Research Learning Communities (RLC)

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Delivery Organisations	School of Education, Durham University
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Type of Trial	Two-armed randomised control trial with school-level allocation, with pupils clustered within schools and schools stratified by local authority (LA)
Age or Status of Participants	The intervention will involve 240 primary schools in 6 LAs. Within each primary school, Subject Leads and Designated Teachers will form the cohort of participants attending a series of RLC sessions and workshops. Year 5 and 6 teachers will also participate in implementing new/adjusting existing teaching strategies developed by workshop participants for their primary schools and pupils. In particular, the evaluation will target year 6 pupils who have been Children in Need (CIN) or looked after children (LAC) at any point in the last six years.
Number of Participating Schools by Local Authority	240 in total, 40 per local authority
Number of Children	720 year 6 CIN/LAC
Primary Outcome(s)	Pupil Key Stage 2 (KS2) attainment data from May 2022 in Literacy and Mathematics for CIN/LAC in year 6 at the start of the evaluation, accessed via the National Pupil Database (NPD)
Secondary Outcome(s)	Pupil KS2 attainment data in Grammar, Punctuation and Spelling (GPS) for pupils in year 6 at the start of the evaluation[1] Teacher outcomes (measured by four measures of 1) knowledge of academic/action research, 2) attitudes towards the use of academic/action research, 3) use of academic/action research in teaching practice, and 4) implementation of improved teaching practices for CIN/LAC in the teacher questionnaire)

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[1] KS2 Writing is excluded as an outcome as it is based on a teacher assessment and may have a lower correlation with other KS2 measures, Allen, 2016.

Summary

The Research Learning Communities programme aims to improve Literacy and Mathematics outcomes of Children in Need (CIN) and Looked After Children (LAC), by supporting Subject Leads, Designated Teachers and year 5 and 6 teachers in primary schools to further develop and implement research-informed teaching strategies.

The RLC programme will be developed and delivered by the School of Education in Durham University, between October 2021 and May 2022. Although the programme was previously delivered to schools and was evaluated, it is the first time that it will be focusing on supporting teachers to develop evidence-based teaching strategies specifically for CIN/LAC.

To do so, trained facilitators will develop and deliver a series of six workshops, preceded by an introductory session, and closed by a final 'moving forward' session, with Subject Leads and Designated Teachers across 240 primary schools in 6 local authorities (LAs).

To evaluate the RLC programme, this study will conduct an impact evaluation, an implementation and process evaluation, and a cost analysis using a mixed methods approach. In summary:

- **The impact evaluation** will involve a randomised control trial (RCT) of year 6 pupils' CIN/LAC KS2 scores in Literacy and Mathematics, supplied by the National Pupil Database (NPD); and an assessment of teachers' knowledge of academic/action research, attitudes towards the use of research, use of academic/action research in practice, and implementation of improved teaching practices for CIN/LAC, assessed through a pre- and post- teacher questionnaire.
- **The implementation and process evaluation (IPE)** will also draw on the pre- and post- teacher questionnaires, and, in addition, include a series of case studies, (consisting of interviews with school leaders and teachers in intervention and control schools) and observations of RLC workshops.
- **The cost analysis** will collect data on delivery team costs for the implementation of the programme, teacher cover costs to attend RLC workshops and sessions, programme costs (such as costs incurred by virtual schools to recruit schools into the programme), as well as costs for facilities, equipment, and materials, among others. This data will be gathered by the delivery team and through teachers in the teacher questionnaire.

> **Note**: Since recruitment for the programme is still ongoing at the time of writing, this trial protocol has been developed based on an estimated number of schools and local authorities provided by the WWCSC. We have also estimated the number of teachers and CIN/LAC per school based on publicly available data. An updated protocol will be published after school recruitment has been finalised.

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Background and Problem Statement

Background

In the past decade, there has been increased interest in using evidence to inform teaching practice. Such interest was generated following research findings which pointed to teaching practice not being systematically evidence informed (Judkins, 2014) and teachers relying on their own experience as evidence of what works (Goldacre, 2013). Further, research evidence pointed to the challenge of changing teachers' attitudes towards research evidence. For example, a small-scale study involving five schools in the UK found no evidence that teachers' attitudes towards research changed despite being part of a relevant programme (Griggs et al., 2016), whilst 43% of teachers across 414 schools in Australia reported that teacher observations and experience should be prioritised over research (Rickinson et al., 2021).

Research evidence also examined barriers that inhibit the uptake of research evidence among teachers. Examples of such barriers include a lack of skills to interpret and appraise research evidence, limited resources and time, limited access to evidence, and few incentives to use research evidence in practice (Brown and Flood, 2020; Speight et al., 2016; Nelson and O'Beirne, 2014; Sharples, 2013). In addition, there is often a lack of clarity over what 'evidence' looks like and the need for better systems and structures to support the dissemination of evidence in easily digestible and accessible formats for teachers (Caldwell et al., 2015; Goldacre, 2013). Other research into how and what types of evidence can be used to improve teaching practice has found that teachers are often unable to determine what research is valuable to their practice, leading to confusion as to how to apply research effectively (McAleavy and Bennett, 2016).

Globally, a number of interventions have been introduced to support teachers with the above challenges, improve 'knowledge mobilisation' and bridge the gap between research and teaching practice (Brown and Flood, 2020). A recent review of the literature identified eight types of interventions aiming to support research-based pedagogy, including:

- **Professional development interventions –** designed to upskill teachers and equip them with information literacy and research methods skills;
- **Intermediaries –** to translate evidence and make it more accessible;
- **Repositories** – to provide a location and focus for the collection, preservation, and dissemination of research outputs and information;
- **School-university partnerships –** to strengthen the links between researchers and research users, improve the flow of information, and support the use of research to inform and enhance education practice;
- **Communication strategies –** including traditional approaches, such as via peer-reviewed journals and conferences, as well as those using newer technologies and communication channels, including social media;
- **Networks –** to provide formal or informal opportunities for individuals or organisations that have a common interest to engage with one another;
- **Initial Teacher Education (ITT)** – which allows a combination of academic study and time in school; and
- **Regulations, standards, and policies** – to establish accountability and regulatory mechanisms and structures designed to improve the use of research in education (Tripney et al. 2018).

The introduction of such interventions has increased demand for projects that assess the impact that research-use in school settings has on students' educational outcomes (Caldwell et al., 2015; Bennett, 2015). Currently, however, little evaluation exists on the impact of these different types of interventions on evidence use in education, either in terms of the impact on teacher engagement with research, or in terms of classroom practice and pupil outcomes (Tripney et al., 2018; Nelson et al., 2017). Moreover, existing evidence appears mixed or unclear and of poor quality (Tripney et al, 2018).

The Research Learning Communities (RLC) programme

Research Learning Communities (RLC) is a professional development programme aiming to support teachers with the use of research evidence and the implementation of action research, with the ultimate goal of improving pupil outcomes.

