

Trial Evaluation Protocol

Small Group Reading Support (ABRA ICT & non-ICT)

Evaluators: University of York, Durham University

Principal investigator: Dr Kerry Bell/ Hannah Ainsworth

PROJECT TITLE	Small Group Reading Support (ABRA ICT & non-ICT) <i>(Independent evaluation of small group reading support programmes to improve literacy in Year 1 pupils: a three-armed cluster randomised controlled trial)</i>
DEVELOPERS (institutions)	Coventry University, Nottingham Trent University, Concordia University
EVALUATORS (institutions)	University of York, Durham University
PRINCIPAL INVESTIGATOR(S)	Dr Kerry Bell (Hannah Ainsworth - maternity cover Oct 2017 – Oct 2018)
PROTOCOL AUTHOR(S)	Ainsworth, H. , Gascoine, L., Fairhurst, C., Torgerson, D., Torgerson, C., Elliott, L., Hewitt, C., Bell, K.
TRIAL DESIGN	Three-armed cluster randomised controlled trial with random allocation at school level (ISRCTN37208856)
PUPIL AGE RANGE AND KEY STAGE	5-6 years (Year 1, KS1)
NUMBER OF SCHOOLS	201
NUMBER OF PUPILS	Approximately 5400
PRIMARY OUTCOME	Reading attainment (Progress in Reading Assessment, PIRA)
SECONDARY OUTCOME	Diagnostic Test of Word Reading Processes (DTWRP), Letter Sound Test (LeST), Reading attitudes (survey)

Protocol version history

VERSION	DATE	REASONS FOR REVISION
1.2	11/07/2019	<ul style="list-style-type: none"> clarifying primary outcome analysis in line with SAP; clarify the number of pupils/classes within a school that should be tested; extended the recruitment end date from August to October 2018; clarifying that schools are to be randomised on a rolling basis as soon as possible after baseline testing; describing the process of reselection of pupils
1.1	21/08/2018	Alteration to details regarding how long data will be stored for
1.0	14/05/2018	N/A

BACKGROUND

SIGNIFICANCE

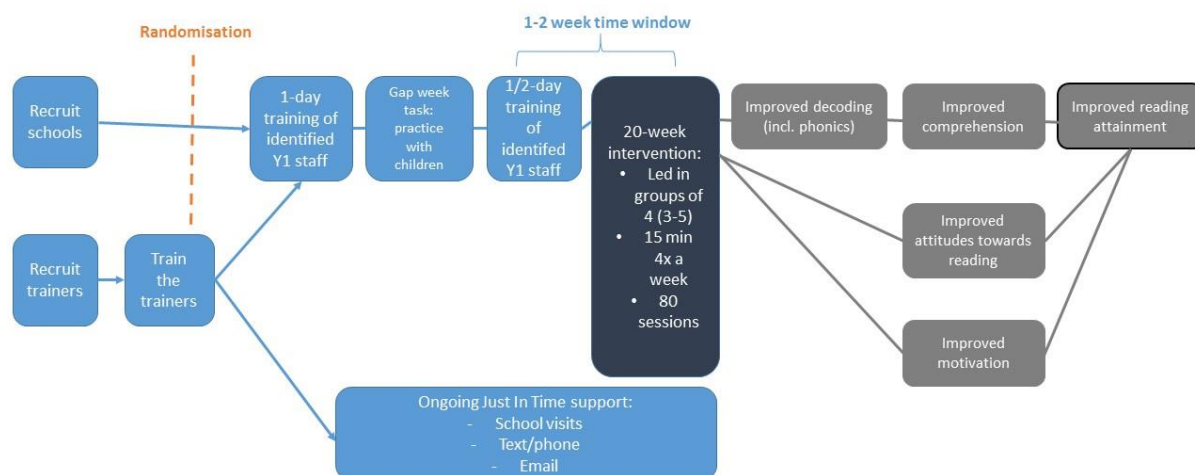
A global goal of education is to improve standards of literacy. In England, the latest national key stage 2 results indicate that only 71% of pupils met the expected standard in reading (DfE 2017). As such it is important that research continues to identify effective approaches to increase literacy skills. A recent tertiary review has recommended that interventions including phonics approaches to increase reading acquisition should be evaluated in large scale RCTs (Torgerson et al 2018). A recent EEF funded review of the use of teaching assistants found beneficial impacts on pupil attainment when teaching assistants were used to deliver structured small group interventions (Sharples et al 2015).

The Abracadabra (ABRA) programme is a freely available computer-based online literacy toolkit, widely used in Canada (Abrami et al, 2010). ABRA provides phonics, fluency and comprehension activities around a series of age appropriate texts, and aims to increase skills in reading. The reading support programme developed for this trial is non-targeted and takes place in Year 1 of primary school. It can be delivered by school staff to small groups of Year 1 pupils, either using ABRA or using more traditional paper-based methods.

A number of small scale developer-led RCTs conducted in Canada, where the ABRA toolkit was first developed, have shown support for ABRA (Comaskey, Savage and Abrami, 2009; Savage et al., 2009) as well as a larger effectiveness trial (Savage et al., 2013). In 2016 an EEF funded efficacy trial of the reading support programme delivered online via ABRA as a computer based programme (ICT) and an equivalent paper based programme (non-ICT) found that pupils who received ABRA or the equivalent paper based programme were found to make between two and three months' progress in literacy compared to pupils who received standard provision. A more marked effect was observed for pupils eligible for free schools meals (FSM) and those with below average pre-test reading scores (McNally et al, 2016). The findings were consistent with evidence from the EEF Teaching and Learning Toolkit, which indicates that technology is most effective when used to facilitate new approaches to teaching and learning, rather than as an end in itself (Higgins et al, 2015), and with the EEF Key Stage 1 Literacy Guidance, which recommends a balanced approach to teaching reading (EEF 2016).

Consequently the EEF has funded a further effectiveness trial to test the impact of the reading support programme when delivered at scale and to further investigate any differences between ABRA and an equivalent non-ICT paper-based reading support programme.

Figure 1: Small group reading support programme: Logic Model



PROGRAMMES

The reading support programmes in this evaluation will be delivered by members of school staff who have received specialist continuing professional development (CPD) training, to small groups of Year 1 pupils. The reading support programmes can be delivered online using Abracadabra (ABRA) (ICT delivery model) or via equivalent paper-based materials (non-ICT delivery model) and are composed of phonics, fluency and comprehension activities based around a series of age-appropriate texts.

In this effectiveness trial the delivery team will adopt a ‘train the trainers’ model. Regional trainers will receive 5 days of training - one 3-day course, followed by two 1-day courses at a central venue. Regional trainers will be required to do 2 days of preparation in their own time. The delivery team will provide email/phone support as necessary. Regional trainers will be trained to deliver training and support for both the ICT delivery model (ABRA) and the non-ICT delivery model reading support programmes.

Schools randomised to the ICT delivery model programme arm or the non-ICT delivery model programme arm will be provided with 1.5 days of CPD delivered in a venue near to their school. These schools will receive two scheduled visits from their regional trainers to support the programme delivery, and just-in-time support delivered on demand by text/email/phone/site visit, as appropriate.

ICT delivery model (ABRA)

Abracadabra (ABRA) focusses on teaching Year 1 pupils, in small groups, a balanced reading curriculum to improve attainment. Essential elements of the programme are:

- A systematic and structured approach to reading
- Evidence based skills learned through a variety of activities linked to real books
- Technology
- Small group work and discussion
- Development of a rich language environment

- Valuing and using pupils' reflections

In the ICT delivery model arm, Abracadabra (ABRA) will be delivered online as available at <https://grover.concordia.ca/abra/en/>

Schools will be encouraged to use the ICT ABRA programme during the course of one academic school year (2018/2019) for a minimum of 20 weeks, but will be able to continue beyond 20 weeks at their choice. Based on the evidence from the previous efficacy trial (McNally et al, 2016) schools will be instructed to group pupils in Year 1 into small groups of 3 to 4 pupils (ideal group size is 4, groups of 5 should be avoided unless other options not possible) and deliver the ABRA programme in four 15 minute sessions per week, supported by a member of school staff. This member of staff can be chosen by the school and is likely to be a teaching assistant but could be a teacher, SENCO, deputy head etc. We will take a pragmatic approach to 'grouping' and allow schools to group pupils however the school decides (in the efficacy trial, most schools grouped by ability). We will seek to collect details on how schools intend to/do group pupils in the baseline survey for school staff.

Schools will be requested to encourage pupils to use the digital system outside the set times, e.g. at home or during lunch/breaks.

The programme described is intended to be *additional* to usual literacy teaching, rather than instead of. This will be explored in the process evaluation.

Schools allocated to the ICT delivery model arm will pay £200 for the training which is a subsidised rate and will be advertised as such in recruitment materials.

