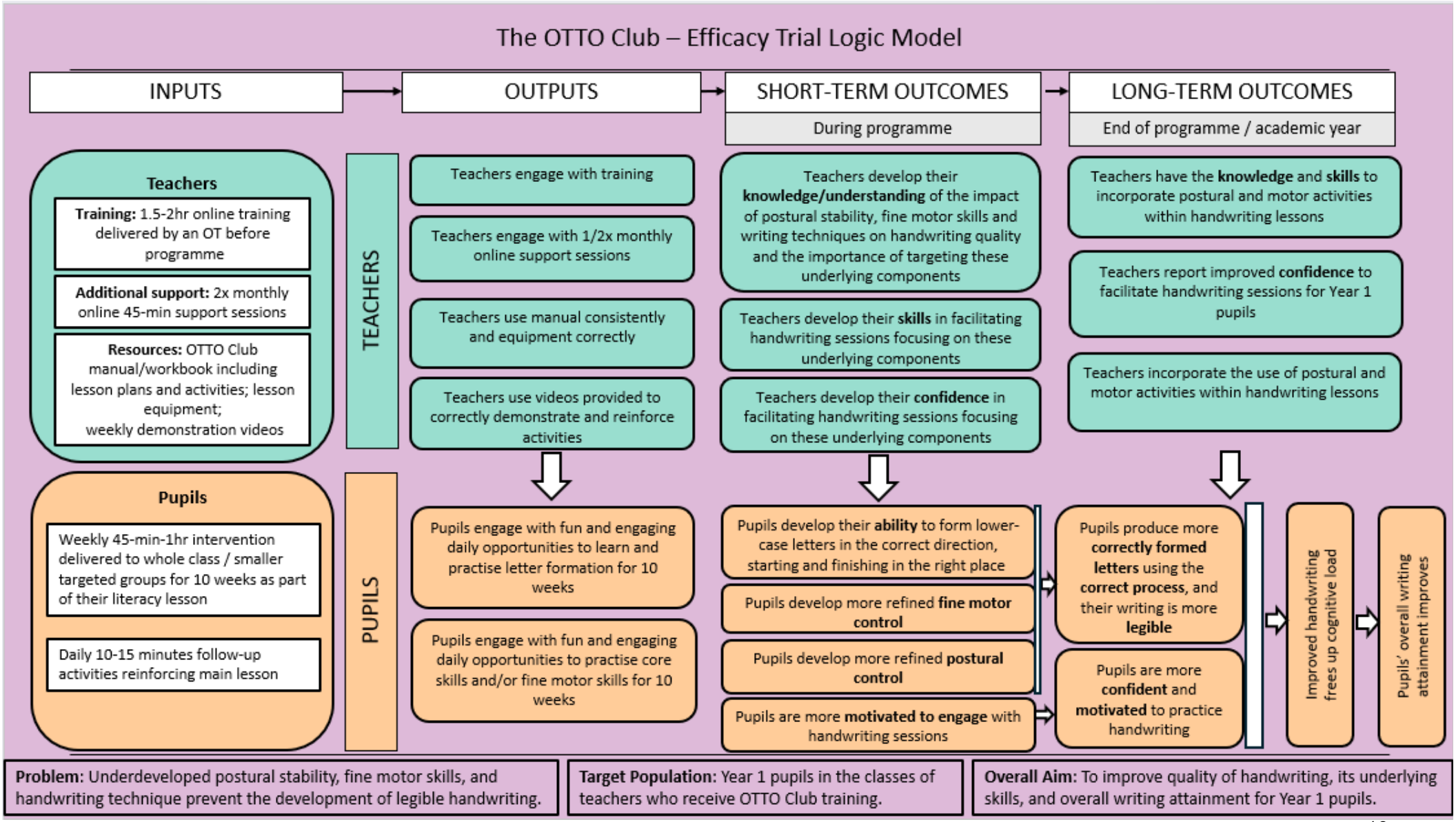
Tailoring (adaptation)

Teachers/TAs will have flexibility when deciding how to deliver the main session to the class. For example, one teacher may deliver it to all pupils, or there can be a carousel of activities with different groups completing different parts of the lesson (e.g., handwriting practice, fine motor tasks, postural tasks) before moving on to the next task.

Teachers will also have the option to combine the daily follow-up activities where necessary, to ensure they fit into their teaching timetable.

The logic model below (Figure 1) was developed in collaboration with the delivery team and agreed during the set-up stage. Moving from left to right, it outlines the inputs necessary for delivering the programme, the outputs, short-term outcomes expected during the programme, and long-term outcomes anticipated by the end of the programme/ academic year. Causal mechanisms are also present in the logic model to demonstrate how outputs lead to short-term outcomes, and short-term outcomes to long-term outcomes. These mechanisms can be understood by broadly tracking from left to right between boxes. All information is detailed separately for teachers and pupils, with teacher information in green and pupil information in orange.

Figure 1: Logic model



Impact evaluation design

Research questions

The impact evaluation (IE) of The OTTO Club will answer the following research questions:

Primary research question

- RQ1. What is the impact of The OTTO Club on 5-6-year-olds' accuracy of letter formation?

Secondary research questions

- RQ2. What is the impact of The OTTO Club on 5-6-year-olds' ability to form letters through the correct process?
- RQ3. What is the impact of The OTTO Club on 5-6-year-olds' fine motor control?
- RQ4. What is the impact of The OTTO Club on 5-6-year-olds' postural control?
- RQ5. What is the impact of The OTTO Club on 5-6-year-olds' confidence and motivation to practise handwriting?
- RQ6. Does the impact of The OTTO Club differ for pupils from disadvantaged backgrounds, as measured by FSM eligibility status?

Design

Table 1: Trial design

Trial design, including number of arms		Two-arm cluster randomised controlled trial (The OTTO Club and teaching as usual)
Unit of randomisation		School
Stratification variables (if applicable)		School-level handwriting time (low, medium and high) and a binary indicator for whether the school is in an Education Investment Area
Primary outcome	**Variable**	Accuracy of letter formation
	Measure (instrument, scale, source)	Detailed Assessment of Speed of Handwriting, 2nd Edition (DASH-2; Barnett et al., 2024) Alphabet Writing task, number of correctly formed letters in one minute.
Secondary outcome(s)	**Variable(s)**	1. Ability to form letters through the correct process 2. Fine motor control 3. Postural control 4. Confidence in handwriting and motivation to practise handwriting

	Measure(s) (instrument, scale, source)	1. DASH-2 Alphabet Writing task, number of letters formed via the correct process (using OT professional judgement) 2. Movement Assessment Battery for Children, 3rd Edition (MABC-3; Henderson & Barnett, 2023) Drawing Circles task, number of correctly formed circles 3. Clinical Observations of Motor and Postural Skills, 2nd Edition (COMPS-2; Wilson et al., 2000), supine flexion posture and prone extension posture, combined duration for which the two positions are held (in sec) 4. Bespoke attitudes questionnaire
Baseline for primary outcome	**Variable**	Accuracy of letter formation
	Measure (instrument, scale, source)	DASH-2 Alphabet Writing task, number of correctly formed letters in one minute
Baseline for secondary outcome	**Variable**	1. Ability to form letters through the correct process 2. Fine motor control 3. Postural control 4. Confidence in handwriting and motivation to practise handwriting
	Measure (instrument, scale, source)	1. DASH-2 Alphabet Writing task, number of letters formed via the correct process (using OT professional judgement) 2. MABC-3 Drawing Circles task, number of correctly formed circles 3. COMPS-2 supine flexion posture and prone extension posture, combined duration for which the two positions are held (in sec) 4. Bespoke attitudes questionnaire

The IE of The OTTO Club will be conducted as a two-arm cluster randomised controlled efficacy trial, with randomisation at the school level and pupils as the unit of analysis.

A sample of 138 primary schools in England will be recruited for the trial by the delivery team of The OTTO Club and randomised by NatCen into the two trial arms, with half randomly assigned to receive The OTTO Club (n = 69) and half randomly assigned to continue teaching as usual (TAU) (n = 69). Randomisation will be stratified by school-level handwriting time and whether the school is in an Education Investment Area (EIA), to ensure balance of those characteristics between the OTTO and TAU groups (see Randomisation). Incentive payments will be offered to schools in both trial arms for the completion of evaluation activities (see Recruitment).

The primary outcome for this evaluation will be pupils' accuracy of letter formation. This outcome assesses the legibility of letter output (the "product" of handwriting) and will be measured using the Alphabet Writing subtest of the Detailed Assessment of Speed of Handwriting (DASH-2;

Barnett et al., 2024). Pupils' accuracy of letter formation is scored as the number of correctly formed letters in one minute (see Outcome measures).