RLC has previously been delivered in the UK, including schools which agreed to take part in the programme and their teachers and pupils from across year groups. The programme has also been evaluated, with the most robust evaluation involving a Randomised Control Trial (RCT) with 119 primary schools (of which 60 were in the intervention group) and a process evaluation between 2014-2016. The evaluation assessed RLC's impact on reading outcomes for children in Key Stage 2 (KS2) and teacher outcomes, and concluded that:

- the programme had a positive impact on teachers' disposition towards research, with some evidence that this impact may have been influenced by factors such as the level of postgraduate qualifications or seniority of teachers that took part in the intervention;[2]
- there was some evidence of a small positive relationship between teachers' disposition towards research and pupil outcomes, irrespective of involvement in an RLC; and
- there was no evidence that RLC improves reading outcomes for children at KS2, with some teachers suggesting that it may take a number of years for participation in an RLC to change teaching practice and improve pupil outcomes (Rose, et al. 2017) [3].

Using pupil data collected as part of the RCT, sub-group analysis was conducted, focusing on children with a social worker and their KS2 results. Despite the small sample sizes of children in the sub-group analysis (which resulted in the findings being inconclusive) the programme did show 'signs of promise'; findings showed that the programme resulted in two months' additional progress in reading attainment for this group of children in intervention schools, compared to children with a social worker in control schools (Sanders et al., 2020).

These 'signs of promise' provided the opportunity to adapt and deliver the RLC programme so that it supports teachers with the use of evidence focusing on CIN/LAC, who generally have lower educational attainment than their classmates and may have an even greater need for tailored and innovative teaching (Berridge et al., 2020). In turn, the evaluation of the adapted programme was key in order to support the evidence base in this field, which is scarce, by using a robust evaluation design and thus, providing solid evidence on the programme's impact.

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[2] Two small scale qualitative evaluations have also been conducted by the RLC delivery team in infant, primary, and secondary schools involving a total of 21 teacher interviews. These evaluations reported teachers' perceptions of the positive impact of the programme, including increased: teacher confidence to use research to develop new approaches to teaching and learning; capacity to lead research-informed change; improved teaching practice and perceptions of student learning behaviours and outcomes (Brown et al., 2020; Brown, 2017).
[3] The evaluation was funded by the Education Endowment Foundation (EEF) the Department for Education (DfE) and the Mayor's London Schools Excellence Fund as part of a round of funding exploring research use in schools.

Intervention and Theory of Change

> **Note**: Since recruitment for the programme is still ongoing at the time of writing, this trial protocol has been developed based on an estimated number of schools and local authorities provided by the WWCSC. We have also estimated the number of teachers and CIN/LAC per school based on publicly available data. An updated protocol will be published after school recruitment has been finalised.

Overview and rationale

RLC is a professional development programme which aims to support teachers in primary schools to implement research-based teaching strategies that have the potential to improve Literacy and Mathematics outcomes of Children in Need (CIN) and Looked After Children (LAC).

To do so, the programme will bring together primary Subject Leads and Designated Teachers[4] in a series of workshops focusing on raising their understanding and use of educational research in order to develop and implement new teaching strategies or adjust existing teaching strategies for CIN/LAC in their schools. Subject Leads and Designated Teachers are to champion evidence-informed teaching strategies and work with year 5 and 6 teachers as a means to together develop and implement these new/adjusted strategies.

The RLC programme is based on teacher action research, described in simple terms as planning a new teaching strategy, acting on it, observing its effects, reflecting on its effectiveness, revising plans, and repeating the cycle again (Kemmis and McTaggart, 1988). Thus, during the workshops, conceptual research needs to be translated into instrumental action in the classroom. In the workshops, teachers collaborate to review research evidence and share personal experiences to collectively make sense of its implications and applications to teaching practice. The programme intends to build teachers' understanding of research evidence by engaging teachers in:

Figure 1: Action research cycle, Kemmis and McTaggart 1988

> *'a facilitated process of learning, designed to help them make explicit connections between research knowledge and their own assumptions and knowledge (Katz and Dack, 2013; Nonaka and Takeuchi, 1995). The aim of this process should be to help teachers create new understandings in relation to a given issue or problem'….*This then *'culminates in the development of new practices, strategies or innovations informed by research and directed at tackling specific issues of teaching and learning,'* which *'teachers then need to practise using these innovations'* (Brown, 2017).

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[4] A Designated Teacher is a teacher or a headteacher/acting headteacher in a school, who is responsible for 'promoting the educational achievement' of looked after and previously looked after children in their schools and ensuring that both policy and practice is attuned to the needs of these pupils. Designated Teachers are mandated to '*take lead responsibility for ensuring school staff understand the things which can affect how looked after and previously looked after children learn and achieve and how the whole school supports the educational achievement of these pupils.*' (Great Britain. Department for Education, 2018, p.12).

In this way, RLC aims to facilitate what the programme developers have previously called a 'cycle of inquiry' (Brown and Flood, 2020; Brown, 2017), whereby Subject Leads and Designated Teachers are supported to access, evaluate, and apply academic research findings to inform their own teaching and apply them.

In addition, RLC aims to support Subject Leads and Designated Teachers attending the workshops to cascade their learning to year 5 and year 6 teachers in their schools. In order for the RLC to be effective:

> *'the successful roll-out of new practices is dependent on effective change leadership. In other words, initiating innovation represents the introduction of something new and potentially countercultural. As such, there is a risk that new practices are rejected by those required to adopt them. Correspondingly, the effective scale-up of research-informed interventions will be dependent on there being "the right people in the room": those most likely to make change happen in schools (those with the influence and authority to lead change)… [They must also] explicitly know both what is required to lead change effectively and also their own role in making long-lasting change happen'* (Brown, 2017).

For these reasons, the programme provides participants with training on effective change leadership. It does so by building their understanding of their role in the change leadership process and offering specific strategies and techniques that they can employ in their own school contexts to ensure new practices are adopted / existing practices are adjusted.

To enhance the potential positive impact of the programme, at the outset, RLC also intends to gain the support of Head Teachers/Assistant Head Teachers, whose teachers take part in the programme.

Who (recipients)

The RLC programme will involve 240 primary schools and 6 virtual schools. Within each school, the intended recipients of the programme include specific cohorts of pupils and teachers.

Pupils

The programme is intended to improve the outcomes of year 5 and 6 pupils who have been classified as Children in Need (CIN) in the CIN 2020 census or looked after children (LAC) in the LAC 2020 census in the past six years.[5] CIN and LAC census data are matched to the NPD, data from which will be used to analyse year 6 CIN/LAC pupil Key Stage 2 (KS2) Literacy and Mathematics results in 2021/2022.