TIDieR Table: ICT delivery model (ABRA)

Aspect of TIDieR	Exemplification relating to the evaluation
Brief name	Year 1 small group reading support programme – ICT delivery (ABRA)
Why: Rationale, theory and/or goal of essential elements of the programme	<p>There is considerable evidence to suggest positive links between a systematic and structured approach to reading and attainment. The Year 1 reading programme focusses on teaching Year 1 pupils a balanced reading curriculum to improve attainment. Essential elements of the programme are:</p> <ul style="list-style-type: none"> • A systematic, structured and balanced approach to reading • Evidence based skills learned through a variety of activities linked to real books • Small group work (including turn taking, sharing and respect) and discussion • Development of a rich language environment • Valuing and using pupils' reflections • Technology delivery (ABRACADABRA via website)

Who: Recipients of the programme	All children in (Year 1) participating classes in programme schools.
What: Physical or informational materials used in the programme	<p>The following are provided for each school:</p> <ul style="list-style-type: none"> • Lesson plans for programme lessons – minimum of four 15 minute lessons for each group per week for 20 weeks • Access to online software (ABRA) via website to deliver activities: https://grover.concordia.ca/abra/en/ • Access to online resources about ABRA via ABRA website, including learning resources and objectives for each activity • School manual linking programme to UK curriculum • Just-in-time and scheduled support
What: Procedures, activities and/or processes used in the programme	<ul style="list-style-type: none"> • Initial training sessions for regional trainers about the implementation and delivery of the programme by delivery team • School CPD (external) on programme delivery led by regional trainers • programme lesson plans to deliver programme in school • ABRA website with activities to deliver programme activities • Quality assurance checks for regional trainers by delivery team • Just in time and scheduled support for schools via regional trainers • Quality assurance checks for schools by regional trainers • Mid-project meeting by delivery team to provide on-going professional development and support for the regional trainers
Who: Programme providers/implementers	The programme is designed to be delivered by Teaching Assistants, but can also be delivered by teachers or other suitable school staff. A named contact from each school allocated to the programme will be responsible for ensuring the smooth running of the programme in their school, and will act as the main point of contact with the delivery and evaluation team.
How: Mode of delivery	The delivery of the ABRA programme lessons is undertaken during regular classroom hours, by trained school staff (e.g. TAs). The programme uses a small group approach and as such small groups will be taken from mainstream lessons, one or two at a time, to complete their programme sessions.
Where: Location of the programme	Regular classrooms or quiet areas in participating schools that are allocated to the programme arm of the trial. Schools will be

recruited in five regions (Manchester, Teeside, Newcastle, West Midlands, East Midlands) across England.

When and how much: Duration and dosage of the programme

Programme lessons are approximately 15 minutes in duration and designed to be delivered four times a week for 20 weeks. Pupils work in small groups of 3-4 during ABRA programme lessons. There are weekly pre-prepared lesson plans for Year 1.

Schools can deliver extra sessions (including homework) at their own discretion.

The evaluation period comprises 20 weeks over 3 terms of the programme with the programme, in schools that are not (and have not previously) been implementing any version of the programme.

Tailoring: Adaptation of the programme

School staff can change the level of decoding activities to match the ability of the group. The rate of movement through the levelled activities can be varied according to ability, but recommend a minimum of 80% correct on each level before going up to next level. Progression from mainly decoding based activities to comprehension-based activities can be changed according to ability. Extension activities and differentiation strategies are provided to cater to different ability groups. The programme encourages cross-curricular links to be made to ground and set in context new skills being learned.

How well (planned): Strategies to maximise effective implementation

In order to maximise the effectiveness of the implementation the following training and continuing professional development opportunities are provided:

- Recruitment event (half day per region) attended by head teachers and delivery team
- 3 days initial CPD delivered to regional trainers by delivery team prior to the programme (including training on non- programme - specific ABRA training – i.e. how to use ABRA and access all resources and help online on Day 1; training on how to deliver the programme via ABRA + project management skills on Day 2; training on project management skills on Day 3)
- 1 day follow up CPD delivered to regional trainers by delivery team just prior to the programme
- 1 day meeting mid programme with regional trainers and delivery team to refresh CPD and discuss progress.
- Regular email contact and support from delivery team to regional trainers
- CPD (1.5 days) delivered within each region by regional trainers to all school staff involved in delivery
- Quality assurance visits by delivery team to regional trainers during (1 and ½ day) delivery of CPD to schools

- Support visit by regional trainers to schools early in programme delivery.
- CPD visit and quality assurance check by regional trainers to schools midway through programme delivery.
- Regular, frequent email contact between regional trainers and the programme schools
- Telephone/text/email/site visit support provided as and when needed (just in time support), from regional trainers to schools.
- Technical support from ABRA delivery team.

Full details of the ICT delivery model (ABRA) programme are provided in the efficacy trial final report (McNally et al 2016

https://educationendowmentfoundation.org.uk/public/files/Projects/Evaluation_Reports/ABRA_with_addendum.pdf). However the following changes have been made to the programme as described in the McNally et al 2016 report:

- the 20 week programme will be delivered on a laptop or desktop computer connected to the internet, but not via tablets
- training is suitable for and will be delivered to all nominated school staff, and not restricted to Teaching Assistants
- nominated school staff will be provided with ICT facilities during training to access and practice with the software
- nominated school staff will be provided with a best practice guidelines sheets
- from week 12 onwards nominated school staff will be given more flexibility in deciding which activities to present to pupils depending on levels already achieved (this was the case in previous efficacy trial but not detailed in description provided in McNally et al 2016 report).
- a server version of the software that requires a log in or traces usage will not be used
- progression through the levels will be based on 80-90% correct performance on current level (this was the case in previous efficacy trial but not detailed in description provided in McNally et al 2016 report).
- ABRA has been updated from a Flash-based version to an html5 version. The screen shots in the McNally et al 2016 EEF report may differ slightly from the current version of ABRA
- the activity logs/registers will be updated to capture usage outside the core usage (four 15 minute sessions a week for twenty weeks)

Non-ICT paper based delivery model

Schools allocated to the non-ICT paper-based delivery model arm will be instructed to use an equivalent paper-based reading support programme which focusses on teaching Year 1 pupils, in small groups, a balanced reading curriculum to improve attainment. Essential elements of the programme are:

- A systematic and structured approach to reading
- Evidence based skills learned through a variety of activities linked to real books

- Small group work and discussion
- Development of a rich language environment
- Valuing and using pupils' reflections

Schools will be encouraged to use the paper based reading support programme during the course of one academic school year (2018/2019) for a minimum of 20 weeks, but will be able to continue beyond 20 weeks at their choice. Based on the evidence from the previous efficacy trial (McNally et al, 2016) schools will be instructed to group pupils in Year 1 into small groups of 3 to 4 pupils and deliver the reading support programme in four 15 minute sessions per week, supported by a member of school staff. This member of staff can be chosen by the school and is likely to be a teaching assistant but could also be a teacher, SENCO, deputy head etc.

Schools will be requested to encourage pupils to use the paper based resources outside the set times, e.g. at home or during lunch/breaks.

The programme described is intended to be *additional* to usual literacy teaching, rather than instead of usual provision. This issue will be explored in the process evaluation.

Schools allocated to the Non-ICT paper based delivery model arm will pay £200 for the training which is a subsidised rate and will be advertised as such in recruitment materials.

TIDieR Table: Non- ICT delivery model

Aspect of TIDieR	Exemplification relating to the evaluation
Brief name	Year 1 small group reading support programme – Non-ICT delivery
Why: Rationale, theory and/or goal of essential elements of the programme	<p>There is considerable evidence to suggest positive links between a systematic and structured approach to reading and attainment. The Year 1 reading programme focusses on teaching Year 1 pupils a balanced reading curriculum to improve attainment. Essential elements of the programme are:</p> <ul style="list-style-type: none"> • A systematic, structured and balanced approach to reading • Evidence based skills learned through a variety of activities linked to real books • Small group work (including turn taking, sharing and respect) and discussion • Development of a rich language environment • Valuing and using pupils' reflections • Paper delivery (paper books, flashcards, magnetic letters, etc.)
Who: Recipients of the programme	All children in (Year 1) participating classes in programme schools.

What: Physical or informational materials used in the programme	<p>The following are provided for each school:</p> <ul style="list-style-type: none"> • Lesson plans for programme lessons – minimum of four 15 minute lessons for each group per week for 20 weeks • Manual describing activities in more detail, including photocopyable resources where necessary • Paper books to accompany lesson plans • Just-in-time and scheduled support
What: Procedures, activities and/or processes used in the programme	<ul style="list-style-type: none"> • Initial training sessions for regional trainers about the implementation and delivery of the programme by delivery team • School CPD (external) on programme delivery led by regional trainers • Programme lesson plans to deliver programme in school • Quality assurance checks for regional trainers by delivery team • Just in time and scheduled support for schools via regional trainers • Quality assurance checks for schools by regional trainers • Mid-project meeting by delivery team to provide on-going professional development and support for the regional trainers
Who: Programme providers/implementers	<p>The programme is designed to be delivered by Teaching Assistants, but can also be delivered by teachers or other suitable school staff. A named contact from each school allocated to the programme will be responsible for ensuring the smooth running of the programme in their school, and will act as the main point of contact with the delivery and evaluation team.</p>
How: Mode of delivery	<p>The delivery of the programme lessons is undertaken during regular classroom hours, by trained school staff (e.g. TAs). The programme uses a small group approach and as such small groups will be taken from mainstream lessons, one or two at a time, to complete their programme sessions.</p>
Where: Location of the programme	<p>Regular classrooms or quiet areas in participating schools that are allocated to the programme arm of the trial. Schools will be recruited in five regions (Manchester, Teeside, Newcastle, West Midlands, East Midlands) across England.</p>
When and how much: Duration and dosage of the programme	<p>Programme lessons are approximately 15 minutes in duration and designed to be delivered four times a week for 20 weeks. Pupils work in small groups of 3-4 during programme lessons. There are weekly pre-prepared lesson plans for Year 1.</p>

Schools can deliver extra sessions (inc. homework) at their own discretion.