Secondary outcomes will be pupils' ability to form letters through the correct process, pupils' fine motor and postural control, as well as their confidence in handwriting and motivation to practise handwriting. Pupils' ability to form letters through the correct process (the "process" of handwriting) will be measured using the DASH-2 Alphabet Writing task and scored as the number of letters formed via the correct process (using the professional judgement of testers). Fine motor control will be assessed using the Drawing Circles task in the Movement Assessment Battery for Children, 3rd Edition (MABC-3; Henderson & Barnett, 2023) and scored as the number of correctly formed circles. Pupils' postural control will be assessed using observations on the supine flexion and prone extension postures subtests in the Clinical Observations of Motor and Postural Skills 2nd Edition (COMPS-2; Wilson et al., 2000), scored as the duration for which both positions are held. Pupils' confidence in handwriting and their motivation to practise handwriting will be assessed via a bespoke attitudes survey, developed by NatCen in collaboration with the delivery team.

The primary and secondary outcomes will be collected at baseline and endline. More details on the outcome measures are provided below (see Outcome measures).

Participant selection

The trial will take place in state-maintained schools based in England. To be eligible, schools will:

- be state-maintained schools based in England and have pupils in Year 1 during the 2025-2026 school year who are not in a mixed-age (Year 1/Year 2) class,
- not be a specialist SEND school,
- not be taking part in any other handwriting trials,
- not already be involved in a trial targeting pupils and teachers in Year 1 in the 2025-2026 school year,
- not already be involved in the EEF's Evidence into Action partnerships, where interventions are focused on literacy in Key Stage 1,
- not currently be delivering The OTTO Club programme, and
- not be using another manualised handwriting programme for Year 1 during the 2025-2026 school year.

Recruitment will be targeted to include 40-50% of schools in the sample located in Education Investment Areas (EIAs).

All Year 1 teachers in recruited schools will be eligible to receive The OTTO Club training and implement the programme if they have not implemented The OTTO Club in the last two academic years. However, while all Year 1 teachers in the school will be able to implement the programme,

for multi-form entry schools, we will ask the school to nominate one Year 1 teacher (and their class) to take part in the evaluation[2].

The pupils in the nominated class will take part in the evaluation by completing assessments at baseline and endline. Teachers will be able to identify pupils who would not be able to engage appropriately with evaluation activities (e.g., due to English language ability and/or special educational needs) to be excluded from data collection for the evaluation (but not from receiving the programme). We will ask for this information to be recorded on the initial enumeration spreadsheet.

Recruitment

The delivery team will aim to recruit 138 primary schools to take part in the trial. Recruitment will be targeted to have 40-50% of schools in the sample recruited from EIAs. If the school is multi-form entry, one Year 1 teacher and class will be recruited to take part in the evaluation, as decided by the school when signing up to the trial.

Recruited schools will be asked to sign a Memorandum of Understanding (MoU) and provide NatCen with a list of the pupils in the one Year 1 class selected for evaluation activities in September 2025. Parents/carers will have the opportunity to opt their children out from taking part in evaluation activities such as outcome assessments. NatCen will provide an information sheet explaining the legal basis for processing data ('legitimate interests'), a privacy notice and opt-out letters for schools to distribute to parents/carers in September 2025, alongside information about the programme.

Schools randomised into the TAU group will receive a £500 incentive payment from the delivery team for completing the evaluation activities – £250 once they complete baseline data collection in October 2025 and £250 once they complete endline data collection in February 2026. Schools randomised into the OTTO group will receive a £200 incentive payment from the delivery team for completing evaluation activities – £100 once they complete baseline testing and £100 after endline testing. If schools so choose, this £200 incentive can be used to cover the cost of any additional equipment or printing they are required to purchase in order to deliver the programme. OTTO schools will also need to contribute a further £200 towards the cost of the programme. All schools will receive an additional £35 incentive upon completing the IE follow up data collection in July 2026 (end of year writing attainment).

Randomisation

We will randomise at the school level, as The OTTO Club lessons will be delivered in class to all pupils and each school will be asked to only nominate one Year 1 class of their choice to the

[2] From a statistical perspective, increasing the number of observation units (i.e., pupils) within a cluster (i.e., within a school) does not substantially increase statistical power to detect an effect. For multi-form entry schools, we will therefore ask the school to nominate one Year 1 teacher (and their class) to take part in the evaluation, to ensure that baseline and endline data collection is manageable.

evaluation (see Participant selection). Schools recruited to the trial will be randomised into one of the two trial arms: The OTTO Club programme and a TAU control. Randomisation of schools will be stratified by whether the school is in an EIA (binary indicator; see Recruitment), and school-level handwriting time (high, medium and low) to ensure balance between schools in the two trial arms in terms of these characteristics.

Research suggests that the time pupils spend practising handwriting across the curriculum, as opposed to just during dedicated lessons, is very likely to affect the handwriting outcomes of interest for the trial and is likely to vary considerably between schools (Molyneaux, 2019). As such, it is important that schools in the OTTO group and schools in the TAU group are balanced on this characteristic. We will collect school-level handwriting time from teachers of evaluation classes at recruitment, as an estimation of the time pupils spend on handwriting in other subjects over the course of a specified week. Using teachers' estimates, three categories of schools will be created, with boundaries set at terciles of the distribution to create comparatively sized groups reflecting high, medium and low handwriting time. Randomisation will be carried out by the impact evaluation team at NatCen in June-July 2025 to ensure teachers are able to prepare the curriculum for the next school year. It will be completed in Stata 17 using the *randtreat* command, and both .do and .log files will be used to record the process. Researchers will be blind to school identity at the time of randomisation and school identifiers will be linked back to treatment allocation once randomisation into the two trial arms has been completed. command, and both .do and .log files will be used to record the process.

Data collection

We will recruit a team of assessors who are qualified Occupational Therapists (OTs) or who are studying for a master's degree in occupational therapy to carry out baseline and endline data collection. Recruiting testers with suitable training is necessary due to the following considerations:

- The handwriting process outcome requires professional judgement.
- The MABC-3 is a Pearson Level B test[3], requiring an appropriate level of training and expertise for correct test use.
- This reduces a potential additional risk of bias because testers, unlike teachers, will be blind to the treatment allocation during testing.
- This will be a more efficient method of completing testing and will reduce the burden on schools compared to relying on teachers involved in the trial.

3 Learn more at: https://www.pearsonclinical.co.uk/ordering/how-to-order/qualifications/qualifications-policy.html

Since the original publication of the protocol, we have expanded the eligibility criteria in two ways. First, criteria were extended to include Educational Psychologists, who hold the necessary level of qualification to use Pearson Level B tests. Second, a small group of NatCen researchers were trained as assessors for endline. This is because we could not match 17 schools in the trial sample with an Occupational Therapist able to travel to the school. We agreed with the EEF that NatCen researchers could be used for the remaining schools if they receive training and have sufficient qualifications and experience to carry out in-person testing with children. NatCen researchers received training from the project academic advisor and Occupational Therapist, Dr Mellissa Prunty, who provided in-depth training on how to carry out and score each of the assessments. All NatCen testers had a degree-level qualification and experience conducting fieldwork with children and young people, and their qualifications were quality-assured by the EEF evaluation manager.

We will obtain pupil enumeration data for eligible and participating pupils directly from schools. This will include each pupil's first and last name, date of birth, Unique Pupil Number and Free School Meal (FSM) status.

Data on school compliance with the intervention will be collected from the delivery team. In particular, we will collect teacher attendance logs from the delivery team for all training and follow-up sessions. We will also use weekly delivery logs for teachers to track lesson and practice session delivery (see Research methods).

Outcome measures

Primary outcome

The primary outcome for this evaluation will be pupils' accuracy of letter formation. This outcome will focus on the legibility of the letter output (i.e., the "product" of handwriting) and will be assessed using the Alphabet Writing subtest of the Detailed Assessment of Speed of Handwriting (DASH-2, Barnett et al., 2024). While in usual practice the measure places an emphasis on the *speed* of legible handwriting, in defining our measures, we will focus on *legibility* for the purposes of this evaluation.

The DASH-2 includes five subtests, administered and scored by hand, and enables a comparison of handwriting performance in written tasks with varying demands and degrees of difficulty. The DASH-2 offers norms for ages 8 to 25+ and provides standardised subtest scores based on normative samples including in the UK. While the battery is intended for older age groups than the pupils in our sample (expected to be aged 5-6), we will only administer the Alphabet Writing task which we deem age appropriate and on par with the Year 1 literacy curriculum.