Teachers

The RLC programme is intended to engage each school's Literacy or Mathematics Subject Lead and its Designated Teacher. Both Subject Leads and Designated Teachers need to attend the RLC sessions and workshops on behalf of each school. Additionally, the programme intends to engage year 5 and 6 teachers, who are expected to support Subject Leads and Designated Teachers with the implementation of new/adjust existing teaching strategies in their schools. Year 5 and 6 teachers will not be attending any of the programme's sessions/workshops.

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[5] CIN and LAC classifications are aligned with the Children Act of 1989. As per the Act, CIN/CLA encompasses '*all those children receiving statutory support from local authority social care, including those on a Children in Need Plan, on a Child Protection Plan, and Looked After Children.*'

Note: Virtual School Heads[6] (VSH) will also attend the programme to support their own professional development. Given that VSHs are not the intended audience for the programme and will not be developing or implementing new/adjusting existing research-informed teaching practices in the participating schools, they will not be included in the impact or implementation and process evaluation of this study.

What (procedures and activities)

RLC involves six workshops during which Subject Leads and Designated Teachers engage with the programme's materials and planned activities. Before and after the workshops, teachers are to also attend an introductory session where they are introduced to the programme and a 'moving forward'/wrap-up session in which they reflect on their learning and consider next steps. RLC is to run between October 2021 and May 2022.

Where (location)

Workshops are intended to be hosted online, with each lasting for approximately two and a half hours. Workshops are to be held after the end of the school day, thus after about 3:30pm, to minimise disruption for teachers and pupils.

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[6] VSHs work strategically across the LA they are appointed by to support the educational attendance, attainment, and progress of CIN/LAC. They do so by providing information and advice to their parents, educators, and others who the VSH considers necessary. VS provide training to Designated Teachers and VSHs and Designated Teachers work closely together to support CIN/LAC as well as promote a whole-school culture to personalise learning for these children (Great Britain. Department for Education, 2021).

Draft Logic Model

Figure 2: RLC Logic Model

Context	Interventions	Mechanisms	Outcomes
External environmental factors	What activities are delivered to beneficiaries	The sequence of events / activities / processes hypothesised to link the intervention to its intended outcomes	The changes you expect or hope to see because of the intervention

Context

Further school closures and/or participant and pupil absences due to COVID-19

Disruption to the delivery of / participation in the RLC programme online due to technology challenges

Interventions

Virtual School Heads (VSHs) recruit schools within their LA to take part in the study

Workshop facilitators are trained and relevant training materials are developed

Educational themes most relevant to CIN/LAC and which will provide the focus for the programme are identified by the development/delivery team in collaboration with VSHs

Two virtual sessions and six workshops are delivered to Subject Leads (SLs), Designated Teachers (DTs) and VSHs, following two cycles of enquiry.

Mechanisms

BEFORE THE WORKSHOPS

Schools, SLs & DTs identify the subject (Literacy or Mathematics) and the theme they will focus on as part of the workshops

SLs & DTs secure the support of the senior leaders in their school, by communicating the expectations of the programme in terms of the time and resources they will require. (Support is sustained for the duration of the programme and beyond)

DURING THE WORKSHOPS

SLs & DTs attend X out of 6 workshops, are grouped based on the theme they have chosen to work on and find the materials and course activities fit for purpose / meeting their needs

SLs & DTs benefit from a collaborative, open, and honest environment

SLs & DTs gain understanding of how to use research to inform their practice including how to access, interpret, & apply it

SLs & DTs co-develop new/adjust existing teaching strategies: they exchange insights on pupil/school context of CIN/LAC and subject knowledge to co-develop quality, measurable strategies for interventions using theories of action

SLs & DTs gain understanding of effective change leadership: or how to support year 5 & 6 teachers to develop and use new practices & embed change in their classrooms

BETWEEN & AFTER WORKSHOPS

Facilitators provide additional ad-hoc, 'help desk'-style support to participants

SLs & DTs continue participating through independent study through 6-12 hours of independent study between workshops

SLs & DTs build/strengthen existing communities of practice in their schools and use change leadership techniques learned in the workshops

Subject Leads, Designated Teachers and year 5 and 6 teachers co-develop, implement, test and refine new/adjust existing teaching strategies for CIN/LAC in their school

Outcomes

SECONDARY OUTCOMES

SLs & DTs

Improved knowledge: Improved knowledge of academic/action research

Increased use of academic/action research in teaching practice:
- Increased confidence in using academic evidence/action research and in developing and implementing evidence based strategies for CIN/LAC
- Increased use of academic/action research to inform teaching strategies

SLs, DTs and Y5&6 TEACHERS

Improved attitudes towards academic/action research:
- Positive disposition to academic/action research in informing teacher practice
- Increased perception that academic research/action research is useful to teaching
- Increased perception that their school encourages use of academic/action research

Implement improved teaching practices for CIN/LAC

CIN/LAC

Improved outcomes in Grammar, Punctuation & Spelling (GPS) for CIN/LAC

PRIMARY OUTCOMES

CIN/LAC

Improved outcomes in Reading and Mathematics for CIN/LAC

Unintended consequences
Teaching strategies are ineffective and have an adverse effect on learning outcomes. Evidence from research that has been conducted in a general school setting is applied ineffectively to the needs of CIN/LAC in participants' schools.

Context

External environmental factors that could influence the success of the RLC programme include:

- **Further school closures and/or participant and pupil absences due to COVID-19:** Teacher and pupil absences in primary schools due to COVID-19 are still part of school life. This could potentially mean that RLC programme participants need to miss sessions/workshops due to illness or extra workload. Similarly, pupils that might be part of our sample could be absent at the time when new/adjusted teaching practices are implemented, thus reducing the likelihood of positive impact on their KS2 results. In the same vein, positive impact on outcomes for CIN/LAC could be hindered if school closures are required and blended or online learning replaces classroom teaching and face-to-face interactions between pupils and teachers.

- **Disruption to the delivery of/participation in the RLC programme online due to technology challenges:** In contrast to previous RLC programmes, the delivery of these RLC sessions and workshops will be held online rather than in person. Online delivery may present potential benefits, including increase in attendance and allowing for recordings of sessions to be shared with absentees or other teachers, as well as reducing time and costs associated with travel. However, it could also present significant challenges to both facilitators and participants, through issues such as poor internet connectivity or audio and/or video quality, and thus prevent some participants from participating.

Interventions

The activities expected to take place as part of the intervention involve:

- **Funding from the WWCSC** is allocated for the programme.

- **VSHs recruit schools** within their LA to take part in the study.

- **Three facilitators are trained** by the development/delivery team (the School of Education, Durham University) and **intervention materials are developed,** including easy-to-read, practical syntheses of academic research and templates for teachers to develop interventions using the RLC Theory of Action.