The evaluation period comprises 20 weeks over 3 terms of the programme with the programme, in schools that are not (and have not previously) been implementing any version of the programme.

Tailoring: Adaptation of the programme

School staff can change the level of decoding activities to match the ability of the group. The rate of movement through the levelled activities can be varied according to ability, but recommend a minimum of 80% correct on each level before going up to next level. Progression from mainly decoding based activities to comprehension-based activities can be changed according to ability. Extension activities and differentiation strategies are provided to cater to different ability groups. The programme encourages cross-curricular links to be made to ground and set in context new skills being learned.

How well (planned): Strategies to maximise effective implementation

In order to maximise the effectiveness of the implementation the following training and continuing professional development opportunities are provided:

- Recruitment event (half day per region) attended by head teachers and delivery team
- 3 days initial CPD delivered to regional trainers by delivery team prior to the programme (including training on non- programme - specific ABRA training – i.e. how to use ABRA and access all resources and help online on Day 1; training on how to deliver programme via ABRA + project management skills on Day 2; training on project management skills on Day 3)
- 1 day follow up CPD delivered to regional trainers by delivery team just prior to the programme
- 1 day meeting mid programme with regional trainers and delivery team to refresh CPD and discuss progress.
- Regular email contact and support from delivery team to regional trainers
- CPD (1 and 1/2 day) delivered within each region by regional trainers to all school staff involved in delivery
- Quality assurance visits by delivery team to regional trainers during (1 and ½ day) delivery of CPD to schools
- Support visit by regional trainers to schools early in programme delivery.
- CPD visit and quality assurance check by regional trainers to schools midway through programme delivery.

- Regular, frequent email contact between regional trainers and the programme schools
- Telephone/text/email/site visit support provided as and when needed (just in time support), from regional trainers to schools.

Full details are provided in the efficacy trial final report (McNally et al 2016 https://educationendowmentfoundation.org.uk/public/files/Projects/Evaluation_Reports/ABR_A_with_addendum.pdf). However the following changes have been made to the programme as described in the McNally et al 2016 report:

- the non-ICT version is a paper version (not pencil and paper)
- training is suitable for and will be delivered to all nominated school staff, and not restricted to Teaching Assistants
- the activity logs/registers will be updated to capture usage outside the core usage (four 15 minute sessions a week for twenty weeks).

Control

'Business as usual' approach: Schools in the control group will be asked to continue with usual teaching with Year 1 pupils in the 2018/2019 academic year. In most schools, we would expect that some pupils are taught in a small groups as part of usual practice (for example pupils performing below the expected level, or needing additional support/stretch). In order to explore the effects of small group teaching per se, schools in the control group will be asked to deliver small group teaching, similar in length and delivery to that which is being delivered in the programme schools. The content of this additional small group teaching is at the schools' discretion but must be literacy based and cannot be ABRA or the paper-based equivalent. We will ask all schools to pre-identify, before randomisation, approximately 3 to 4 pupils they intend to deliver small group teaching to (it will not be necessary for schools allocated to the control group to teach all pupils involved in the evaluation in a small group). We will collect details of this small group teaching in terms of its content and delivery through surveys and interviews. Schools in the control arm will receive a thank you payment of £500. Schools will be able to invoice the delivery team for this payment upon completion of the trial.

Note: The difference in financial incentives between the 3 groups is an aspect of the different conditions and as such will be taken into account in the interpretation of the results.

METHODS

AIM

To investigate the effectiveness of an ICT-based, small group reading support programme (ABRA) delivered at scale and an equivalent non-ICT, small group reading support programme delivered at scale to pupils in Year 1 on literacy development.

RESEARCH QUESTIONS

Primary Research Questions

1. How effective is the ICT delivery model of the reading support programme (ABRA), compared to the 'business as usual' group, in increasing the literacy skills of pupils in Year 1?
2. How effective is the paper-based delivery model of the reading support programme, compared to the 'business as usual' group, in increasing the literacy skills of pupils in Year 1?

Secondary Research Questions

3. How effective is the ICT delivery model of the reading support programme (ABRA), compared to the paper-based model, in increasing the literacy skills of pupils in Year 1?
4. How effective is the ICT delivery model of the reading support programme (ABRA), compared to the 'business as usual' group, in increasing the literacy skills of pupils in Year 1 who are eligible for FSM?
5. How effective is the paper-based delivery model of the reading support programme, compared to the 'business as usual' group, in increasing the literacy skills of pupils in Year 1 who are eligible for FSM?
6. How effective is the ICT delivery model of the reading support programme (ABRA), compared to the paper-based model, in increasing the literacy skills of pupils in Year 1 who are eligible for FSM?

DESIGN

This will be a pragmatic three-arm cluster randomised effectiveness trial; approximately 201 primary schools will be randomly allocated to either receive: 1) the ABRA, ICT delivery model, 2) an equivalent non-ICT paper based small group reading support programme, or 3) to continue business as usual including usual small group teaching, in the academic year 2018/2019.

The trial will be designed, conducted and reported to CONSORT standards (Altman et al., 2011) in order to minimise all potential threats to internal validity, such as selection bias and a range of post randomisation biases (Cook and Campbell, 1969; Shadish, Cook and Campbell, 2002; Torgerson and Torgerson, 2008). In this way, unbiased estimates of the impact of the programme will be provided.

RANDOMISATION

A York Trials Unit statistician, not involved in the recruitment of schools, will use a dedicated computer program (MinimPy; Saghaei and Saghaei, 2011) to randomise schools 1:1:1 to either of the two programme groups or to the control group. Minimisation will be undertaken to ensure the groups are balanced, on the following factors:

- Staff type – the member/s of staff identified by the school who will deliver the programme (qualified teacher or non-qualified teacher or both)
- Number of pupils in the Year 1 cohort (2 levels; median number of pupils per Year 1 cohort will be used as cut point)
- Percentage of pupils ever eligible for FSM in the Year 1 cohort (2 levels; median percentage of pupils who have ever been eligible for FSM will be used as cut point)
- Geographical area (West Midlands, East Midlands, Newcastle, Teeside and Manchester)

At the point at which schools are ready to be randomised, data from all engaged schools will be used to calculate the median cut-points for the number of pupils in the Year 1 cohort and percentage of FSM pupils. Addendum: these values were calculated as n=38, and 21%, respectively, for use in the minimisation. Schools were randomised on a rolling basis as and when they completed baseline tasks; however, in order to randomise schools in time for them to attend the relevant intervention training, where applicable, some schools had to be randomised and informed of their trial allocation before completing pre-tests.

One of the programme arms relies on technology. Some schools, particularly small or rural schools, may have recurrent problems with technology. We do not want to exclude schools from participation based on ICT facilities as this would not pose a barrier to usage of the equivalent paper based (non-ICT) programme in usual practice. Schools that identify potential ICT limitations will be randomised instead on a 1:1 basis between the non-ICT delivery approach and business as usual only, but otherwise as described above.

PARTICIPANTS

Schools

The delivery team will take the lead in recruiting schools, supported by the evaluation team. Recruitment activities will include: hosting recruitment events; making face to face visits to schools; telephone and email communication; and advertisement.

It is anticipated that there will be 5 recruitment hubs (based in the West Midlands, East Midlands, Newcastle, Teeside and Manchester), with approximately 40 schools recruited in each hub. The recruitment hubs have been chosen in order to target schools serving deprived communities, with the aim of recruiting schools with above the national average proportion of FSM pupils. Given the challenging recruitment target in this trial, however, we do not propose to set a minimum threshold for FSM pupils in a school as a particular inclusion criteria. The trial will seek to include schools with at least one form entry (at least around 27 pupils in the Year 1 cohort); however, smaller schools will be considered for inclusion.

The following school inclusion criteria will apply:

- Schools with a Year 1 cohort
- Schools with the necessary ICT equipment to take part in the ICT arm (access to a suitable computer in a suitable location), will be identified as eligible to be randomised to any of the three arms. Schools without the necessary ICT equipment to take part in the ICT arm, will be identified as eligible to be randomised to either of the two arms – non ICT or control.

- Schools willing to agree to the requirements of participation outlined in the Memorandum of Understanding (Appendix A).
- Schools who can feasibly deliver programmes to a minimum of 10 Year 1 pupils.

At the time schools make a decision to take part in the trial, they will be asked to provide information about:

- how many classes and/or pupils they intend to deliver the programme to
- the type of staff members they will send to the training
- the school's ICT resources
- the total number of pupils in the Year 1 cohort
- the percentage of pupils ever eligible for FSM across the whole school cohort
- the percentage of pupils ever eligible for FSM in the Year 1 cohort

Pupils

Schools will be asked to confirm how many Year 1 classes and/or pupils they can feasibly deliver the programme to. Where schools are willing and able to deliver to all pupils in Year 1, all necessary staff will be permitted to attend the training (if allocated to one of the programme arms). Where school have only one Year 1 class we will aim to test the whole class (or as many pupils as can be tested). For larger schools with greater than two classes, we will aim to test two classes only.

If a school can only feasibly deliver the programme to one Year 1 class, whenever possible, YTU will randomly sample the class to take part prior to the school being randomised if there are more than one appropriate classes. However, it is accepted that, in some instances, logistical/practical issues at schools may dictate which class will participate.

If a school can only feasibly deliver the programme to a smaller number of Year 1 pupils (schools must be willing to deliver to a minimum of 10 pupils), wherever possible YTU will randomly sample the Year 1 pupils to be included in the evaluation.