The DASH-2 Alphabet Writing task requires pupils to write legible, lowercase letters in alphabetic order from memory continuously for 1 minute. While the original scoring of the task involves counting the number of correctly sequenced and legible letters, for this outcome scores will be defined as the number of correctly formed (i.e., legible) letters in one minute. OT judgement will be used to determine legibility, using the guidelines provided in the DASH-2 manual.

The Alphabet Writing task will be administered one-to-one with pupils by OTs using pencil and paper and scored by hand. This outcome will be collected at baseline in October 2025 and at endline in February 2026.

Secondary outcomes

As a secondary outcome, we will assess pupils' ability to form letters through the correct process (i.e., the "process" of handwriting). This outcome will be measured concurrently with the primary outcome, using the DASH-2 Alphabet Writing task. For this outcome, pupils' performance on the task will be scored as the number of letters formed via the correct process, using OT professional judgement (e.g., forming the lowercase letter '*a*' with a counterclockwise circular stroke starting on the right-hand side). As above, this outcome will be collected at baseline in October 2025 and at endline in February 2026.

Pupils' fine motor control will be assessed as a further secondary outcome in the trial. Fine motor control comprises strength and coordination of small muscles including the fingers, hands and wrists, and is crucial to handwriting ability. It is therefore one of the three key areas of practice in The OTTO Club programme (see Figure 1). Fine motor control will be assessed using the Drawing Circles task in the MABC-3. The MABC-3 provides a standardised measure of everyday gross and fine motor coordination difficulties for children and young adults, with subtests available for three age bands, including 3-6-year-old children. The MABC-3 Drawing Circles task provides pupils with an array of pre-printed circle boundaries and requires them to draw a correctly formed circle in each without crossing the pre-printed lines. Pupils' performance on the task will be scored as the number of correctly formed circles. The MABC-3 Drawing Circles task will be administered by OTs in paper form, at baseline and at endline.

The trial will also assess pupils' postural control as a secondary outcome. Postural control refers to the activation of the core muscles to maintain a stable base of support in a seated or other position, which is proposed as a pre-requisite for fine motor development and handwriting ability. It is therefore also one of the three key areas of practice in The OTTO Club programme (see Figure 1). Postural control will be assessed using two subtests of the COMPS-2. COMPS-2 offers a screening tool for identifying motor coordination difficulties with a postural component in children. We will use two COMPS-2 subtests to assess postural control – the supine flexion posture and prone extension posture, assessing pupils' ability to assume and maintain each position. The prone extension posture involves pupils laying on their stomach with their arms and legs lifted off the ground in an arched-back position against gravity. The supine flexion posture involves pupils laying on their back and flexing their arms and legs towards their chest. Postural control will be measured as the duration (in seconds) for which pupils are able to maintain each position, capped at 2 mins as the maximum score for each posture and summed into a total duration for which the two positions are held. The two posture tasks will be administered and scored by OTs at baseline and at endline.

Pupils' confidence in handwriting and their motivation to practise handwriting will be assessed as a further secondary outcome in the logic model (see Figure 1). Confidence and motivation will be assessed via a bespoke handwriting attitudes survey, developed by the research team at

NatCen in collaboration with the delivery team. The survey will explore questions such as how good pupils feel they are at handwriting, how much they like handwriting at school and how much they practise handwriting at home. The survey will provide a confidence score and a motivation score for each pupil that will be analysed as separate measures. The survey will be administered in paper form by OTs alongside other pupil measures, at baseline and at endline.

Additional measures

Pupils' end of year writing attainment will be collected as an additional follow-up measure in the trial to assess wider writing outcomes for pupils in the longer term. Interim teacher assessments of pupils' ability in English writing form part of non-statutory teacher assessment frameworks at the end of Key Stage 1[4]. In them, teachers make a judgement about whether the pupil is working at the expected standard (or at greater depth), or whether they are working towards the expected standard. Teacher assessments will be collected from teachers/admin team in schools in July 2026 using a data entry template developed by NatCen and uploaded to a secure online portal set up by NatCen. This measure will only be collected at the end of the school year, for schools in both the OTTO and the TAU group.

Baseline measures

All of the above measures, apart from end of year writing attainment, will also be collected at baseline in October 2025.

Sample size

Table 2 presents our power calculations for the trial. We assume a Type I error rate of 0.05 and a Type II error rate of 0.20 (i.e., 80% power). Using the latest figures from the Department for Education[5], we anticipate an average of 26.6 pupils per class and assume on average of 6.5 pupils (24.6%) would be eligible for Free School Meals (FSM)[6]. Power calculations were conducted using PowerUp! (Dong & Maynard, 2013).

Given the lack of evidence that focuses specifically on handwriting as the evaluation subject, our estimates are based on the estimates for wider education measures provided in EEF's review of writing practice[7] and represent an average across them. Accordingly, we assumed a pre-post

4 For more information, please refer to: https://www.gov.uk/government/publications/teacher-assessment-frameworks-at-the-end-of-key-stage-1/non-statutory-teacher-assessment-frameworks-at-the-end-of-key-stage-1.

5 Available at: https://explore-education-statistics.service.gov.uk/find-statistics/school-pupils-and-their-characteristics.

6 Due to targeted recruitment in EIAs, the proportion of FSM eligible pupils in the sample might be higher than this estimate, which would increase statistical power for the FSM subgroup analysis compared to estimates provided below.

7 Education Endowment Foundation (2024). Writing practice review: Understanding current practice and research priorities in teaching writing. Accessed from https://educationendowmentfoundation.org.uk/education-evidence/evidence-reviews/writing-practice-review.

correlation of 0.52 at the pupil level and 0.45 at the school level, and an intracluster correlation (ICC) of 0.12.

Table 2: Sample size calculations

		Overall	Overall (20% attrition*)	FSM	FSM (20% attrition*)
Minimum Detectable Effect Size (MDES)		**0.14**	**0.16**	**0.17**	**0.21**
Pre-test/ post-test correlations	level 1 (pupil)	0.52	0.52	0.52	0.52
	level 2 (school)	0.45	0.45	0.45	0.45
Intracluster correlations (ICCs)	level 2 (school)	0.12	0.12	0.12	0.12
Alpha		0.05	0.05	0.05	0.05
Power		0.8	0.8	0.8	0.8
One-sided or two-sided?		Two	Two	Two	Two
Average cluster size		26.6	21.3	6.5	5.2
Number of schools	Intervention	69	55	69	55
	Control	69	55	69	55
	Total	138	110	138	110
Number of pupils	Intervention	1,835	1,175	452	289
	Control	1,835	1,175	452	289
	Total	3,670	2,350	904	578

Note. *The attrition scenarios presented account for 20% attrition at the school level (e.g., school withdrawing from the trial after randomisation) and 20% attrition at the pupil level (e.g., pupils being opted out of the evaluation or leaving the school).

Based on our experience with trials involving primary data collection in nurseries and primary schools (e.g., Bury et al., 2022; Basharat et al., 2023), we expect moderate to high attrition from

recruitment to endline at both the pupil and the school level. We will aim to minimise pupil-level attrition with mop-up visits at both baseline and endline data collection. Incentives provided to schools in both groups (see Recruitment) aim to help minimise school-level attrition. Nevertheless, we also present power calculations accounting for 20% school attrition and 20% pupil attrition to endline (see Table 2).

Under the above assumptions and accounting for a possible 20% school and 20% pupil attrition, the trial would be powered to detect a Minimum Detectable Effect Size (MDES) of 0.16 for the whole sample and a MDES of 0.21 for the FSM subsample (see Table 2).

Power calculations will be updated to reflect observed sample sizes at recruitment, randomisation, baseline and endline data collection. The updated power calculations will be provided as part of the study's Statistical Analysis Plan (SAP).

Statistical analysis

Primary analysis

We will follow an intention to treat (ITT) approach to estimate the impact of The OTTO Club on accuracy of letter formation as the primary outcome measure (RQ1).

A two-level generalised linear regression model will be estimated to account for pupils (level 1) being clustered within schools (level 2). Pupils' post-intervention raw score on the DASH-2 Alphabet task, representing the number of correctly formed letters in one minute, will be the dependent variable. The statistical model also will include a binary indicator of treatment allocation (OTTO or TAU), baseline raw scores on the DASH-2 Alphabet task and the stratification variables (school-level handwriting time and EIA status) as covariates.