- **Educational themes most relevant to CIN/LAC and which will provide the focus for the intervention are identified, by the development/delivery team in collaboration with VSHs.** It is anticipated that four themes considered most pressing for CIN/LAC and their learning (for example, meta-cognition or confidence) will be identified. These themes will provide a 'menu' of options from which Subjects Leads and Designated Teachers will choose to focus on and develop relevant teaching strategies for implementation as part of the programme in either Literacy or Mathematics.

- **Two virtual sessions and six workshops are delivered** to Subject Leads, Designated Teachers and VSHs, following two cycles of enquiry. The first cycle of inquiry takes places between workshop 1 and 3, and the same process is repeated during workshops 4 to 6. The table below provides more detail on the sessions/workshops.

Table 1: RLC sessions and workshops

Session / workshop titles	Description of sessions/workshops
Introduction session	Participants, • are introduced to the purpose and workings of the RLC programme • gain an understanding of their role and what is expected of them • are informed on how their school's senior leaders, e.g. the Head Teacher and Assistant Head Teacher, need to support them and year 5 and 6 teachers in order for them to be successful in the programme
Workshop 1: Developing new research informed teaching approaches	Participants, • examine and reflect on current teaching practices for CIN/LAC in their school • define their vision and related aims and objectives for what is to be achieved in relation to teaching and learning of CIN/LAC in their school • assess the gap between current practice and their vision, by discussing what research evidence shows about effective practice in this area and their own practical experiences • derive an initial idea of what strategy could be employed and how
Workshop 2: Testing and refining new initiatives	Participants, • implement the new/adjusted strategy in their school and when in the workshop, review pupil data and other relevant information/evidence to assess its effectiveness • refine their strategy / improve it • may be asked to trial their ideas with other colleagues, using approaches like lesson study • are supported to develop Theories of Action which will provide a documented record of the new/adjustment of existing strategy and assessment approaches for measuring its success
Workshop 3 + impact: Leading the implementation of new initiatives and change, and how to know whether they made a difference	Participants, • discuss the evidence from the trial and lesson studies and whether their strategies need refining • discuss ways of embedding change effectively in their schools and different change leadership strategies
Workshop 4: Developing second round of research informed teaching approaches	Participants, • repeat the processes and procedures in workshops 1 to 3 to create a new /adjust a different strategy used in the school with CIN/LAC • are able to change the theme they will be focusing on as part of round two
Workshop 5: Other ways to test and refine	Participants, • enrich their understanding and repertoire of testing and refining their teaching strategies aimed at CIN/LAC
Workshop 6: Additional material on leading change	Participants, • enrich their understanding and repertoire of strategies for leading change in their school to support year 5 and 6 teachers to implement effective teaching strategies for CIN/LAC
Moving forward	Participants, • reflect upon what has been achieved so far and how • working in self-organising research learning communities, are able to continue implementing the strategies as well as use the Theory of Action process learnt to create and test new strategies for CIN/LAC

Mechanisms

Before the workshops and introductory session

- **Schools, Subject Leads and Designated Teachers identify the subject (Literacy or Mathematics) and the theme they will focus on as part of the workshops.** Both subject and theme will be chosen based on the needs of CIN/LAC in their school.

- **Support from the schools' senior leaders is secured**: Subject Leads and Designated Teachers secure the support of the senior leaders in their school, by communicating the expectations of the programme in terms of the time and resources they will require. Support is sustained for the duration of the programme and beyond. Ideally, the RLC programme would be tied into teachers' regular work assignments and even performance management targets (e.g. through CPD plans) so that it does not add too much of a burden to teacher workload. In addition, improving research literacy and learning practices among teachers should also be part of school leaders' longer-term strategic plans. Importantly, changes in school leadership may derail the success of the programme if new leaders do not have the same buy-in for the approach.

During the workshops

- **Subject Leads and Designated Teachers attend at least 7 out of 8 workshops/sessions and are grouped based on the theme they have chosen to work on.** For an impact on pupil outcomes to occur, it is assumed that either the Subject Lead or Designated Teacher from each school attend at least 7 out of 8 of the workshops in order to ensure they are part of each key step of the intervention.

- **Subject Leads and Designated Teachers benefit from a collaborative, open, and honest environment:** For the workshops to be effective, Subject Leads and Designated Teachers must be able to collaborate and share learning with each other in an open, honest environment so that they are able to challenge each other and themselves as well as reflect on and question their practice. As such, the RLC programme is intended to create a positive and supportive workshop environment which helps foster reflective and constructive discussions. In the workshops, participants are expected to benefit from sharing the challenges they face and the strategies they develop with participants from other schools. In this way, the RLC may create cross-school repositories of knowledge which participants can tap into, learn from, and/or use.

- **Subject Leads and Designated Teachers gain improved understanding of how to use research to inform their practice:** By consulting research evidence in a synthesised format in the workshop and through links and sources provided by facilitators, Subject Leads and Designated Teachers are expected to gain an understanding of the practical applications of research evidence to their teaching and to that of their colleagues, and how to access, interpret, and apply it.

- **Subject Leads and Designated Teachers co-develop new/adjust existing teaching strategies:** Subject Leads and Designated Teachers from each of the schools are to work closely together to interpret research evidence and contextualise it. Subject Leads are to bring their specific subject knowledge on Literacy or Mathematics, whilst Designated Teachers their insights on the background and challenges of CIN/LAC in the school. Bringing together subject specialisms with a deep understanding of the CIN/LAC in the school and their needs has the potential to further support personalised learning. New/adjusted existing strategies will be underpinned by a clear Theory of Action which will guide the development process and also support evidence gathering and impact assessment in the classroom.

- **Subject Leads and Designated Teachers gain understanding of effective change leadership**. This is intended to enable the workshop participants to effectively generate interest in and engagement of year 5 and 6 teachers with the new/adjusted existing teaching strategies they are introducing, as well as in the concept of evidence-informed action research as a source of information for developing new teaching practices.

Between and after the workshops

- **Facilitators provide additional ad-hoc, 'help desk'-style support to participants**, if required, in between the workshops should, for example, a teacher require 1-1 advice on developing and implementing a particular strategy, or understanding a piece of research.

- **Subject Leads and Designated Teachers spend 8-12 hours of independent study** in between workshops reading additional literature to that discussed in the workshops to further inform and refine their strategies.

- **Subject Leads and Designated Teachers build/strengthen existing communities of practice in their schools and use change leadership techniques learned in the workshops**. Initially, it is expected that this could be through staff meetings, emails, or workshops organised by the Subject Leads and Designated Teachers. Efforts to create communities of practice will require effective information sharing, collaboration, and relationship-building driven by workshop participants.