All parents/carers of pupils in identified participating Year 1 classes will be sent a letter about the study and if they do not wish for their child's data to be used in the evaluation they will be asked to return a 'Withdraw from Research Form' to their child's school.

Addendum: After attending the training, some schools allocated to the ICT or non-ICT arms felt that they were unable to deliver the programme to the number of pupils they had initially specified and allowed the YTU to randomly select a smaller subset of their original cohort to take part in the programme, according to the number the school felt they could manage.

It is within the schools' scope to decide which teaching approaches are used in their school. As such, the Head Teacher will make the decision for their school to partake in the evaluation and agree to adhere to the allocated condition by signing the Memorandum of Understanding. Pupils will therefore receive the programme (if their school is allocated to a programme arm) even if parents/carers withdraw (or subsequently withdraw) their child from inclusion in the research for the purposes of the evaluation. However, parents will have the opportunity to withdraw their child from the evaluation, if they have any objections to the data processing activities communicated to them in advance (see below).

If a school feels that a particular pupil would not be suitable to receive the programme or complete the outcome measures, such pupils will be excluded from the research. Such cases are expected to be rare, as previous use of the programmes has found them to be suitable with pupils of all abilities.

OUTCOME MEASURES

Primary outcome

The primary outcome will be measured (pre- and post-programme) by the Progress in Reading Assessment (PiRA) test¹, which evaluates general reading ability and in particular phonics, literal comprehension, and reading for meaning. This will be conducted with all participating Year 1 pupils in each school. The test takes approximately 30 minutes for a pupil to complete and is delivered in a group setting (approximately 10-15 children per group). The PiRA was used in the previous efficacy trial (McNally et al 2016) where it was found to be a suitable outcome measure. It is a group delivered test which keeps testing costs to a minimum. At baseline (pre-test) the test will be administered by school staff, but will be marked independently by the evaluation team. At post-test the PiRA will be both administered and marked independently by the evaluation team. Test administrators and markers will be blind to allocation. The age-standardised score will be used for analysis.

We will only post-test pupils with a valid pre-test (regardless of whether this was completed before or after their school being informed of their random allocation).

Secondary outcomes

The following secondary outcomes will be measured post-programme only in a subset of up to 10 pupils per school randomly selected from the pupils assessed for the primary outcome at pre-test. All secondary outcomes will be collected/administered and marked by evaluation team independent assessors blind to allocation. The secondary outcomes are:

Diagnostic Test of Word Reading Processes (DTWRP)², which assesses the reading of regular words, exception words, and non-words to enable the precise areas of difficulty experienced by individual pupils to be identified. The DTWRP takes approximately 10 minutes for a pupil to complete and is delivered on a one to one basis. This test is more sensitive than a group reading test as it focuses on the decoding of single words (which is a focus of KS1), thus it will pick up children who are at floor on PiRA because their reading is poor. Roughly half as many pupils score more than 1 standard deviation (SD) below the population mean on DTWRP than they do on PiRA. The rationale for this choice of secondary outcome is that given the limitations of group testing in general at this age group (i.e. you need to hear poorer readers actually read both letter sounds and words), it is important to qualify results based on the primary outcome with more sensitive tests that are appropriate for KS1. The DTWRP provides a pupil profile based on an overall standard age score, which will be used for analysis.

Letter Sound Test (LeST), which assesses a person's ability to sound out single letters and letter combinations. The LeST takes approximately 5 minutes for a pupil to complete and is

¹ More information on the PiRA can be found at <https://www.risingstars-uk.com/pira>

² More information on the DTWRP can be found at <https://www.gi-assessment.co.uk/products/diagnostic-test-of-word-reading-processes/>

delivered on a one to one basis. This test also focuses on letter sounds (which is a focus of KS1) so is much more sensitive than a group reading test. Roughly half as many pupils score more than 1 SD below population mean on LeST than they do on PiRA, and less than 1% score more than 2 SD below the population mean (~10.5% score more than 2 SD below for PiRA). The rationale for the choice of this test is as with the DTWRP - the need for a more sensitive test, appropriate for KS1. The number of correct items, out of 51, are summed to produce a total score. The total raw score can then be converted to an age (year group) standardised 'z-score', for 'Year 1' (ages 5-6) which will be used for analysis.

Reading attitudes questionnaire (RAQ), which assesses a child's attitude and motivation in reading. The RAQ takes approximately 5 minutes for a pupil to complete and is delivered on a one to one basis. This secondary outcome aims to measure a more process based outcome, and potentially a marker of more distal effects – since we know that there is a positive relationship between motivation and reading. It was also felt that schools would be interested in this measure. (NB. If all independent testing cannot be completed in one day, we would accept some attrition on this measure).

Long term follow up

Participating children may undergo standard testing at the end of Key Stage 1 (KS1; end of the 2019/2020 academic year), but it is not possible to know whether KS1 assessment will remain compulsory at that time. An application to the National Pupil Database (NPD) could be made to collect any available KS1 outcomes for participating pupils in the future. Data would likely be ready for analysis in March 2021 and consequently an addendum to the final report would be prepared after this point.

BASELINE DATA

Schools will be asked to provide full names, unique pupil number (UPN), and date of birth (DOB) for all participating pupils at baseline. These data will allow us to request pupil-level data on Early Years Foundation Stage Profile (EYFSP) data, ever FSM status (EVERFSM_6_P), current FSM status, gender, English as an additional language and special education needs from the NPD. Schools will also be asked to provide the percentage of male and female pupils, and the percentage with ever FSM status, the percentage with English as an additional language, and with Special Educational Needs, at the Year 1 cohort level (and/or participating class level).

These data will be used to describe and compare the randomised groups and in order to conduct a secondary analysis looking at the impact of the programmes on pupils with ever FSM status.

Prior to randomisation schools will be asked to pre-identify 3-4 pupils with whom they will conduct small group teaching if allocated to the control group. Schools will be asked to provide detail on the criteria they used for selecting these pupils and the small group teaching they intend to deliver.

SAMPLE SIZE CALCULATIONS

The previous efficacy RCT (McNally et al., 2016) found an effect size³ of 0.138 for the ICT programme and 0.231 for the non-ICT programme, with larger effect sizes among pupils eligible for free school meals (0.368 and 0.396, respectively). A total of 84% of pupils involved at randomisation were included in the primary analysis, with an average of 40 pupils per school. The intra-cluster correlation coefficient at analysis was 0.15 and the correlation between the pre-test and the post-test was 0.43 (NB. this correlation is not the raw correlation between PiRA pre and post test - it accounts for covariates and is taken from the R-squared of a regression). The previous evaluation mandated that participating schools have a minimum of two teaching assistants and therefore the included schools are likely to be larger than the average UK primary school. Nationally, there were 27.1 pupils in the average primary school class in 2016⁴.

This is a three-arm trial, with two primary research questions relating to the comparisons of the two RUKS programme arms against the shared control arm. In such a scenario, there is no consensus on whether adjustment for multiple testing is required (Wason et al., 2014). In discussion with the developer team and the EEF team who originally set up this trial, the decision was made not to apply a statistical correction for the fact that we have two primary research hypotheses; therefore, both comparisons will be assessed at the 5% significance level.

We propose to recruit a sample of 201 schools (67 in each arm) to give 80% power to detect an effect size of approximately 0.20 of a standard deviation (SD) between either of the programme groups with the control group, assuming an average class size of 27, 15% attrition at the pupil-level at follow-up, an ICC of 0.15, alpha of 0.05 and a pre-post test correlation of 0.45. For the secondary outcomes, with 10 pupils per school under otherwise identical assumptions (but assuming no attrition ie actually following up 10 per school), the MDES would be approximately 0.22.

FSM

Across all primary schools in England, in January 2016, the average percentage of children claiming FSM was 14.5%⁵. In this trial, we will aim to recruit schools in deprived areas likely to have higher than average levels of pupils eligible for FSM. We will assume an average percentage of 25% in each school, this is the average observed in schools randomised into a recent EEF trial (ReflectED, still ongoing, unpublished). With an average of 27 pupils per school at randomisation, we therefore might have expected an average of 7 of them to have FSM status ($201 \times 27 \times 0.25 = 1356$ in total). With this number, assuming 15% pupil-level attrition at follow-up, an ICC of 0.15, alpha of 0.05 and a pre-post test correlation of 0.45, we would have 80% power to detect an effect size of 0.23 in the FSM subgroup in the primary analysis.

³ McNally et al. describe the calculation of the effect sizes as follows: "All the outcome variables and baseline tests have been standardised to have mean 0 and standard deviation (SD) 1 using the mean and SD of the outcomes (we have used the mean and SD for the full sample for each of the outcomes, both at post-test and at baseline respectively). This allows us to interpret the coefficients of the explanatory variables in terms of standard deviations of the outcome variable."