Following EEF Statistical guidance, our analysis will report Hedges' *g* effect sizes, 95% confidence intervals (CIs) and intracluster correlations (ICCs). Our analysis will be pre-specified in detail in the study's SAP.

Secondary analysis

An ITT approach will be adopted to estimate the impact of The OTTO Club on secondary outcome measures (RQ2-5), with two-level generalised linear regression models estimated to account for pupils (level 1) being clustered within schools (level 2).

For each outcome the respective dependent variable will be:

- RQ2: the number of letters formed through the correct process in the DASH-2 Alphabet Writing task,
- RQ3: the number of correctly formed circles on the MABC-3 Drawing Circles task,
- RQ4: the combined duration (in seconds) of maintaining the COMPS-2 supine flexion and prone extension postures,

- RQ5: pupils' scores in motivation to practise handwriting and confidence in handwriting.

Statistical models for each outcome will also include a binary indicator of treatment allocation, respective baseline scores on the same tasks, and stratification variables as covariates. We will report ICCs, Hedges' *g* effect sizes and their 95% CIs, in line with EEF guidance. The analyses will be pre-specified in detail in the study SAP.

Estimation of effect sizes

Following EEF analysis guidance (2022), we will calculate effect sizes as Hedges' g (Hedges, 2007) and report their 95% confidence intervals, taking clustering into account. Effect size calculations will be specified in detail in the SAP.

Sub-group analyses

To estimate whether the impact of The OTTO Club on the primary outcome differs for pupils from disadvantaged backgrounds, as measured by FSM eligibility status (RQ6), we will conduct a sub-group analysis. FSM eligibility status will be collected from schools alongside pupil enumeration data at baseline and again at endline, to minimise the amount of missing data. Following EEF guidance (2022), the sub-group analysis will be carried out both using a sub-sample consisting of only pupils eligible for FSM, and via an interaction term added to the primary outcome model for the whole sample. The outcome for both approaches will be pupils' accuracy of letter formation (see Primary Outcome). This analysis will be specified in detail in the study SAP.

Analysis in the presence of non-compliance

The definition of compliance and how it will be measured has been agreed with the delivery team and EEF to reflect best what the OTTO delivery team sees as the critical ingredients of the intervention. Compliance will be defined as a binary measure at the school level. As only one Year 1 teacher/class per school will take part in evaluation activities, this is the same as the teacher/class level. For a school to count as compliant with the intervention, all of the following criteria must be met:

- The Year 1 teacher and/or TAs taking part in the evaluation must attend the **online training** provided by the delivery team before the start of delivery. The delivery team will arrange multiple training sessions over different days to accommodate teacher availability, but teachers/TAs will only be required to attend one online training session.

- The evaluation class teachers and/or TAs must attend at least one of the two monthly **support sessions** with the delivery team.

- Evaluation class teachers and/or TAs must complete at least the first nine out of the ten weekly **lessons** with their class.

- Each week, teachers must complete at least three out of the five **daily practice sessions** with their class, over at least three different days of the week, including the Wacky Words practice session as mandatory each week.

Data on teacher attendance at the online training and at monthly support sessions will be collected from the delivery team, who will keep a record of attendance at each session. Data on the delivery of weekly lessons and daily practice sessions will be collected from teachers, using a delivery log designed by NatCen to record whether lessons and practice sessions were delivered each week (see Research Methods).

Following EEF guidance (2022), a Complier Average Causal Effect (CACE) analysis will be conducted, drawing on an Instrumental Variables (IV) approach (Angrist & Imbens, 1995). We will use Two Stage Least Squares (2SLS) regression with random treatment allocation as the IV. As the first step of the 2SLS approach, we will regress observed compliance on random treatment allocation as the IV. The second step will substitute treatment allocation with the estimated compliance rate from the first step to predict the outcome. The results of this model will provide evidence for the extent to which compliance with The OTTO Club impacts the primary outcome: pupils' accuracy of letter formation. This model will be estimated for the primary outcome measure only. This analysis will be specified in detail in the SAP.

In the IPE post-intervention teacher survey and case study teacher interviews, we will explore the extent that it was manageable for OTTO group teachers/TAs to complete the minimum number of weekly lessons and daily practice sessions with their class, and any challenges with meeting the minimum number.

Additional analyses

As an additional follow-up analysis, we will explore the impact of The OTTO Club on pupils' end of year writing attainment, as measured by interim teacher assessments for Key Stage 1 (see Additional measures). The dependent variable for this analysis will be a binary variable representing teacher assessments of whether each pupil is working towards the expected standard (0) or working at the expected standard or at greater depth (1). A two-level logistic regression model will be estimated to account for pupils (level 1) being clustered in schools (level 2). This analysis will be specified in more detail in the study SAP.

Mediation analysis is used to explore mechanisms by which an intervention affects the outcome of interest. For The OTTO Club, in line with the logic model, we propose two mechanisms by which the intervention could affect the primary outcome (i.e., accuracy of letter formation): by improving fine motor skill and postural control. We will conduct an exploratory mediation analysis to understand whether the effect of The OTTO Club on accuracy of letter formation is partially or totally mediated by changes in fine motor skill and postural control. For the purpose of this analysis, fine motor skill and postural control will be treated as independent mediators (i.e., mediators that do not mutually affect each other causally). More detail on the mediation analysis will be provided in the study SAP.

Missing data analysis

We will follow EEF analysis guidance to address missing data (EEF, 2022). Multiple imputation will be considered, depending on the extent of missingness (e.g., if above 5%) and the observed patterns of missingness. For less than 5% overall missingness from randomisation to final

analysis, a complete-case analysis will be employed. If more than 5% of data is missing overall from baseline to final analysis, our approach will depend on the observed patterns of missing data. If the pattern of missingness is unrelated to observable and/or unobservable variables, then we will assume data is Missing Completely at Random (MCAR), and we will continue with complete case analysis. If data are missing in a way that is correlated with observable variables, then the primary outcome analysis will be re-estimated through Multiple Imputation using Chained Equations (MICE). A detailed account of our missing data approach will be outlined in the study SAP.

Implementation and process evaluation (IPE) design

IPE dimensions

The IPE will cover the following dimensions:

- **Fidelity** – extent to which The OTTO Club whole-class intervention or the targeted-follow up intervention is delivered as intended.
- **Dosage** – whether teachers deliver the intended dose of the whole-class intervention or of the targeted follow-up intervention at their respective schools.
- **Quality** – how well The OTTO Club whole-class intervention or the targeted-follow up intervention are delivered, including their different components (postural control and fine motor activities as well as handwriting strategies).
- **Adaptation** – the extent to which changes, in terms of content or dosage, are made to the delivery model of the whole-class intervention or of the targeted follow-up intervention.
- **Differentiation** – the extent to which The OTTO Club activities can be distinguished from usual practice in the OTTO schools.
- **Context/moderators**– factors that may influence the delivery or impact of the programme.
- **Unintended consequences** – whether implementing The OTTO Club whole-class intervention or the targeted follow-up intervention has positive or negative impacts on other lessons or pupil behaviour.
- **Reach** – the rate and scope of participation at the teacher, school, and pupil level.
- **Teachers' responsiveness** – the extent to which teachers engage with activities.
- **Pupils' responsiveness** – the extent to which pupils engage with activities, and whether responsiveness of pupils varies by disadvantage status.
- **Perceived impact on teachers and pupils** – Literacy Leads' and teachers' perceptions concerning The OTTO Club whole-class intervention and/or the targeted follow-up intervention, including whether it has achieved its intended outcomes, whether perceived

outcomes are similar or different between disadvantaged pupils and their more advantaged peers, and whether there are any perceived long-term impacts.

- **Monitoring the control** – what is taking place in place of the intervention.

Research questions

Whole-class intervention research questions

The IPE for the whole-class intervention will answer the following broad research questions:

- **IPE1** How is The OTTO Club intervention delivered?
- **IPE2** How does The OTTO Club differ from usual handwriting practice?
- **IPE3** How engaged are teachers and pupils in The OTTO Club intervention, and how is engagement affected by context, teacher, and pupil characteristics?
- **IPE4** What are the perceived impacts of The OTTO Club intervention on teachers and pupils?

These four broad research questions (**IPE1, IPE2, IPE3, and IPE4**) are also broken down into more specific sub-questions, as detailed in Table 3.