- **Subject Leads, Designated Teachers and year 5 and 6 teachers co-develop, implement, test and refine new/adjust existing teaching strategies for CIN/LAC in their school.** Working collaboratively, workshop participants and their year 5 and 6 colleagues develop evidence-based teaching strategies and relevant classroom material that allow personalised learning for CIN/LAC in their school. Part of implementation also involves the collection of relevant pupil data and reflection upon the implementation of strategies in action to assess the effectiveness of the strategies and improve them. This process is also expected to help generate interest in and enthusiasm for the new strategies as positive outcomes start materialising.

Outcomes

Primary outcomes

Improved outcomes in Reading and Mathematics are the co-primary outcomes of this evaluation, measured by the relevant national curriculum tests at KS2 for year 6 CIN/LAC over the last 6 years. Based on findings from the evaluation of RLC funded by the EEF which pointed to teachers suggesting that it may take a number of years for participation in an RLC to change teaching practice and improve pupil outcomes (Rose, et al. 2017)[7], we do not expect that RLC will have a significant impact on the primary outcome in year 1.

Secondary outcomes

Secondary outcomes relate both to pupils and teachers. For pupils, it is expected that there will be an improvement in Grammar, Punctuation, and Spelling (GPS) outcomes, also measured by the relevant national curriculum tests at KS2 for year 6 CIN/LAC over the last 6 years. Similar to the primary outcome, we expect that improvement in GPS will be difficult to

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[7] The evaluation was funded by the Education Endowment Foundation (EEF) the Department for Education (DfE) and the Mayor's London Schools Excellence Fund as part of a round of funding to explore research use in schools.

detect by the end of year 1. (KS2 Writing is excluded as an outcome due to it being teacher-assessed and that it may have a lower correlation with other KS2 measures (Allen, 2016).)

In year 1, however, it is expected that the intervention is more likely to affect secondary outcomes relating to teachers. Teacher outcomes centre on improvements in workshop participants':

- **Knowledge** of academic/action research specifically relating to CIN/LAC;
- **Attitudes** towards the usefulness of academic/action research to enhance teaching strategies for CIN/LAC; and
- **Behaviours** relating to the use of academic/action research in the development of new teaching strategies, and the implementation of improved teaching practices tailored to the needs of CIN/LAC in their school.

To assess the above outcomes, we will use and adapt a questionnaire developed by the National Foundation for Educational Research (NfER) which was used in the previous RCT of the RLC programme (Nelson et al., 2017). The NfER questionnaire assessed teachers':

- Positive disposition to academic research in informing teacher practice
- Use of academic research to inform selection of teaching approaches
- Increased perception that academic research is useful to teaching
- Increased perception that own school encourages use of academic research
- Active engagement with online evidence platforms
- Improved research knowledge

Additionally, it is expected that both workshop participants as well as year 5 and 6 teachers will co-develop and implement improved teaching practices for CIN/LAC. As part of this process, Subject Leads, Designated Teachers and year 5 and 6 teachers will become more confident developing and trialling new practices for CIN/LAC based on evidence and the Theory of Action learned in the workshops. Thus, the RLC programme is designed to help produce a wider change in attitudes and behaviours for year 5 and 6 teachers. It is assumed that the more sustained the application of effective the new/adjustment of existing teaching strategies for CIN/LAC, and of the Theory of Action within teacher communities, the greater the impacts on pupil attainment over time.

Unintended consequences

As a novel intervention driven by (carefully planned) experimentation, possible unintended outcomes may result from new/adjusted teaching strategies being ineffective and having an adverse effect on pupil learning outcomes. There is a risk that the literature is misinterpreted or misapplied, such that teaching strategies do not align with the literature itself. Additionally, there is a risk that evidence from research that has been conducted in a general school setting is applied ineffectively to CIN/LAC. A meta-analysis conducted by the WWCSC and of previous EEF trials found that different interventions were effective for children who had a social worker compared to all children on average, suggesting that CIN may require different educational interventions than their peers (Sanders et al, 2020).

Impact Evaluation

Research questions

The questions to be answered by the impact evaluation include:

Primary outcomes
- What is the impact of RLC on Reading and Mathematics attainment as measured by the corresponding national curriculum tests at KS2 for year 6 CIN/LAC over the last 6 years in intervention schools compared with year 6 CIN/LAC over the last 6 years in control schools?

Secondary outcomes
- What is the impact of RLC on Grammar, Punctuation, and Spelling attainment as measured by the relevant national curriculum tests at KS2 for year 6 CIN/LAC over the last 6 years in intervention schools compared with year 6 CIN/LAC over the last 6 years in control schools?
- What is the impact of RLC on teachers' knowledge of academic/action research and use of academic/action research in their teaching practices as measured by the teacher questionnaire for Subject Leads and Designated Teachers in the intervention schools compared with Subject Leads and Designated Teachers in control schools?
- What is the impact of RLC on teachers' attitudes towards academic/action research and implementation of improved teaching practices for CIN/LAC as measured by the teacher questionnaire for Subject Leads, Designated Teachers, and year 5 and 6 teachers in intervention schools compared with Subject Leads, Designated Teachers, and year 5 and 6 teachers in control schools?

The reason for having two primary outcomes is that schools can choose the subject area they focus on in RLC workshops (either Literacy or Mathematics). We expect to find a stronger impact on pupils' performance in the subject that schools have chosen as the focus for their workshops. However, performance in both subjects will be tested for all schools, regardless of the subject chosen. From a technical perspective, this approach is required to maintain the integrity of the randomised approach which would be compromised by creating analytic subsets through filtering based on school self-selection into preferred subject groups. Additionally, within their chosen subject area (Literacy or Mathematics), schools will have the flexibility to choose focus topics and change workshop topics in the second RLC cycle in the second half of the year (January – March). Learning in these topics may result in transferrable improvements in other subjects (e.g. improvements in pupils' metacognition could result in improved attainment outcomes across several subject areas). The transferability of learning improvements in different subject areas will be further examined in the exploratory analysis, discussed below. The choice of topic will not have a bearing on the measurement of outcomes for Subject Leads and Designated Teachers: questions on research knowledge will be relevant for all Subject Leads and Designated Teachers, as they relate to the application of research methods and academic/action research in general, and not to the specific topic of the workshops they attended.