⁴ <https://fullfact.org/education/primary-class-sizes-england-and-wales/>

⁵

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/552342/SFR20_2016_Main_Text.pdf

Table 2: Sample Size Details

Primary outcome		OVERALL	FSM
MDES		0.2	0.23
Pre-test/ post-test correlations	level 1	0.45	0.45
ICC	level 1	0.15	0.15
Alpha		0.05	0.05
Power		0.8	0.8
Average cluster size at randomisation		27	7
Average cluster size at analysis (assuming 15% pupil level attrition)		23	6
Number of schools	ICT ABRA programme	67	67
	Non-ICT programme	67	67
	control	67	67
	total	201	201
Number of pupils randomised	ICT ABRA programme	1809	452
	Non-ICT programme	1809	452
	control	1809	452
	total	5427	1356
Number of pupils analysed (assuming 15% pupil-level attrition)	ICT ABRA programme	1538	384
	Non-ICT programme	1538	384
	control	1538	384
	total	4614	1152

ANALYSIS PLAN

The statistical analysis will follow the most recent EEF guidance and will be described in detail in a separate statistical analysis plan. Analysis is described in brief here. Analysis will be conducted using the principles of intention to treat, including all schools and pupils in the groups to which they were randomised irrespective of whether or not they actually received the programme.

Statistical significance will be assessed using two-sided tests at the 5% level. Regression based methods of analysis will be used. Estimates of effect with 95% confidence intervals (CIs) and p-values will be provided as appropriate. Effect sizes will be calculated based on the adjusted mean difference between the programme and control group and the total variance, obtained from the multi-level model.

A CONSORT diagram will be produced to show the flow of schools and pupils through the trial.

Baseline and outcome data will be summarised descriptively by randomised group. Baseline data will be presented for the pupils and schools as randomised, and for the pupils included in the primary analysis model to assess whether attrition is likely to have introduced selection bias.

PRIMARY ANALYSIS

Multilevel mixed-effect linear regression will be used at the pupil-level to compare PiRA age-standardised score between the three groups. Group allocation, pre-score and the minimisation factors will be included as fixed effects in the model. Adjustment for clustering at the school level will be made by including school as a random effect. A pairwise comparison between the ICT programme and BAU groups, and between the non-ICT programme and BAU groups will be extracted from the model, in the form of the predicted adjusted difference in scores between the two groups with an associated 95% CI and p-value.

Two multilevel mixed-effect linear regression models at the pupil-level will be used to compare post-test PiRA age-standardised score between the groups. One model will exclude pupils in the schools randomised to the ICT group, and will be used to investigate the difference between the non-ICT and control groups. The second model will include pupils from all three groups *except* those from the eight schools that were only randomised between the non-ICT and control groups (because they did not have the technology to implement the ICT RUKS programme). This model will be used to obtain the pairwise comparisons between the ICT programme and control groups, and between the ICT programme and the non-ICT programme. Two models are necessary since it is not appropriate to include schools that could never have been allocated to receive the ICT programme in a comparison involving this group. Both models will be adjusted as follows:

Pupil-level fixed effects:

- Baseline age-standardised PiRA score
- Gender
- FSM (NPD variable EVERFSM_6_P)
- Foundation Stage Profile (NPD variable FSP_GLD, defined as whether or not the pupil achieved a good level of development i.e. achieved level of 2 or 3 in each of COM, PHY, PSE, LIT and MAT results.)

School-level fixed effects:

- Allocation (2 or 3 levels, according to model; ICT, non-ICT, control)
- Staff type (3 levels; qualified, non-qualified, both)
- Number of pupils in the Year 1 cohort, as a continuous variable
- Geographical area (5 levels; West Midlands, East Midlands, Newcastle, Teesside, Manchester)

It is customary to adjust analyses for factors used in the stratification/minimisation of the randomisation for a trial; hence, the adjustment here for staff type, geographical area, and number of pupils in the Year 1 cohort. However, since we are adjusting for pupil-level free school meal status, we shall omit school-level percentage of pupils with ever FSM status in the Year 1 cohort as a covariate as these factors are likely to be collinear.

Adjustment will be made for clustering at the school level by including school as a random effect, a standard method for the analysis of cluster trials (Wears, 2002).

Adjusted differences in scores between pairs of groups will be extracted from the relevant model with a 95% CI and p-value.

An estimate of the intra-cluster correlation coefficient (ICC) associated with school for the outcome will be presented alongside a 95% CI for the resulting model(s). The correlation between the pre- and post-test PiRA age-standardised scores will be calculated.

Sensitivity Analysis

After attending the training, some schools allocated to the ICT or non-ICT arms felt that they were unable to deliver the programme to the number of pupils they had initially specified and allowed the Evaluation Team at York Trials Unit (YTU) to randomly select a smaller subset of their original cohort to take part in the programme, according to the number they felt they could manage. We will aim to post-test all pupils with a pre-test. This will likely dilute any treatment effect observed in the primary analyses since it includes pupils that the school could never deliver the programme to. Sensitivity analyses will repeat the primary outcome models but excluding pupils who were pre-tested but then randomly 'deselected' by the YTU to receive the programme immediately following their school attending training.

A Complier Average Causal Effect (CACE) analysis for the primary outcome will be considered to account for pupil engagement with the programme. An instrumental variable approach will be used, with random group allocation as the instrumental variable (Dunn, 2005). Schools will be asked to keep registers to indicate when and which pupils partake in programme sessions, and to record if the pupil has used the system or materials at home in the ICT and non ICT groups. Measures of minimal engagement (completed at least one week (four sessions) of programme session attended) and 'full' compliance (completed 80% (n=64) of planned 80 sessions) will be defined as the bounds for the CACE analysis, as categorical variables (yes/no). Number of sessions completed as a continuous variable will also be considered in the CACE analysis.

The amount of missing baseline and outcome data will be summarised, and reasons for missing data explored and provided in the report, where available. A multilevel mixed-effect logistic regression model will be run to assess for statistically significant predictors of missingness of the primary outcome at the pupil-level, including all available pupil and school-level baseline data as fixed effects, and school as a random effect. Significant predictors and possible mechanisms for the missing data will be discussed in the report. If more than 5% of randomised pupils are excluded from the primary analysis due to missing data, the impact of missing data on the primary analysis will be assessed by repeating the primary analysis on a data set where missing data has been completed using multiple imputation.

Subgroup Analysis

The effect of the programme on pupils who are eligible for FSM will be assessed both via the inclusion of FSM status and an interaction term between FSM status and allocation in the primary analysis model, and by repeating the primary analysis in the subgroup of pupils eligible for FSM. The EverFSM indicator (EVERFSM_6_P) in the NPD will be used to conduct this analysis.

Secondary Analysis

The secondary outcomes of DTWRP, LeST and RAQ will be analysed as described for the primary outcome. Since these are not being assessed at baseline, the PiRA age-standardised

score at pre-test will be included as a measure of prior attainment in the models. Sensitivity analyses will also be run for these outcomes excluding the covariate for pre-test PiRA score, and also using instead EYFSP result in G09 for Literacy - Reading score (NPD variable FSP_LIT_G09) as the measure of prior attainment.

To investigate the effects of small group teaching, the primary analyses will be repeated in the subset of pupils who were identified by their schools at baseline as those to be taught in a small group if their school was allocated to teaching as usual.

Schools will be permitted to group pupils however they see fit for delivery of the programme, and we will aim to record how they do this (by ability, mixed ability, other) via the baseline survey for school staff. Within each programme arm, the number of schools that set the small groups by ability will be presented (compared to mixed ability groups, or another way of composing the groups). Baseline and outcome data will be summarised descriptively, stratified by how the school chose to group the children for the programme. This will be an observational comparison only and so findings will be purely exploratory, but may be used to generate research hypotheses and help steer the direction of future research.

Implementation and process evaluation

BACKGROUND

In line with EEF guidance (Humphrey et al., 2016), the process evaluation seeks to explore the relationship between the delivery of the programme and the impact on pupil outcomes, looking beyond the surface at reasons for potential variation in this. A detailed process evaluation will be structured to maximise data quality and quantity, whilst simultaneously minimising the burden on schools and individual teachers.

Prior to commencing the IPE data collection, TIDieR tables (Table 1 and 2 above) have been collectively developed by both the evaluation and delivery team, thus establishing a clear picture of what the programmes comprise and look like in practice. The primary aim of the IPE will be to monitor implementation fidelity, to describe in detail the processes involved for settings in implementing the programmes and to explain any impact of the programmes on pupil's reading attainment at the end of the trial period. It will also explore the perceptions and experiences of all relevant stakeholders.

RESEARCH QUESTIONS

The key research questions that the process evaluation seeks to answer are as follows:

- What does baseline practice in participating schools look like (control and programme) in terms of teaching or interventions targeted at improving literacy in Year 1?
- To what extent do the schools and teachers implementing the programmes adhere to the intended model and dosage?
 - Linked to the above, how effectively has the training provided to the trainers been cascaded to the school staff?
 - What variability in implementation exists across different participating settings? Are there any barriers or adaptations?
 - How well have components of the programmes been delivered and how well have pupils and school staff engaged with it?
 - What is the reach of the programmes across the programme schools (e.g. what proportion of training has been attended? How many sessions have been completed?

- During the intervention period what other practices do evaluation schools use that focus on improving literacy at KS1?
 - What small group interventions have been used in control schools and/or did any compensatory activities occur?
 - Have programme schools used any other literacy focussed interventions, or small group teaching, in addition to the programmes?
 - Have the programmes been delivered in addition to usual literacy teaching, or to what extent have the programmes been substituted for usual literacy teaching?
- Are there perceived or actual benefits for specific groups of pupils (e.g. SEN, EAL, GRT)?
- How did schools group pupils for small group work (programme and control schools)?
 - Does the way pupils are 'grouped' have any impact of the effectiveness of the programmes (ICT and non-ICT delivery models)? NOTE: This will be explored through observational data only.
- What are the views of specified stakeholders (teachers, pupils, developers) about the implementation and effectiveness of the programmes during the trial period?