Table 3. Whole-class intervention: Overview of IPE dimensions, research questions and associated data collection methods

IPE dimension	Research Question	Data collection methods
Implementation fidelity • **Dosage** • **Quality** • **Adaptation**	**IPE1 How is the OTTO Club intervention delivered?** a. To what extent was the intervention delivered as intended by teachers, including the integration of postural and fine motor activities alongside handwriting strategies? b. Did teachers deliver the expected number of intervention sessions per week, and were sessions the expected length? c. What, if any, adaptations were made to the content or dosage of the intervention? d. Are there any facilitators and/or barriers to delivering the intervention?	Programme developer interviews (baseline and endline) Training observation Review of training and intervention materials Endline teacher survey (OTTO group) Delivery logs (OTTO group) Case studies (OTTO group): - Teacher interviews - Literacy Lead interviews - Lesson observations
Usual practice **Differentiation** **Unintended consequences** **Monitoring the Control**	**IPE2 How does The OTTO Club differ from usual handwriting practice?** a. Which methods and resources do teachers usually use to teach handwriting, and why have they been selected by the teacher or school? b. How much time do teachers usually dedicate to teaching handwriting and is this part of usual literacy lessons? c. What does the intervention replace, and does implementing the intervention have a negative impact on time spent on other lessons? d. What is taking place in the absence of the intervention, including how much time do TAU schools dedicate to teaching handwriting?	Programme developer interviews (baseline and endline) Review of training and intervention materials Delivery logs (TAU group) Endline teacher survey (TAU group) Case studies (TAU group) - Teacher interviews - Literacy Lead interviews - Lesson observations
Reach **Teachers' responsiveness** **Pupils' responsiveness**	**IPE3 How engaged are teachers and pupils in the OTTO Club intervention, and how is engagement affected by context, teacher, and pupil characteristics?** a. Did the intervention reach its intended population? b. Are there patterns in terms of pupil characteristics for those who were/were not reached by the intervention? c. How engaged were teachers with the training/support and how useful did they find it? d. How did teachers perceive the workbook and resources provided? e. What were the perceived costs and benefits of being involved in the intervention? f. What were the drivers/challenges to teachers' engagement with the training and the intervention? g. How engaged were pupils in the OTTO Club handwriting sessions and did this differ from engagement in other handwriting or literacy lessons? h. What were the drivers/challenges to pupils' engagement? i. Did patterns of engagement and drivers/challenges differ by pupil characteristics, including by pupil disadvantage (as measured by FSM status)?	Programme developer interviews (endline) Training Observation Endline teacher survey (OTTO) Case studies (TAU and OTTO): - Teacher interviews (TAU and OTTO) - Lesson observations (TAU and OTTO)

Perceived impact **Context/moderators**	**IPE4 What are the perceived impacts of the OTTO Club intervention on teachers and pupils?** a. What is the impact of the training on teachers' understanding of the core components of handwriting, such as postural stability, fine motor control, and writing techniques? b. To what extent does the training and intervention improve teachers' confidence and enjoyment in teaching handwriting skills? c. To what extent do teachers perceive the intervention improves pupils' confidence and motivation to practise handwriting skills, and does this differ for disadvantaged pupils? d. To what extent do teachers perceive the intervention improves pupils' handwriting and fine motor/postural skills, and does this differ for disadvantaged pupils? e. What, if any, impact has the intervention had on the teachers' future plans for teaching handwriting, including how much time they intend to dedicate to handwriting for Year 1 pupils? f. To what extent do teachers intend to go on to deliver the intervention to targeted pupils, and what are the reasons for doing or not doing so? g. Which contextual/moderating factors influence programme delivery/ impacts?	Endline teacher survey (TAU and OTTO) Case studies (TAU and OTTO): - Teacher interviews (TAU and OTTO) - Literacy Lead interviews (TAU and OTTO) - Lesson observations (TAU and OTTO)

Targeted follow-up intervention research questions

The IPE for the targeted follow-up intervention will answer the following broad research questions:

- **IPE5** How was the targeted follow-up intervention delivered?
- **IPE6** How engaged are teachers and pupils in The OTTO Club targeted follow-up intervention, and how is engagement affected by context, teacher, and pupil characteristics?
- **IPE7** What are the perceived impacts of The OTTO Club targeted follow-up intervention on teachers and pupils?

These three broad research questions (**IPE5**, **IPE6**, and **IPE7**) are also broken down into more specific sub-questions in Table 4. There are also additional sub-questions under **IPE6** and **IPE7** that will be explored where teachers/TAs who are delivering the small group sessions in the targeted intervention did not previously deliver the whole-class intervention sessions. The survey sample for this targeted follow-up intervention has changed since the original protocol publication. Originally, we intended to send the survey to teachers who did go on to deliver the intervention to targeted pupils. However, we will now send it to all teachers in the intervention group, regardless of whether they went on to deliver the intervention to targeted pupils. This will allow us to understand why teachers chose not to deliver the targeted follow up.

Table 4. Targeted follow-up intervention: Overview of IPE dimensions, research questions and associated data collection methods

IPE dimension	Research Question	Data collection methods
Implementation fidelity • **Dosage** • **Quality** • **Adaptation** **Unintended consequences**	**IPE5 How was the targeted follow-up intervention delivered?** a. Who delivered the targeted follow-up intervention? b. How many pupils were identified to take part / did take part in the targeted follow-up intervention? c. How were the pupils identified to take part in the targeted follow-up intervention? d. How did the targeted follow-up intervention differ from the delivery of the whole-class approach? e. Are there any facilitators and/or barriers to delivering the targeted follow-up intervention and how do they differ from the whole-class intervention? f. To what extent was the intervention delivered as intended by teachers, including the integration of postural and fine motor activities alongside handwriting strategies? g. Did teachers deliver the expected number of intervention sessions per week, and were sessions the expected length? h. What, if any, adaptations were made to the content or dosage of the intervention? i. Does implementing the intervention have a negative impact on time spent on other lessons? j. Does implementing the intervention have a negative impact on the rest of the class not receiving the targeted intervention?	Targeted intervention endline teacher survey
Reach **Teachers' responsiveness** **Pupils' responsiveness**	**IPE6 How engaged are teachers and pupils in the OTTO Club targeted follow-up intervention, and how is engagement affected by context, teacher, and pupil characteristics?** a. Did the targeted follow-up intervention reach its intended population? b. Are there patterns in terms of pupil characteristics for those who were/were not reached by the targeted follow-up intervention? c. How engaged were pupils in the OTTO Club follow-up sessions and did this differ from engagement in other handwriting or literacy lessons / the whole-class sessions? d. What were the drivers/challenges to pupils' engagement? e. Did patterns of engagement and drivers/challenges differ by pupil characteristics, i.e. by pupil disadvantage? **If different teachers/TAs delivering small-group sessions** f. How engaged were teachers with the training/support and how useful did they find it? g. How did teachers feel about the workbook and resources provided? h. What were the perceived costs and benefits of being involved in the intervention? i. What were the drivers/challenges to teachers' engagement with the training and the intervention?	Targeted intervention endline teacher survey

Perceived impact	**IPE7 What are the perceived impacts of the OTTO Club targeted follow-up intervention on teachers and pupils?** a. To what extent do teachers perceive the targeted follow-up intervention improves pupils' confidence and motivation to practice handwriting skills? b. To what extent do teachers perceive the targeted follow-up intervention had other positive impacts on pupils? c. To what extent do teachers perceive the targeted follow-up intervention had other negative impacts on pupils? d. Has there been any change to the perceived outcomes on teachers after delivering the targeted interventions? **If different teachers/TAs delivering small-group sessions** e. What is the impact of the training on teachers' understanding of the core components of handwriting, such as postural stability, fine motor control, and writing techniques? f. To what extent does the training and intervention improve teachers' confidence and enjoyment in teaching handwriting skills? g. What, if any, impact has the intervention had on the teachers' future plans for teaching handwriting?	Targeted intervention endline teacher survey

Research methods

Whole-class intervention research methods

NatCen will conduct a multi-stage IPE and take a mixed-methods approach to data collection. This will include semi-structured interviews, observations, document analysis, weekly delivery logs, and surveys.

Interviews with the programme developers

NatCen will conduct two paired interviews with the programme developers: one at the beginning of the trial to gather data about the purpose of the intervention and its intended delivery, and one at the end to gather data about the developers' reflections on how the intervention was implemented. The pre-intervention interview will be conducted before programme delivery begins, in June or July 2025. The post-intervention interview will be conducted after the whole-class and targeted intervention has finished and will take place in June 2026.

We will prepare detailed topic guides for both the pre- and post-intervention interviews to address key elements of **IPE1**, **IPE2** and **IPE3**. The pre-intervention topic guide will specifically collect data for **IPE1** by exploring *fidelity* (what it the intended delivery model and if there are any expected barriers to delivering the intervention) and *dosage* (what is the intended dose of the programme that teachers are expected to deliver at their schools), and **IPE2** by exploring *differentiation* (how might the intervention differ from usual practice in OTTO schools).