Design

Table 2: Trial design

Trial type and number of arms		Non-blinded two-armed cluster-randomised control trial
Unit of randomisation		School
Stratification variables (if applicable)		Overall, 12 strata will be constructed (one per each Virtual School and a further 2-group breakdown within each LA).
Primary outcome	variable	KS2 Scaled Score in Reading
	measure (instrument, scale)	Continuous variable, ranging between 80 to 120 (DfE, 2019)
	variable	KS2 Scaled Score in Mathematics
	measure (instrument, scale)	Continuous variable, ranging between 80 to 120
Secondary outcome(s)	variable(s)	KS2 Scaled Score Grammar, Punctuation and Spelling (single measure)
	measure(s) (instrument, scale)	Continuous variable, ranging between 80 to 120
	variable(s)	Teacher knowledge of academic/action research
	measure(s)	A Rasch logit measure of teacher ability based on 18 knowledge items in the section "Your knowledge about academic and action research" of the teacher questionnaire
	variable(s)	Teacher attitudes towards academic/action research
	measure(s)	3 correlated Rasch logit measures of attitudes towards academic/action research, based on a multidimensional Partial Credit model[8]
	variable(s)	Teacher use of academic/action research in teaching practice
	measure(s)	2 correlated Rasch logit measures of use of academic/action research in practice, based on a multidimensional Partial Credit model
	variable(s)	Teacher implementation of improved teaching practices for CIN/LAC
	measure(s)	A correlated Rasch logit measure of implementation of improved teaching practices for CIN/LAC, based on a multidimensional Partial Credit model

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[8] The number of correlated Rasch logit measures for each of the above outcomes could differ depending upon the factor analysis of the data and will be revisited at the analysis stage.

Randomisation

The unit of randomisation will be the school, as this is a school-level intervention. A total of 240 schools are expected to be recruited in the trial, with 40 from each of the LAs. We anticipate that a complete list of participant schools will be available prior to allocation, i.e. a stock sample with no inflow over the observation period. We will ensure that workshop caseloads are distributed appropriately across different locations. Hence, we will include the virtual school/LA location as a stratification/blocking factor in the allocation design. Stratification can improve the power of the design, as well as having logistical purposes, when allocation is undertaken within strata defined by school characteristics correlated with the outcomes.

Further criteria which will be considered for stratification/ blocking are:
- Size of school
- Attainment in KS2
- Percentage of pupils eligible for free school meals (FSM).

An objective is to ensure that equal numbers of treatment and control group schools are assigned within each stratum. With 40 schools available for stratification within each LA, this gives 20 schools in treatment and 20 schools in control. We anticipate breaking this down by another stratification characteristic to result in 10 intervention schools and 10 control schools in each minor stratum defined as a cross-tabulation of LA and one of the other school characteristics. We will explore the extent of variation between the schools on each of the characteristics once we have received the complete list of participant schools and select the most appropriate candidate variable.

We will check for balance between the two trial arm groups using KS1 results, where applicable and teacher responses to the baseline questionnaire. Balance will also be considered in terms of other relevant data such as pupils' gender, ethnicity, date of birth, FSM, first language, Special Educational Needs (SEN), CIN/ LAC status. These variables will be available for data linkage from the NPD. Any significant imbalances which are found will be adjusted for in regression models as part of the sensitivity analysis.

Participants

The first unit of recruitment will be the virtual school. Virtual schools are responsible for identifying eligible primary schools. To be eligible, primary schools need to currently have enrolled a CIN/LAC in year 6, under the categories included as per the definition of CIN/LAC included in the Intervention section, at any point the last 6 years (2015 – 2021).

Sample size / MDES calculations

Table 3: Sample size/ MDES calculations

		MDES (Proportion of a Standard Deviation)
MDES for children outcomes		0.19
MDES for teachers' outcomes		0.17
Proportion of variance in outcome explained by covariates9 (R^2) – Children outcomes/Teachers' outcomes	Children	0.4
	Teachers	0.4
	Virtual schools	NA
Intracluster correlations (ICCs) – Children outcomes/Teachers' outcomes	School	0.1
	Teachers	NA
	Virtual schools	NA
Alpha		0.05
Power		0.8
One-sided or two-sided?		Two-sided
Level of intervention clustering		School
Average cluster size		3
Sample Size (children)	Intervention	360
	Control	360
	Total	720
Sample Size (teachers)	Intervention	720
	Control	720
	Total	1440

Explanation

Since recruitment has not yet been completed, sample size calculations have been made using estimations based on publicly available data on pupils and teachers.

School and pupil sample calculations and MDES calculation

Current recruitment efforts by the WWCSC suggest that the recruitment of 240 eligible schools might be possible. Assuming three eligible pupils in each school, there will be 720 CIN/ LAC across the six virtual schools expected to be recruited to participate in the intervention. With randomisation of schools within virtual schools, there will be approximately 20 schools in each LA in the treatment condition and 20 in the control.

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[9] We assume the same percentage of variance is accounted for by covariates in the model for teacher outcomes and children outcomes. Covariates refer mainly to baseline outcome measures.

Based on these assumptions, we have performed a power analysis using the PowerUp tool, as recommended by the EEF, to estimate the minimum detectable effect size (MDES)[10] for CIN/ LAC outcomes. Our calculations assume a two-tailed Type I error rate of 0.05 and statistical power of 0.8. We have also assumed baseline measures to account for 40% of the primary pupil level outcome variance and stratification/ blocking for a further 10% of variance and an intra-cluster correlation (ICC) of 0.1. This yields an estimated MDES of 0.19.

Teacher sample calculations and MDES calculation

For teacher outcomes, we estimate that there will be around four full time teachers per school. The data we are using to estimate this includes both school leaders and classroom teachers as part of the total number of teachers and therefore on average we expect a total of four full time teachers combined per school. Assuming the same parameters as above for power calculations, we obtain a MDES of 0.17.

Outcome measures

Primary outcome measures

Drawn from the NPD, Reading and Mathematics scores at KS2 for CIN/ LAC will be co-primary outcomes. KS1 scores will be used as baseline outcome measurements for Reading and Mathematics. KS1 baseline data for Reading and Mathematics is included within the KS2 dataset as KS2_KS1READPS and KS2_KS1MATPS. The KS2 scaled scores range from 80 to 120, while the KS1 scores range from 85 to 115 (Standards and Testing Agency, 2019).

Secondary outcome measures

Pupils scores on Grammar, Punctuation and Spelling (GPS) at KS2 (KS2_GPSMRK) will be analysed as a single measure secondary outcome. A corresponding KS1 variable is not available for GPS and thus cannot be used as a baseline.

Teachers' outcomes will also be analysed as secondary outcomes. We will circulate baseline and endline questionnaires to Subject Leads, Designated Teachers and year 5 and 6 teachers at the start of the intervention, prior to the first 'Introductory' session, and at the end of the intervention, after the final 'Moving Forward' session. Questionnaires will be developed and administered online and disseminated using email addresses available on the DfE's Get Information About Schools (GIAS) database or using teacher email addresses provided by Head Teachers in consent forms administered as part of the recruitment process.

We will use and adapt as appropriate a questionnaire developed by Nelson et al., (2017) (and which has been used in EEF evaluations relating to the use of research evidence in teaching practice). Teacher outcomes will include teachers' research knowledge, their attitudes towards academic/action research, their use of academic/action research in teaching practice, and their implementation of improved teaching practices for CIN/LAC.