METHODS

The process evaluation will comprise a combination of cross-sectional and longitudinal design, with mixed methods of data collection and analysis. The process evaluation will comprise three main stages, which are summarised below. Table 3 encapsulates the methods that will be used for data collection and when they will occur.

1. Pre-implementation (before the programme in schools begins)
2. During-implementation (in the programme period)
3. Post-implementation (after the programme period is complete)

Data collected in the process evaluation will be triangulated to facilitate understanding of the programmes, use in schools and to inform and explain the findings of the impact evaluation. Where data collection involves school visits, burden to participating schools will be minimised by conducting as much of the data collection as possible in one visit.

Data will be collected from documents and records, observations, surveys, interviews, and focus groups using pre-established observation frameworks, survey and interview questions, and focus group frameworks, based on the research questions to be addressed. Data will be recorded and quality assured. The data will then be transferred onto summary tables and grouped according to the research questions. Analysis will be grounded in the data and built thematically from the data. As themes emerge these will be developed using triangulation of relevant data sources, until saturation is achieved.

Table 3: Process Evaluation Methods Overview

Stage of IPE	Method of data collection	Who or what?	N				Why?	When?		
				Control	Programme1	Programme2		Pre	During	Post
Pre-implementation	Review and gather detailed information on programmes	Delivery team Literature ABRA developers	-	-	-	-	To establish the intended model and components of the programmes. Review TIDieR tables	✓	-	-
	Initial training observations	Observation of training given to trainers and then subsequently to school staff	4	-	✓	✓	To establish the expected model in both of the programmes arms and explore fidelity in terms of cascaded training	✓		
	Training attendance records	Nominated school staff	ALL	-	✓	✓	To establish compliance and fidelity in terms of staff attendance at training	✓		
	Trainer survey	Trainers (who train the school staff)	ALL	-	-	-	To explore trainer perspective on the training provided to them and how this equipped them to train the school staff	✓		
	Baseline surveys	Year 1 class teacher	201	✓	✓	✓	Establish baseline for practice related to improving literacy at KS1 in all trial schools. What informs decisions about 'grouping'? Which staff members do schools plan to send to training and why?	✓		
	Focussed on existing practice Format: online, short survey	Head teacher or literacy co-ordinator	201				To gain an overview of the wider school perspective on the programmes and approaches to literacy in KS1	✓		
During-implementation	Pupil attendance records (registers) recording use of programme school sessions and use outside of school	Programme pupils' completed by school staff delivery programmes	ALL identified pupils in each school (30 per school)		✓	✓	To establish compliance and fidelity across programme schools		✓	
				✓					✓	

Stage of IPE	Method of data collection	Who or what?	N				Why?	When?			
				Control	Programme1	Programme2		Pre	During	Post	
	Pupil attendance records (registers) recording attendance at small group sessions	Control pupils completed by school staff providing small group work					To investigate potential effects of small groups per se				
	Fidelity of Implementation Tool (to be co-designed by evaluation team and delivery team)	Regional trainers will use tool to score each school during routine visits.	ALL programme schools	✓	✓		To explore implementation fidelity	✓	Weeks 10-12		
	Structured observations of programme sessions and small group literacy activities in control school	Pragmatic and purposive sampling will be used to visit a range of participating schools ⁶	10	✓	✓	✓	Observations to explore what the programmes look like in the classroom (including potential adaptations and/or barriers), school context, pupil engagement and embeddedness	✓	✓	✓	
	Inter-observer reliability checks for quality assurance (at least 6)	ICT arm	10				Some of the observations may be conducted jointly with the evaluation team and regional trainers where possible (number TBC).				
		Non-ICT arm	5								
		Control	25								
	Pre-agreed observation frameworks developed (with delivery team for programme observations)	TOTAL:									
	Interviews	School staff		✓	✓		Discussion relating to observations (where applicable) Differences in implementation. Adaptations and barriers (actual or perceived) Student engagement			✓	
	Pre-agreed coding frame for analysis (thematic)	ICT arm	5								
		Non-ICT arm	5								
		Control	3								
		TOTAL:	13								

⁶ A cross section of schools will be selected accounting for a range of different parameters (including but not limited to the size of the school, location of school and who is delivering the programme in the school.

Stage of IPE	Method of data collection	Who or what?	N	Why?			When?			
				Control	Programme1	Programme2	Pre	During	Post	
									Perceived value of programmes (including for specific sub-sets of pupils)	
	Pupil focus groups	ICT arm Non-ICT arm TOTAL:	3 3 6		✓				✓	Would take place after classroom observation visits, to explore student understanding and perception of programmes. No more than 20 minutes with 4-5 pupils in each group ⁷ .
Post-implementation	Follow up survey Format: online, short survey	Year 1 class teacher and literacy coordinator or head teacher (the survey will be online and questions routed according to role in school)		✓	✓	✓				Assess the extent to which the programmes has been embedded in programme schools. Teacher confidence in programmes Fidelity of the programmes (teacher reported usage, adaptations made and opinions) Costs associated with programmes Estimate of school staff time required to facilitate the programmes In control schools – to establish the presence of any compensatory practice or change in practice related to awareness of interventions.

⁷ Research (and experience of the researchers) indicates that focus groups with students in KS1 settings is appropriate if consideration is given to how the discussion is facilitated, group size and length of the focus group (Heary and Hennessy, 2002; Morgan, Gibbs, Maxwell and Britten, 2002; O'Reilly, Ronzoni and Dogra, 2013).

Stage of IPE	Method of data collection	Who or what?	N	Control	Programme1	Programme2	Why?	When?		
								Pre	During	Post
	Semi-structured interview with developers	Delivery team		-	-		Reflecting on the intervention period and exploring any changes that may have occurred in terms of the iprogrammes. Considering the feasibility and sustainability of programmes going forward.			✓

COSTS

Information on programme costs will be collected from the delivery team.

We will also estimate the teacher and teaching assistant time required to facilitate the programme. These estimates of time will be captured in school staff surveys and will be discussed during interviews with school staff. Questions in the survey will include questions about the length of time the administration and planning required for the programme takes and how this compares to pre-programme workload.

ETHICS AND REGISTRATION

- Durham University School of Education Ethics Committee – Ethics Approval for the MOU was received in March 2018. A full ethics application will be made in April 2018.
- York Health Sciences Research Governance Committee will be informed of the evaluation for information only.
- The Memorandum of Understanding agreed with schools covers the acquisition of NPD data and data archiving.
- Data Sharing Agreements (addendum to MOU) will be put in place with participating schools by September 2018.
- An ISRCTN Registration Number was applied for in April 2018 (ISRCTN37208856).

TRIAL MONITORING

Trial Management Group (TMG)

The evaluation team will form a TMG, the decision making body, responsible for the day-to-day running and management of the trial. Led by the PI (Bell, and Ainsworth during Bell maternity leave), it consists of all members of the Evaluation team. The team will meet on a regular basis and will invite representatives from the delivery team and the EEF as appropriate.

Trial Management

The trial will be sponsored by the University of York. The day-to-day management of the study will be co-ordinated through the York Trials Unit. YTU Standard Operating Procedures (SOPs) will be followed where applicable and the research team will be trained as appropriate.

The University of York, for YTU, will obtain and hold public liability insurance cover for legal liabilities arising from the trial.

Child Safeguarding Issue

In the very rare circumstance that a child safeguarding issue is suspected, for example during data collection a set procedure will be followed which will include contacting the trial Principal Investigator Dr Kerry Bell (Hannah Ainsworth during Bell maternity leave). The young person's school and parents/carers will then be informed accordingly.

Complaints

Schools, Young people and parents/carers will be provided with the Principal Investigator's contact details, should they wish to make a complaint about the conduct of the trial. Complaints will be dealt with by the Principal Investigator and the TMG will be informed.

Declaration of Interests

The Principal Investigators (KB and HA) declare no competing interests.

Access to Data

The final anonymised trial data set will be available to all trial team members/investigators if a formal request describing their plans is approved by the trial management group. To ensure confidentiality, data dispersed to project team members will be blinded of any identifying participant information.

Appropriate data sets (annonymised and non-anonymised) will be provided to the Fisher Family Trust (FFT) for archiving and long term follow up purposes.

Publication and Dissemination Policy

The results of this study will be submitted in a final report to the EEF, who will publish the report on their website. Articles for educational journals may be written and presentations given at relevant conferences.

DATA PROTECTION STATEMENT

The University of York will be the Data Controller who also processes data.

Data subjects are the participants in the evaluation, which includes pupils in participating schools and staff members in participating schools.

Personal data will be processed under Article 6 (1) (e) (*Processing necessary for the performance of a task carried out in the public interest*) and Special Category data under Article 9 (2) (j) (*Processing necessary for ... scientific ... research purposes*) of the General Data Protection Regulation (2016, applicable in the UK from May 2018).

All participant data will be treated with the strictest confidence and will be stored in accordance with the General Data Protection Regulation (GDPR) 2018. Named pupil data will be matched with the National Pupil Database and shared with the Delivery Team – Coventry University and Nottingham Trent University, and the Evaluation Team – York Trials Unit, University of York and Durham University, and the Education Endowment Foundation (EEF), EEF's data contractor FFT Education and in an anonymised form with the UK Data Archive.