The post-intervention topic guide will address **IPE1** by exploring *fidelity* (to what extent was the intervention delivered as intended), *quality* (how well the intervention was delivered), and *adaptation* (what, if any, adaptations were made to the content or dosage of the intervention), and *context* (if any factors affected the delivery or impact of the programme). It will answer **IPE3** through examining *reach* (if the intervention reached its intended population), and *teachers' and pupils' responsiveness* (the degree to which teachers and pupils engage with the intervention, and any drivers and challenges to engagement).

Developers will also be asked to share training and intervention materials for us to review.

Review of training and intervention materials

NatCen will analyse the training and intervention materials to understand the intended delivery of The OTTO Club. We will prepare a framework for the training and intervention materials to address **IPE1** by analysing *fidelity* (what is the intended delivery model of the programme) and *dosage* (what is the intended dose of the programme that teachers are expected to deliver at their school), and **IPE2** by analysing *differentiation* (what methods and resources do teachers usually use to teach handwriting).

Document analysis will be carried out in June and July 2025 before programme delivery begins.

Training observation

NatCen will observe one of the online 1.5 – 2-hour training sessions that will be delivered to teachers at the start of the autumn term in October 2025. We will prepare a detailed observation protocol to guide data collection during the observation.

The observation protocol will focus on **IPE1** by exploring *fidelity* (whether the training/workshop content is aligned with the intended delivery model), *quality* (how well the training is delivered by the trainers), *context* (if any factors affected the delivery or impact of the training), and *dosage* (how much of the training is attended by teachers). The observation protocol will also address **IPE3** by examining *teachers' responsiveness* (how well teachers engage with the training content and delivery). These dimensions will be assessed by comparing the lessons against planned delivery, as identified through the review of training and intervention materials conducted earlier.

Given the number of schools and teachers involved in the delivery of the intervention, there will be several dates for the online training, however we will only observe one session.

Delivery logs

We will ask teachers from OTTO and TAU schools to complete a weekly delivery log (total = 10 logs) to track the amount of handwriting practice taking place. This will assess implementation fidelity in intervention schools as well as usual practice in both OTTO and TAU schools.

A weekly reminder email will be sent to the named teacher in each school and will contain a link to a simple template to record the amount of handwriting practice taking place, as well as the estimated amount of writing across other subjects (*differentiation*). The weekly delivery log for OTTO schools will address **IPE1** by also examining *fidelity* (whether teachers delivered the sessions as intended) and *dosage* (whether teachers delivered the expected number of sessions per week, and whether the sessions were the expected length). Delivery logs for OTTO schools will also capture how many sessions teachers deliver across how many days, and a brief summary of the content of the sessions.

Teacher survey

NatCen will conduct a post-intervention survey with all OTTO and TAU teachers.

For the TAU group, the survey will answer **IPE2** by exploring *monitoring the control* (which methods and resources do teachers usually use to teach handwriting, and how much time teachers usually dedicate to teaching handwriting and whether this is part of usual literacy lessons), as well as **IPE4** collecting detail on *perceived impact* (their understanding of handwriting strategies and the core components of handwriting which are the focus of The OTTO Club intervention).

For OTTO group teachers, the survey will address **IPE1** through analysing *fidelity* (whether the programme was delivered as intended by the teachers), *adaptation* (whether teachers made any adaptations to the content or dosage of the intervention) and *unintended consequences* (the degree to which implementing the intervention had positive or negative impacts on other teaching

or other outcomes), and **IPE2** through analysing *differentiation* (teachers' own usual practice). For **IPE3** we will assess *reach* (rate and scope of participation at the teacher and pupil level), and *teachers' and pupils' responsiveness* (the degree to which teachers and pupils engage with the intervention, and any drivers and challenges to engagement). The survey will cover **IPE4** by examining the *perceived impact* (the effects of the intervention on both teachers and pupils, including teacher knowledge and confidence, and pupil confidence and motivation to practise handwriting).

Case studies

For a richer and more detailed understanding of the implementation of the intervention in the classroom, we plan to select five case study schools (CSSs) from each group (total = 10 schools). CSSs will be purposively selected to maximise differentiation between school characteristics within groups and to match as closely as possible across groups (e.g., school size, urban/rural location, student population). Given the wide variability in teaching handwriting between schools, it is important to gather more detailed data on how handwriting is taught in TAU schools during the intervention.

The case study design will allow us to see how an individual teacher's experience of the training and additional support translates to their application of The OTTO Club approaches in the classroom, and consequently the experiences and perceived outcomes of their pupils. The teacher is the key actor in the intervention, either taking part in or providing most of the activities, and so they will be the case study unit of analysis.

Sampled schools will be invited to participate in a school visit that will encompass the following data collection activities:

- **Teacher lesson observation:** One in-person lesson observation of the longest handwriting session in a particular week. Lesson observations in both TAU and OTTO schools will focus on **IPE1** by gathering data on *fidelity* (how handwriting is taught in the session, including fidelity of implementation in the OTTO schools), *quality*, *adaptation, and context*, and **IPE2** by exploring *differentiation* and *monitoring the control***,** while **IPE3** will be addressed through *teachers' and pupils' responsiveness*. The observations will also address **IPE4** through examining *perceived impact*.

- **Teacher interview:** 45-minute interview with the class teacher (or the person delivering handwriting sessions). In OTTO schools, teacher interviews will focus on **IPE1** by collecting data on *fidelity, adaptation, dosage*, and *unintended consequences*, and on **IPE3** by providing detail on *pupils' responsiveness* and the *reach* of the intervention, as well as *teachers' responsiveness* to the training and the programme. **IPE4** will be addressed by exploring the *perceived impact* of the intervention on both pupils and teachers. In TAU schools, interviews will address **IPE2** by exploring usual practice in more depth, including discussion of the strategies used during the lesson observation (*differentiation, context*). Interviews with both groups will gather data on any training received by the teachers relating to handwriting, and the types of resources and strategies they generally use with this age group (*differentiation*),

along with any barriers to engagement with handwriting practice that they observe among their pupils (*pupils' responsiveness*).

- **Literacy Lead interview:** 30-minute interview with the Literacy Lead. Interviews with Literacy Leads will address **IPE2** by providing insight into the context of handwriting approaches used in the school (*differentiation*), along with broader literacy curriculum-related issues (*context*). In OTTO schools, we will also ask about how the programme fits into the school's wider handwriting approach, along with any future plans for incorporating it into future literacy teaching and roll-out across other year groups to help answer **IPE4** (*perceived impact*). In both TAU and OTTO schools, we will also ask Literacy Leads whether the experience of the class we are evaluating is similar or different to those in other classes in their school, if they are a multi-form entry.

Of note, due to the young age of Year 1 pupils, they will not be interviewed.

Case study schools will be provided with an additional financial incentive of £100 for their participation.

Targeted follow-up intervention research methods

For the targeted intervention, we will also carry out one IPE follow-up consisting of an endline teacher survey.

Teacher survey

All teachers in the intervention group will complete an online survey in July 2026 at endline. This is regardless of whether they delivered the follow-up intervention or not. For those who did not deliver the follow-up intervention, the survey will seek to understand reasons why. For those who did deliver the follow-up, this survey will address **IPE5** by gathering data on *fidelity* (to what extent the targeted follow-up intervention was delivered as intended), *dosage* (whether teachers delivered the expected number of sessions per week and whether these sessions were the expected length), *quality* (how well were the postural control and fine motor activities integrated alongside the handwriting strategies), *adaptation* (what, if any, adaptations were made to the content or dosage of the targeted intervention), and *unintended consequences* (whether implementing the targeted intervention has positive or negative impacts on other lessons or pupil behaviour). The survey will also focus on **IPE6** by examining *reach* (if the intervention reached its intended population) as well as *teachers' and pupils' responsiveness* (the degree to which teachers and pupils engage with the targeted intervention, and any drivers and challenges to engagement). Lastly, the survey will address **IPE7** by exploring *perceived impact* (the effects of the targeted intervention on both teachers and pupils, including teacher knowledge and confidence, and pupil confidence and motivation to practise handwriting).