The structural relationship between outcomes and questions will be checked using factor analysis, with analysis guided by the results of the *Measuring Teachers' Research Engagement: Findings from a pilot study* (Nelson, et al., 2017). Scale reliability analysis will be reported. We assume here that the scaling structure of the original investigation will be replicated in our research and describe our intended analysis on this basis in this document. However, upon data collection, we will initially check that the dimensions and question

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[10] We use the 'BCRA3_2F design, which assumes three levels, with the third level fixed for stratification/blocking and a random level 2 effect, with 3 pupils per school, 40 schools per block and 6 blocks = 720 pupils; with 20 schools per block allocated to treatment and 20 schools per block to control.

loadings which emerges from our data replicate the previous report using confirmatory factor analysis. If the results of the factor analysis do not support our outcomes framework, subsequent modifications and refinements will be made using exploratory and confirmatory factor analysis. Cronbach's α measures on internal reliability will also be calculated for each scale.

Analysis plan

Primary analysis

Pupils' outcomes will be measured through the NPD variables KS2_READSCORE and KS2_MATSCORE. Based on the publicly available information in the NPD database this is provided as a scaled measure. The data used for this analysis will have a hierarchical structure, as pupils and teachers are nested in schools. The analysis will take the clustering from the hierarchical structure of the data into account by using a robust regression model for clustered errors approach.

The cluster regression model (CRM) specification for KS2 Reading score is:

$$\text{KS2\_READSCORE}_{ij} = \beta_0 + \beta_1 \text{Treat}_j + \beta_2 \text{KS1\_READSCORE}_{ij} + \sum_{s=1}^{11} \gamma_s \text{stratum}_s + \varepsilon_{ij} \quad (1)$$

Where:

Treat_j is equal to 1 for intervention schools, 0 for control schools
$\text{KS1\_READSCORE}_{i,j}$ is the baseline Reading score (for KS1) for pupil i, in school j
stratum_s is a stratum indicator (equal to 1 if the school is stratum s, 0 otherwise)
ε_{ij} is the cluster adjusted component of the error term

The β terms are regression coefficients (with β_0 being the intercept). The coefficient on the treatment variable, β_1, is the effect of the treatment on KS2 children Reading score.

The CRM specification for KS2 Mathematics score is:
$$\text{KS2\_MATSCORE}_{ij} = \beta_0 + \beta_1 \text{Treat}_j + \beta_2 \text{KS1\_MATSCORE}_{ij} + \sum_{s=1}^{11} \gamma_s \text{stratum}_s + \varepsilon_{ij} \quad (2)$$

Where all variables and coefficients have the same meaning as above.

The impact estimator will be calculated using an intention to treat (ITT) analysis to maintain the integrity of randomisation in the allocation stage. This is the fundamental test of the success of the impact effect for this study. This ITT, however, is based on an 'offer to treat'. It is possible that some schools in the treatment group will have agreed to participate but teachers do not attend the workshops, in effect receiving no treatment and contributing zero to the ITT impact effect. In such circumstances, where we have outcome data, we can estimate a second impact estimator based on those who have participated using formula (3) below, which will be greater than or equal to the ITT. We anticipate it is extremely unlikely that some people in the control group will receive treatment but provide formula (4) below to show how we would deal with this situation, should it arise. Formula (3) below shows how we will adjust for this circumstance of dual crossovers, where the local average treatment effect is calculated as a weighted average of treatment compliers across the treatment and control groups.

In order to adjust for the presence of non-compliers in the treatment group, and assuming we can collect outcome scores for these people, we will also calculate the treatment on the treated, following equation 8 in Bloom (2006), as:
$$ITT = \frac{\bar{Y}_t - \bar{Y}_c}{\bar{D}|Z=1} \quad (3)$$

Where the denominator is the proportion receiving treatment in the treatment group.

Whilst not expected in this design, in the case where there are cross-overs from the control group to the treatment group, we will also include an estimate of the Local Average Treatment Effect (LATE), also described by Bloom (2006; equation 11):

$$LATE = \frac{\overline{Y_t} - \overline{Y_c}}{(\overline{D}|Z=1) - (\overline{D}|Z=0)} \qquad (4)$$

Where the denominator is the difference in treatment rate between the treatment and control group.

In addition to the estimators described above, we will provide a standardised impact effect, taking account of the multilevel structure of the data.

With only two primary outcome variables, in line with WWCSC recommendations, there will be no adjustments for multiple significance testing.

Secondary analysis - Pupil outcomes

The analysis of year 6 CIN/ LAC pupils' secondary outcomes will resemble the analysis of the primary outcomes. Similarly to Reading and Mathematics, the GPS variable (a synthesis of the KS2 Grammar, Punctuation, and Spelling ability of students) is both numeric and reliable (based on the National Curriculum KS2 assessments). As a result, the specification for the GPS pupil outcome is:

The CRM specification for KS2 GPS is:

$$KS2\_GPS_{ij} = \beta_0 + \beta_1 Treat_j + \sum_{s=1}^{11} \gamma_s stratum_s + \varepsilon_{ij} \qquad (5)$$

Where all variables and coefficients have the same meaning as in the primary analysis.

The KS2 Literacy and Mathematics pupil data from the NPD are valid and reliable measures of pupil ability based on high-quality assessments of the National Curriculum.

Secondary analysis - Teacher outcomes

There are four secondary teacher outcomes, each with three teacher subgroups of interest, in addition to the pupil secondary outcome. Three of the teacher outcomes are attitudinal and one is knowledge based. Ideally, the three attitudinal outcomes would be treated within a single three-level multi-level model (MLM), corresponding to a MANCOVA with outcomes nested within teachers, nested within schools; but current WWCSC guidelines discourage use of MLMs. Consequently, we propose a separate CRM, as outlined above for each teacher secondary outcome.

WWCSC guidelines require adjustments to significance tests given the number of outcomes included here. Our proposal is to run an omnibus null model (combining all teachers into a single treatment group) for each outcome, with further pair-wise testing of teacher subgroup effects only with a rejection of the omnibus null. Hochberg adjustments are proposed such that the five outcomes have their omnibus null tests included in the Hochberg procedure, i.e. an adjustment for five significance tests. Pairwise testing is also adjusted, using the Hochberg approach, separately for each outcome which is significant from the omnibus null test, i.e. a maximum of three tests is used in the Hochberg procedure for each significant outcome.

The analysis of teacher outcomes includes three potential groups of interest:
- Subject Leads

- Designated Teachers
- Years 5 and 6 teachers.

Each of these groups can be identified in both the treatment and control groups.