Parent/Carers will be informed about the research through an information sheet sent on behalf of the evaluation team by schools to parents/carers. Any parent/carer who wishes to withdraw their child from the research will be able to return a Parent/Carer Withdraw from Research Form to their child's school. Withdraw from Research Forms will be retained by the schools, and schools will be responsible for ensuring personal information about such children is not sent to the evaluation team.

For the purposes of the research the following details about participating pupils will be collected from participating schools and the NPD: pupil full name, unique pupil number (UPN), and date of birth (DOB), ever FSM status (EVERFSM_6_P), current FSM status, gender, English as a second language (EAL) and special education needs (SEN).

Schools will transfer personal data directly to YTU on an encrypted spreadsheet of participant details, as specified above, via the University of York's drop-off service (a secure webpage for file transfer).

A unique trial identification number (Trial ID) will be generated for each participant when their details are entered into the trial management system.

All outcome/assessment data, from baseline through to final follow-up, will be collected on paper (CRFs) and identified by the Trial ID. The paper CRFs will be held securely in a controlled access area in locked cabinets.

The trial management systems and trial data will be held on secure University of York servers with access limited to specified members of YTU staff.

The dataset for statistical analysis will hold anonymised data. No schools, staff members or pupils will be identifiable in the report or dissemination of any results.

Electronic data and paper documents including identifiable personal pupil data will be securely archived and disposed of by YTU 3 years after the end of the study (2023).. Identifiable personal data about adult data subjects e.g. school staff, regional trainers, will be kept for 3 years after the end of the study.

Anonymised electronic data and paper documents will be kept indefinitely.

A data sharing agreement will be put in place between the participating institutions (evaluation team and delivery team) by June 2018. Data sharing agreements (addendum to MOU) will also be put in place with participating schools by September 2018.

The University of York's data protection policy is publicly available at:

<https://www.york.ac.uk/records-management/dp/>

Personnel

EVALUATION TEAM

Dr Kerry Bell, University of York

Kerry Bell is an experienced trial manager and has worked on a number of pragmatic randomised controlled trials. Most recently she has worked on the Tutor Trust and Calderdale 2 evaluations. Kerry is the PI and will be responsible for oversight of the trial.

Mrs Hannah Ainsworth, University of York

Hannah Ainsworth is an experienced trial manager and has worked on a number of pragmatic randomised controlled trials in health and education as trial manager and PI. She will contribute expertise to the design and conduct of this trial as well as to the writing of the final report. She will assume the PI role during Kerry Bell's maternity leave.

Professor Carole Torgerson, Durham University

Carole Torgerson is an educational trials design and methods expert and an educationalist. She has undertaken numerous systematic reviews of randomised controlled trials and has been lead or co-investigator on many previous trials evaluating a variety of education and health education interventions. She will contribute expertise to the design and conduct of this trial as well as to the writing of the final report.

Professor David Torgerson, University of York

David Torgerson is an experienced trial methodologist and Director of the York Trials Unit. He has worked on numerous randomised trials including many in education and the social sciences. He will support the design and conduct of this trial and contribute to the writing up of the final report.

Professor Catherine Hewitt, University of York

Catherine Hewitt is a senior trial statistician with experience working on numerous randomised controlled trials, including educational trials. She will provide input and support into the trial statistical analysis.

Ms Caroline Fairhurst, University of York

Caroline Fairhurst is an experienced statistician. She has analysed a number of randomised controlled trials in health and education. She will undertake the randomisation and the statistical analysis of the trial.

Dr Louise Gascoine, University of York

Louise is an educationalist and experienced trial co-ordinator and is currently leading on 3 other EEF funded process evaluations. She will co-ordinate the process evaluation components of the trial. She will contribute expertise to the education policy and practice background to the trial as well as to the rigour of its design and conduct. She will also contribute to the writing of the final report.

Louise Elliott, University of York

Louise is an experienced trial coordinator and data manager, having worked on numerous EEF funded evaluations. She will contribute to the oversight of the testing arrangements, provide data management support and be involved in the process evaluation.

DELIVERY TEAM

Professor Clare Wood, Nottingham Trent University

Clare is an education and literacy researcher with extensive experience in exploring the educational potential of technology, and integrating research findings into resources for teachers. Clare will lead on school recruitment and contribute to the set up and delivery of the trial.

Dr Janet Vousden, Coventry University

Janet is an experienced literacy researcher who has experience of running randomised controlled trials. Janet was part of the original delivery team that implemented the efficacy trial on which the current trial is based. Janet is PI for the delivery team and will oversee the delivery of the programme(s).

Dr Helen Johnson, Coventry University

Helen is an experienced literacy researcher and qualified Educational Psychologist. She has experience of running randomised controlled trials, and delivering CPD in UK schools. Helen was part of the original delivery team that implemented the efficacy trial on which the current trial is based. She will lead the development of training materials and deliver the training for the NON-ICT train the trainer model, and assist with the set up and delivery of the trial.

Professor Rob Savage

Rob has many years experience in literacy research and has conducted previous randomised controlled trials using ABRA in Canada. Rob was part of the original delivery team that implemented the efficacy trial on which the current trial is based. He will lead the development of training materials and deliver the training for the ICT train the trainer model, and assist with the delivery of the trial.

Professor Phil Abrami, Professor Anne Wade, Concordia University, Canada

Phil is a Concordia University Research Chair and the Director of the Centre for the Study of Learning and Performance (CSLP) where he heads the development team for the ABRACADABRA Project. Anne is the manager of CSLP and an expert in educational technologies for literacy education. Phil and Anne have overseen numerous evaluations of ABRA across several continents. Phil and Anne will develop a teacher manual linking ABRA to the UK KS1 national curriculum and assist with the delivery of the train the trainer model.

Dr Luisa Tarczinski-Bowles, Coventry University

Luisa is an experienced literacy researcher who has worked on numerous literacy interventions in schools. She will contribute to the set up and delivery of the trial.

Ms Joanne Lloyd, Coventry University

Joanne Lloyd is a Research Delivery Support Partner. Joanne is part of the central Research Office professional team embedded with the Centre for Applied Behavioural

Science. She provides ongoing project monitoring in relation to project deliverables and budget, liaison with other professional services departments and external contacts and supports project risk management and impact development.

EEF

EEF Evaluation Manager: Anneka Dawson (Until Dec 2017), Dr Florentina Taylor

EEF Programme Manager: Thomas Martell

Risks

Risk	Preventative Measures	Likelihood
Insufficient schools recruited	<ul style="list-style-type: none"> Emphasis that the programmes are promising Close collaboration between the evaluation team and delivery team and utilise combined experience of recruitment Long lead up Incentive provided to control schools in the form of £500 	Medium
High attrition from evaluation, especially control schools	<ul style="list-style-type: none"> Evaluation team to clearly explain at initial stage of recruitment the RCT approach and value of control schools, plus the incentive offered Regular contact throughout the project with all schools 	Low
Lack of technology in the recruited schools	<ul style="list-style-type: none"> Emphasis of this requirement Random allocation to non ICT delivery arm or control only, where ICT facilities not available to deliver ICT ABRA. Discuss technology requirements and solutions early on with schools 	Medium
Missing data	<ul style="list-style-type: none"> Emphasis to schools that all school-level data must be completed prior to randomisation 	Low
School staff turnover	<ul style="list-style-type: none"> If teachers are training colleagues (cascade) there is likely to remain at least one member of staff in each school who could train new teachers The regional trainers will also be able to visit schools to administer training to replacement staff 	Low
Maintaining fidelity (programme and control)	<p>It is essential that as many as possible schools maintain a high level of implementation fidelity.</p> <ul style="list-style-type: none"> The evaluation team will work jointly with the delivery team to emphasise the importance of contributing to the process of building good evidence. The evaluation team and delivery team will work jointly to develop a process for collecting data in relation to implementation fidelity. Including a tool used to score programme schools against set criteria. 	Low
Implications of GDPR on processing data	<ul style="list-style-type: none"> The full implications of the GDPR on processing data requirements may become more clear with the publication of the Data Protection Bill (DPB). Any such clarifications will need to be considered in relation the legal basis identified for processing data in this trial 	High

- Information provided to schools and parents/carers will need to be reviewed in light of any new/future guidance issued related to GDPR or DPB.
-

Timeline

Date	Activity	Team Responsible
May 2017	Project Start Date	-
15 th May 2017	Set Up Meeting 1	ALL
22 nd August 2017	Set Up Meeting 2	ALL
September 2017	IDEA Workshop	Evaluation and delivery team
December 2017	Ethics Approval for MOU	Evaluation team
October 2017 to April 2018	Protocol Development	All
April 2018	Ethics Application	
April 2018	ISRCTN application	
April 2018	Development of Baseline Survey	
January - October 2018	Recruitment of Schools	All
September 2018	Participating pupil identification and informing parents/carers	Evaluation team and schools
September 2018	Baseline Surveys (school staff and trainers)	Evaluation team and Schools
September 2018	Pre-testing	Administered by Schools
September 2018 (end)	Randomisation	Evaluation team
October 2018	Pre-test marking	Evaluation team
October 2018	Training of identified school staff	Delivery team
October 2018 – May 2019	Programme delivery	Schools
October 2018 – May 2019	School support	Delivery team

October 2018 – May 2019	School observations	Delivery team/Evaluation team
October 2018 – May 2019	Staff interviews	Evaluation team
March 2019	Development of Post- Implementation Survey	Evaluation team
May - July 2019	Post –Testing	Evaluation team
May-July 2019	Post Implementation Survey	Evaluation team and schools
August 2019	Post-testing Marking	Evaluation team
Sep - Nov 2019	Data analysis	Evaluation team
Dec 2019	Draft Report	Evaluation team
June 2020	Final Report	Evaluation team
TO BE COMMISSIONED SEPARATELY:		
Sep 2020	KS1 NPD Request	Evaluation team
April 2021	KS1 Data Analysis	Evaluation team
July 2021	KS1 Data Addendum to Report	Evaluation team

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Appendix A: MOU



NOTTINGHAM
TRENT UNIVERSITY



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of York



Evaluation of a Year 1 Reading Support Programme

MEMORANDUM OF UNDERSTANDING

Aims of the evaluation

The aim of this project is to evaluate the impact of a Year 1 reading support programme delivered by members of school staff who have received specialist CPD training, on children's reading attainment at the end of Year 1. The programme can be delivered online using Abracadabra (ABRA) or via paper-based materials and is composed of phonics, fluency and comprehension activities based around a series of age-appropriate texts. The results of the research will contribute to our understanding of the potential value of using the Year 1 reading support programme to improve reading in a small group teaching context and will be widely disseminated to schools across England.