Analysis

NatCen will digitally record (with participant permission) all interviews, and they will be professionally transcribed. All observations will be recorded using detailed fieldnotes. We will manage and analyse interview data using the Framework approach, developed by NatCen

(Ritchie et al., 2014). The systematic and replicable nature of the Framework approach produces a clear audit trail which is transparent and able to deal with a large amount of data effectively and methodically (Goldsmith, 2021). It meets the principles of RIGOUR outlined in the Aqua book[8] and high standards of trustworthiness and credibility (Ritchie et al., 1994). For qualitative data, we will develop thematic analytical frameworks for each research method to answer the associated research questions (see Table 3 and Table 4), using themes from the topic and observation guides and other themes emerging from the data. Each framework will be assembled into a matrix, where each row will represent an individual interview or observation and each column a theme and any related sub-themes. This approach allows analysis within and across cases and themes. We will use Excel to thematically organise and chart qualitative data using the Framework method, and this will be charted in a way to align with each research question.

Transcripts and observation notes will be reviewed in detail, and data will be summarised and categorised systematically by theme in the frameworks, while using illustrative verbatim quotes where appropriate.

The analysis will be structured around the IPE dimensions. The findings from this analysis will allow us to respond to our research questions as well as comment on the assumptions and causal mechanisms for the programme logic model. For this study, the coding will be deductive, meaning that it will be based on the IPE dimensions and research questions we have set out at the beginning.

For the case studies, we will first conduct analysis within cases (i.e., between interviews and observations in each case study) to consolidate findings within the case. We will then move to comparative analysis that will consider similarities and differences between case studies of the same type (i.e., between OTTO cases, between TAU cases) and also between case types (i.e., OTTO versus TAU). We have chosen this approach because the teacher is the most important actor in The OTTO Club intervention: their engagement with the training and support and consequently their understanding and teaching of The OTTO Club approach has a significant influence on the programme that the pupils receive. This justifies the need for **within-case analysis** (because we expect findings to be consistent within a case) and also **between-case analysis** between OTTO and TAU cases (because we expect there to be differences between those who implemented the intervention and those who did not), between intervention group cases (because we expect there to be differences between cases based on the application of The OTTO Club approach of each teacher as well as the school context they operate in), and between TAU cases (because we expect some differences in the school contexts and the extent to which teachers adhere to the TAU condition).

We will manage quantitative survey data using SPSS or R software. These data will be presented using descriptive statistics and cross-tabulations to help identify patterns in teacher practice between OTTO and TAU groups.

[8] https://www.gov.uk/government/publications/the-aqua-book-guidance-on-producing-quality-analysis-for-government

We will triangulate and synthesise IPE data according to our research questions and implementation domains. This means that the interview and observation Frameworks will be compared with one another as well as with the descriptive and cross-tabulated survey results, in order to see how findings from different data sources are complementary or contrasting. This will enable us to provide a comprehensive assessment of implementation, report against the logic model (this includes making some evidence-based recommendations on what could be changed in the logic model) and explain the impact evaluation findings (for example, if there is null effect, whether this is because of implementation or programme theory failure).

Table 5: IPE methods overview

The research questions addressed in this table include all IPE sub-questions (as per Table 3 and Table 4) associated with each IPE research question.

IPE dimension	RQ addressed	Research methods	Data collection methods	Sample size	Sampling criteria	Data analysis methods
Fidelity, Dosage, Quality, Adaptation, Differentiation, Context, Reach, Teachers' Responsiveness, Pupils' Responsiveness	IPE1, IPE2, IPE3	Developer Interviews	Online	Encounters: 2 interviews, one at baseline and one at endline Sample size per encounter: 2 programme developers	N/A	Qualitative; framework analysis
Fidelity, Dosage, Differentiation	IPE1, IPE2	Review of Training and Intervention Materials	N/A	N/A	N/A	Qualitative; framework analysis
Fidelity, Dosage, Quality, Context, Teachers' Responsiveness	IPE1, IPE2, IPE3	Training Observation	Online	Encounters: 1 observation Sample size per encounter: 2 programme developers (who are also the trainers) and 69 teachers	N/A	Qualitative; framework analysis
Fidelity, Dosage, Differentiation	IPE1, IPE2	Delivery Logs	Online	Encounters: 10 logs, one per week of the intervention Sample size per encounter: 1 Year 1 teacher	Both OTTO and TAU groups	Quantitative; descriptive statistics, and qualitative; framework analysis
Fidelity, Adaptation, Differentiation, Unintended Consequences, Reach, Teachers' Responsiveness, Pupils' Responsiveness, Perceived Impact	IPE1, IPE2, IPE3, IPE4	Teacher Survey	Online	Encounters: 1 survey at endline Sample size per encounter: 138 Year 1 teacher	Both OTTO and TAU groups	Quantitative; descriptive statistics, and qualitative; framework analysis

Fidelity, Quality, Adaptation, Differentiation, Context, Teachers' Responsiveness, Pupils' Responsiveness, Perceived Impact	IPE1, IPE2, IPE3, IPE4	Teacher Lesson Observations	In person	Encounters: 10 observations (5 at TAU schools, 5 at OTTO schools) Sample size per encounter: 1 Year 1 teacher and ~27pupils	Case study schools: maximise differentiation between school characteristics and to match across the TAU and OTTO groups	Qualitative; framework analysis
Fidelity, Dosage, Adaptation, Differentiation, Context, Unintended Consequences, Reach, Teachers' Responsiveness, Pupils' Responsiveness, Perceived Impact	IPE1, IPE2, IPE3, IPE4	Teacher Interviews	In person	Encounters: 10 (5 at TAU schools, 5 at OTTO schools) Sample size per encounter: 1 Year 1 teacher		Qualitative; framework analysis
Differentiation, Context, Perceived Impact	IPE2, IPE4	Literacy Lead Interviews	In person	Encounters: 10 (5 at TAU schools, 5 at OTTO schools) Sample size per encounter: 1 Literacy Lead		Qualitative; framework analysis
Fidelity, Dosage, Quality, Adaptation, Unintended Consequences, Reach, Teachers' Responsiveness, Pupils' Responsiveness, Perceived Impact	IPE5, IPE6, IPE7	Longitudinal Follow-up Teacher Survey	Online	Encounters: 1 survey Sample size per encounter: one teacher/TA per the number of schools that agree to take part in the follow-up targeted intervention	Targeted intervention group only	Quantitative; descriptive statistics, and qualitative; framework analysis

Cost evaluation design

Cost data will be collected and analysed both from schools participating in the trial and the delivery team of The OTTO Club, in line with EEF cost evaluation guidance (2023).

To obtain information on the costs associated with implementing The OTTO Club for schools, cost-related questions will be included in the IPE endline teacher survey. As part of this, we will explore personnel costs for training and implementation of the programme (e.g., teacher cover required during training, time spent preparing for The OTTO Club lessons, and extra time spent delivering literacy lessons with The OTTO Club). The cost evaluation will focus on the whole-class intervention and will not cover the targeted programme.

In line with EEF guidance, our analysis will focus on the *additional* cost incurred to schools, and as such our questions will explicitly ask for the additional time and resources[9] dedicated to The OTTO Club, over and above TAU.

In addition to the costs collected from schools, a proforma will be designed by NatCen to collect information on the costs incurred to the delivery team. The proforma will be filled out by the delivery team and cover personnel costs for preparing programme delivery, personnel costs during training and implementation of the programme, as well as facilities, equipment and materials for implementation.

Data from schools will be used to calculate a per-pupil per-year cost of implementing The OTTO Club, as if delivered over three school years (EEF, 2023). For this calculation, costs will be categorised into pre-requisites, start-up and recurring costs. Per-pupil cost estimates will be based on the number of pupils taking part in the trial.

Ethics and registration

All research undertaken by NatCen goes through a robust ethics procedure. The Research Ethics Committee (REC) is designed to provide ethical guidance and advice, and to ensure the research meets the ethical standards of government and other funders. NatCen's ethics procedure is aligned with the 2021 Government Social Research (GSR) professional guidance and the 2021 Social Research Association (SRA) ethics guidance. For this project, an ethics application was submitted to the REC on 10th January 2025, receiving ethical approval on 23rd January 2025.

Agreement to participate in the trial

Recruitment of schools

[9] Schools will receive access to the printable teacher manual/pupil workbook and the online video resources. Any additional equipment needed for the programme, such as the lesson equipment, must be purchased by the school, but these costs will be covered by the 'thank you' payments.

The OTTO Club will be responsible for recruiting schools into the trial. They will aim to recruit approximately 138 primary schools across England, starting in February 2025. In collaboration with The OTTO Club and the EEF, NatCen have drafted the trial recruitment documents. These include a memorandum of understanding (MoU), a school information sheet, a parent information sheet, and a privacy notice.