The project

The intervention is intended as a whole class intervention (non-targeted) for Year 1 pupils. We will be investigating the effectiveness of the two different delivery models of the Year 1 reading support programme, the online (ABRA) and paper-based approaches. The impact of both of these delivery models will be evaluated and compared with "business as usual", i.e. usual teaching as well as business as usual small group teaching, using a randomised controlled trial (RCT).

During this project, you will be contacted by both the reading support team, hereafter referred to as the 'Project Team', who are responsible for overseeing the CPD training model for staff and providing ongoing support and by researchers from York Trials Unit (YTU) at the University of York and from Durham University, hereafter referred to as the 'Evaluation Team', who are carrying out an independent evaluation of the project.

This memorandum of understanding (MoU) explains what your school's participation in the study will entail. If you agree to take part and accept the terms and conditions outlined, please sign a copy of this form and return by email or postal mail to the contact provided at the end of this letter.

Structure of the evaluation

Schools will be involved in delivering one of three possible approaches, with your school being randomly assigned to one of these approaches for the whole academic year:

- *ICT Delivery (ABRA)*: Year 1 children will be divided into groups of 3-5 pupils (4 is optimal). These pupils will work with a specially trained member of school staff using the ABRA online software for a minimum of four fifteen minute sessions per week for twenty weeks during the academic year 2018/2019. Teachers can group pupils as they wish. Pupils should work through the activities as a group with the help of the member of staff. Pupils should be encouraged to use the software at home or during break time if they would like. There is a small cost of £200 to schools allocated to this approach. (If the intervention was available outside of the evaluation it would be at a greater cost.)
- *Non-ICT Delivery*: Year 1 children will be divided into groups of 3-5 pupils (4 is optimal). These pupils will work with a specially trained member of school staff using the paper based intervention for a minimum of four fifteen minute sessions per week for twenty weeks during the academic year 2018/2019. Teachers can group pupils as they wish. Pupils should work through the activities as a group with the help of the member of staff. Pupils should be encouraged to use the paper based activities at home or during break time if they would like. There is a small cost of £200 to schools allocated to this approach. (If the intervention was available outside of the evaluation it would be at a greater cost.)
- *'Business as usual' Approach*: Schools in the control group will be asked to continue with usual teaching with Year 1 pupils in 2018/2019. In addition to usual teaching, we ask that you deliver additional small group teaching (to approx. 5 pupils that you will have pre-identified before randomisation), similar to that which is being delivered in the intervention schools. The content of this additional small group teaching is completely up to you but must be literacy based and cannot be ABRA. As a token of our appreciation for your school's participation, your school will receive a thank you payment of £500.

Random allocation is essential to the evaluation as it is the best way of investigating what effect the reading support programme has on children's attainment. It is important that schools understand and consent to this process.

In order to find out how the intervention is working we will visit a sample of schools and observe some lessons and talk with the staff and pupils in interviews and focus groups. Informed consent will be sought from staff or parents before we conduct any interviews or focus groups.

The Evaluation Team will use school and pupil information provided by schools including KS1 results, and information from the National Pupil Database to assess any impact of the intervention on attainment. Pupils will also sit some extra assessments, but these will be no different to the usual ways teachers monitor reading progress and will not be identified as 'tests' to the pupils.

Use of Data

All pupil data will be treated with the strictest confidence and will be stored in accordance with the General Data Protection Regulation (2018) and the Data Protection Bill (2018). Named data will be matched with the National Pupil Database (NPD) and shared with the Project Team – Nottingham Trent University and Coventry University, the Evaluation Team – York Trials Unit, University of York and Durham University, the Department for Education, the Education Endowment Foundation (EEF), FFT Education and in an anonymised form to the UK Data Archive and for other research purposes.

A data sharing agreement will be put in place with schools.

All results will be anonymised so that no schools or individual pupils will be identifiable in the report or dissemination of any results. Confidentiality will be maintained and no one outside the Project Team and Evaluation Teams will have access to the study database.

Responsibilities of the Project Team:

- Provide CPD training to regional trainers: 5 days of hands on training - one 3-day course, followed by two 1-day courses at a central venue; 2 days of preparation in own time with email/phone support from project team as necessary.
- Provide CPD training for school staff members via regional trainers. Training will consist of 1.5 days of hands on training delivered over 2 visits to a local venue.
- Provide as and when (just in time) support to the school through regional trainers
- Provide scheduled support visits in school at Weeks 3 and 10 through regional trainers
- Provide Intervention manuals and 20 week lesson plans to intervention schools
- Analyse project data and disseminate the research findings at conferences and through academic papers.

Responsibilities of the Evaluation Team:

- Act as the first point of contact for any questions about the evaluation
- Organise for a data sharing agreement to be put in place with schools
- Conduct the random allocation of schools to groups
- Provide information about the trial for parents
- Conduct baseline and end of trial surveys with teaching staff
- Collect class and pupil level data (including name, date of birth, UPN) from schools
- Mark baseline Progress in Reading Assessments
- Conduct external assessment of participating pupils in Year 1 at the end of the trial
- Request NPD data using pupil details
- Analyse the data from the project
- Disseminate the research findings through the EEF report and at conferences and through academic papers.

Requirement for Schools

- Schools will nominate a member of staff (Project Lead) who will agree to take responsibility for the project within their school and act as a point of contact for the Evaluation and Project teams.
- Schools will nominate appropriate members of staff (TAs, teachers, SENCOs, etc) who would take part in the CPD training and deliver the intervention if allocated to the intervention group.
- Schools need to be willing to involve a minimum of 10 children, ideally one class of pupils (Typically 30 pupils) in the evaluation. Where a subset of the year 1 class is to be involved in the evaluation, the evaluation team will need to select these children at random from the year 1 cohort. Schools with larger cohorts may choose to deliver the intervention (if they are randomly allocated to the intervention groups) to the whole cohort if they wish, in such cases the evaluation team will randomly select the children/class to be involved in the evaluation. Where a school with a larger cohort only wants to deliver the intervention to one class, ideally this class would be

selected at random by the evaluation team. **Two staff members would be required per Yr 1 class (approx 30 children), to deliver the intervention, with each staff member delivering intervention to 3 - 4 groups (45mins – 1hr) four days a week for 20 weeks over the academic year.**

- Before randomisation the school will identify approximately 5 suitable pupils who would receive a programme of school directed small group teaching if the school is allocated to the business as usual condition.
- The school will facilitate the Progress in Reading Assessment at baseline and send the assessment booklets to the Evaluation Team to be marked.
- The school will facilitate the external assessors from the Evaluation Team to administer the end of trial assessments to participating Year 1 children.
- The school will help researchers from the Evaluation and Project Teams to collect evaluation data, including facilitating the completion of questionnaires/surveys by school staff.
- Schools will deliver letters to parents giving them information about the study and will inform the Evaluation Team of any responses arising.
- Schools will permit the publication of anonymised data collected.
- The school agrees to the Evaluation Team obtaining data on the evaluation cohort's attainment results and other characteristics such as FSM status, from the National Pupil Database, and will provide the UPNs to enable this to be achieved. (A data sharing agreement will be put in place detailing the specifics of this.)
- Teachers will, at the earliest opportunity, notify the Project Team if there are any issues which could prevent the effective implementation of the intervention.
- If the school has to withdraw from the project for operational or other unavoidable reasons, it will notify the Evaluation and Project Teams straight away and wherever possible will still provide/allow assessment data to be collected for the evaluation.
- Members of school staff involved in the project will provide valid email addresses and telephone contact numbers to the Evaluation and Project Teams and agree to check communications regularly during the period of the research.

Head Teacher agreement

I agree for my school _____ to take part in the Evaluation of a Year 1 Reading Support Programme study and I accept the terms and conditions outlined in the Memorandum of Understanding.

School Name: _____

Head Teacher Name: _____

Head Teacher Signature: _____ Date: ____/____/____

Head Teacher Email Address: _____

Project Lead Name: _____

Project Lead Email Address: _____

Project Lead Job Title: _____

School Contact (if not Head Teacher or Project Lead): _____

School Contact Email Address (if not Head Teacher or intervention facilitator): _____

School Telephone Number: _____

Thank you for agreeing to take part in this research. Please return this form to:

Prof. Clare Wood, Psychology Dept.
Nottingham Trent University
50 Shakespeare Street, Nottingham, NG1 4FQ.