The school information sheet includes an overview of what The OTTO Club programme is, the concept of random assignment, the aims of the independent evaluation, the cost to the school of taking part, how much time will be required from them if they choose to take part, information on data sharing, the project team, and a proposed study timeline. The MoU explains in more detail the expectations and responsibilities for teachers in both the OTTO and TAU groups. In all schools, the headteacher will be asked to sign the MoU. By doing so, schools will be formally agreeing to take part in the evaluation and to the associated conditions.

Recruitment of teachers

Eligible teachers will be those who are teaching a Year 1 primary school class and who have not implemented The OTTO Club in the previous two academic years. One headteacher from each of the approximately 138 school settings will be recruited and as detailed above, will sign the MoU to indicate their agreement to take part. On the MoU, the headteacher will provide the name and email address of one Year 1 teacher and the Literacy Lead in the school. This Year 1 teacher will be the teacher involved in the evaluation. Schools are able to have multiple teachers receive The OTTO Club programme, but only one Year 1 teacher will be involved in the evaluation.

For teachers who are selected to be a case study, they will receive a further information sheet detailing what will be involved. They will be under no obligation to take part. We will obtain verbal consent from participants at the start of their interviews.

Recruitment of pupils

Eligible pupils will be those in Year 1, who are being taught by a teacher who has received The OTTO Club training and is taking part in the evaluation. The parents of all eligible students will be given an information sheet which explains the aim of the research, how their child's information will be used, and their right to opt out of the study. Parents will be able to withdraw their child from the evaluation at any point. It will be made clear that opting out will not affect the teaching that they receive.

Trial registration

The trial will be registered on the Open Science Framework (OSF). Registration will take place once the protocol has been published, and the protocol will then be updated with the link to the registered trial.

Data protection

For the duration of this evaluation, NatCen will be the data controller. Our legal basis for processing the data is 'legitimate interest'. This means that we believe there is a genuine reason

for us to process this data (to evaluate the effectiveness of The OTTO Club programme), that this data is needed to fulfil this purpose (we could not evaluate The OTTO Club programme without this information), and that using this data will not interfere with individuals' interests, rights or freedoms.

NatCen will collect primary data from the delivery team, school staff and pupils for the purposes of the IPE and the IE.

NatCen will receive personal data relating to students and school staff directly from schools, as well as from the delivery team at The OTTO Club. For any data The OTTO Club collect, they will be the data controller.

All personal data will be transferred using a secure NatCen server. This includes the pupils' end of year writing attainment in the summer of 2026.

The data subjects will be the pupils, school staff, and the delivery team.

NatCen will store and handle all data securely and confidentially, in line with UK GDPR and the Data Protection Act 2018. Only the research team at NatCen will have access to data collected as part of the evaluation. This will be monitored through a data security plan set up by the Principal Investigator. In addition, some third parties (e.g., transcription company) will have limited access to personal data. There is more information about who has access to data collected as part of this evaluation on NatCen's privacy notice.

Any reports or publications arising from this research will not identify any individual research participant or setting. All personal information, and any other data held on the project, will be securely deleted from NatCen systems within twelve months of the project's completion, by December 2027 at the latest.

Data collected as part of all EEF evaluations are archived. During the evaluation, NatCen will share the impact evaluation data with FFT Education on behalf of the EEF, making them the data processor. After the evaluation, NatCen will share with FFT Education personal identifiable information (e.g., pupil first name, surname, date of birth, FSM status, UPN, URN) alongside the impact evaluation data.

At regular intervals, FFT Education will use these identifiers to request Pupil Matching References (PMRs) from the DfE, who will transfer them directly to the Secure Research Service (SRS) by the Office for National Statistics (ONS). FFT Education will then upload the remaining impact evaluation data to the SRS and link the PMRs. The PMR-linked impact evaluation data will then be added to the EEF archive within the SRS. Once the PMR-linked impact evaluation is archived within the SRS, the impact evaluation data held by FFT Education will be securely deleted. For further information, see the EEF's archive privacy notice.

Personnel

A team of research and evaluation specialists will carry out the evaluation. The Centre for Children and Families will lead the evaluation with support from impact evaluation specialists from the Centre for Evaluation

Table 6: Evaluation team

Name	Institution	Role
Helena Takala	Research Director, Centre for Children & Families	Principal Investigator
Dr Enes Duysak	Research Director, Centre for Evaluation	IE lead
Abbi Rennick	Senior Researcher, Centre for Children & Families	Project manager and IPE lead
Ekaterina Stoilova	Senior Researcher, Centre for Evaluation	IE design and analysis
Kate Wadsworth	Researcher, Centre for Children & Families	IPE support
Dr Gayle Munro	Director, Centre for Children & Families	IPE oversight
Dr Terry Ng-Knight	Acting Co-Director, Centre for Evaluation	IE oversight

A team from The OTTO Club will be responsible for the delivery of The OTTO Club programme.

Table 7: Delivery team

Delivery team	Institution	Role
Chantal Blumberg	Co-developer of The OTTO Club	Founder and Occupational Therapist
Britt Burstein	Co-developer of The OTTO Club	Founder and Occupational Therapist

Risks

Table 8: Risk management

Risk	Likelihood/Impact	Mitigation
Difficulty recruiting target number of schools	**Likelihood:** Low **Impact:** High	• Delivery partners to draw on their already established networks
Attrition at school- and pupil- levels	**Likelihood:** Medium **Impact: Low**	• School and pupil attrition has been accounted for in power calculations. The target number of schools reflects this • Mop-up visits have been included in the design to mitigate against pupil absence • MoU includes expectations of the school once they sign up, so they are aware of tasks and timings
Slippage in school recruitment and/or data collection	**Likelihood**: Low **Impact:** Medium	• Detailed project timetables will be developed and regularly reviewed • Option to expand project team, if necessary
Difficulty recruiting OTs to conduct testing in schools	**Likelihood:** Medium **Impact:** Medium	• Recruiting via several channels and snowballing via recruited OT's networks • Targeting OT Masters students • Broadening recruitment to include Educational Psychologists (EPs) and EP students if necessary
Loss of key staff during project	**Likelihood:** Low **Impact:** Medium	• Numerous staff within organisation with evaluation experience who would be able to provide cover in the short term • Able to draw on resource across team in the longer term
Difficulty scheduling school visits within required timescales	**Likelihood:** Medium **Impact:** Medium	• Trial requirements clearly communicated in recruitment materials/MoU • Early contact with schools to set out the timings and requirements of school staff • Regular communication with a key contact at each school

Data protection issues	**Likelihood:** Low **Impact:** High	• Make data protection policies clear to schools • Follow NatCen procedures in the event of a data security breach
Low levels of completion of monitoring data (e.g. weekly logs)	**Likelihood:** Medium **Impact:** Low	• Send reminder emails to school contact and follow up with phone call • Develop quick and easy process to avoid overburdening staff
Low levels of completion of teacher survey	**Likelihood:** Medium **Impact:** Medium	• Develop short online survey to reduce burden on teachers • Delay survey completion to after endline testing to reduce burden on teachers

Timeline

Table 9: Timeline

Dates	Activity	Staff responsible/ leading
Feb – June 2025	Trial recruitment	The OTTO Club
Mar – Apr 2025	Piloting outcome measures	NatCen
Apr – July 2025	Recruitment of specialist testers	NatCen
June - July 2025	Pre-baseline programme developer interview	NatCen/The OTTO Club
July 2025	Randomisation	NatCen
July – Aug 2025	Briefing and training of specialist testers	NatCen
Sept 2025	Pupil enumeration	NatCen/Schools
Oct 2025	Online teacher training session	The OTTO Club
Oct 2025	Training session observation	NatCen
Oct 2025	Baseline testing	NatCen
Oct 2025	Case study school sampling	NatCen

Nov 2025 – Feb 2026	Intervention delivery	Schools
Nov 2025 – Feb 2026	Online teacher support sessions	The OTTO Club
Nov 2025 – Feb 2026	Case study school lesson observations and interviews	NatCen
Jan – Feb 2026	Endline testing	NatCen
Jan – Feb 2026	Endline teacher survey	NatCen/ Schools
Feb 2026	Online teacher training session (for new staff running targeted groups)	The OTTO Club
Feb – Aug 2026	Analysis	NatCen
June 2026	Endline programme developer interview	NatCen/ The OTTO Club
July 2026	Optional follow up – targeted intervention teacher survey	NatCen/ Schools
July 2026	Receive pupil end-of-year writing attainment	NatCen/ Schools
Nov 2026	First draft of report submitted	NatCen
May 2027	Report published	NatCen/ EEF
July 2027	Archiving	NatCen

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