Data from all three teacher groups will be pooled into a single dataset. The structural form of the model will follow that described in (1), (2) and (5) above, albeit with an extra set of coefficients to identify the teacher group status. The test of any significant difference across all teacher groups will be undertaken using the coefficient of the trial group indicator status. If this overall treatment effect is significant, interaction terms between the treatment group and the teacher group will be added to the model. These interaction terms will test whether the size and direction of the impact differs between teacher groups, although power to detect sub-group effects will be limited by small sample sizes. With three teacher groups, there are three pairwise tests to compute, i.e. each group against the other. We propose to use a Hochberg adjustment for multiple testing on these three post-hoc tests, which will only be undertaken if the overall omnibus null hypothesis is rejected. The CRM will also include baseline measure scores and stratum indicators.

$$
\begin{aligned}
\text{TeacherAttOutcomes}_{ij} \\
= \beta_0 + \beta_1 \text{Treat}_j + \beta_2 \text{BaselineOutcomes}_{ij} + \beta_3 \text{TeacherGroup}_{SL} \\
+ \beta_4 \text{TeacherGroup}_{DT} + \sum_{s=1}^{11} \beta_{s+4} \text{stratum}_s + +\varepsilon_{ij}
\end{aligned}
$$

Where
$\text{BaselineOutcomes}_{ij}$ are the baseline outcomes for each teacher-outcome combination; TeacherGroup_{SL} and TeacherGroup_{DT} are dummy variables for the subject leader and designated teacher effects (vs the subject teachers which is the reference category).

The teacher outcomes are ordinal (teachers respond to Likert-type items in the questionnaire) or dichotomous data (where teacher responses to items are scored as correct/incorrect). As a result, the teacher outcome variables may need to be analysed using different models compared to the pupil outcome variables. The regression framework will use the appropriate canonical link and error term appropriate to the measurement level of the outcome.

We propose to use different models for the construction of teacher knowledge and the teacher attitudes outcome measures.

In the knowledge part of the questionnaire, teacher responses to question items are scored as correct/ incorrect. We suggest using standard psychometric techniques to compute a knowledge measure for each of the participants, both at baseline and at end point. The family of Rasch models is typically used (very widely) in education and other related disciplines to assess knowledge. The simple Rasch model (Lamprianou, 2019, chapter 3) is appropriate for dichotomously scored items. The model often formulated as

$$P_{ni}(x_{ni} = 1 | \theta_n, \delta_i) = \frac{e^{\theta_n - \delta_i}}{1 + e^{\theta_n - \delta_i}} \qquad (6)$$

Where e is a mathematical constant approximately equal to 2.72. It is assumed that item i is dichotomously scored: 1 represents a correct response, whereas 0 represents an incorrect response. We use subscripts to indicate that the Rasch formula is generic and refers to any teacher of a specific ability θ and any item of a specific difficulty δ. For example, we use θ_n to refer to the knowledge of any teacher n, and δ_i to refer to the difficulty of any test item i. We assume that the only factors that affect the probability for a correct response are the knowledge of the teacher and the difficulty of the item. This hugely simplifies our task to

model the probability for a correct response. Indeed, one of the virtues of the Rasch model is that it is relatively simple, compared with similar models, thus adhering to the principle of parsimony. For each teacher, we will compute θ_n to represent their research knowledge. Standard errors will be computed based on Wright and Stone (1979, p.135).

All analysis will be applied using open-source packages in R and will be fully replicable; code can be provided to the client. For the Rasch analysis, the usual dimensionality and robustness checks will be conducted (see Lamprianou, 2019; chapter 3 'Expectations and Residuals').

Once the Rasch knowledge estimates of each teacher (baseline and end of year) are computed, they will be used in a CRM to estimate the treatment effect, similarly to the models for the primary outcomes.

The CRM specification for teacher knowledge is:
$$Teach\_Knowl_{ij} = \beta_0 + \beta_1 Treat_j + \beta_2 Baseline\_Knowl_{ij} + \sum_{s=1}^{11} \beta_{s+2} stratum_s + \varepsilon_{ij} \qquad (7)$$

As for teachers' attitudes outcome measures, we have to consider that the dimensionality of the questionnaire (i.e., the existence of five attitudinal teacher outcomes) is based on the outcome of the pilot study (Nelson et al., 2017). In that study, the researchers used an exploratory factor analysis to pull together the different teacher outcomes from different sections of the questionnaire. As our study will be based on a different sample, we cannot be sure that a factor analysis on our data will replicate the findings of Nelson et al. (2017). Thus, before conducting any formal testing on the attitudinal teacher outcomes, we will need a factor analysis to confirm the structure of the data. To account for the ordinal nature of the data, we propose using robust covariance matrices with polychoric correlations (for the Likert-scaled items) using the 'psych' (Revelle, 2020) open-source software on R for purposes of replicability). Cronbach's alpha based on tetrachoric and polychoric correlations will be reported per scale. Wayne Velicer's Minimum Average Partial (MAP) criterion (Velicer, 1976) and Parallel analysis will be used to decide on the number of factors to extract. Oblimin rotation will be used to account for the correlation between factors (we expect attitudes to be correlated). We will use the outcome of our factor analysis, even if this is different to the hypothesized five-dimensional structure reported by the evaluation study.

Our working assumption is that we will recover five correlated dimensions from the data as per evaluation study. The appropriate model is a multi-dimensional Partial Credit Rasch model, in order to compute one teacher estimate per dimension per teacher. The analysis will be done by the open-source TAM package (Robitzsch et al., 2021) where the items of each dimension will be modelled on a different – but correlated - measurement scale. The extracted teacher Rasch logit per dimension will be used to test for treatment effects in a MANCOVA model with treatment and strata as fixed effects.

Analysis of Harms

In order to analyse the possibility of adverse effects resulting from the RLC programme, we will be guided by Lorenc and Oliver's (2014) taxonomy of harms which identifies five types of potential harms:

- Direct
- Psychological
- Equity
- Group and social
- Opportunity cost.

It is not expected that the intervention will result in any of the above harms to beneficiaries or wider stakeholders (unintended consequences of the intervention, including harms, will be explored in the IPE).

Exploratory Analysis

Before formal statistical modelling, we plan to report a number of tables and figures with descriptive statistics. For numeric variables, for both the pupil and the teacher samples, descriptive statistics (means, standard deviations, and quartiles) and accompanying visual aids (boxplots and histograms) will be used to present the data to the reader. Descriptive statistics and graphs will be produced for the whole sample (separately for pupil and teacher samples), but also per group (ITT groups and stratums). Descriptive statistics are important to provide the necessary nuance to readers who may be less interested in formal statistical modelling.

The degree of compliance is important. As one might expect, in empirical settings we could expect a number of teachers not to be full compliers. For purposes of analysis, we will consider teachers as either being full compliers or non-compliers (no partial compliance will be considered). Considering a single absence as non-compliance appears strict; arguably, a teacher who attends seven workshops would be expected to demonstrate significant gains compared to the teachers of the control group. We will consider as non-compliers only the pairs of teachers (Designated Teacher and Subject Lead) who both miss more than one workshop; all other teachers will be considered as full compliers.

In the section of the analysis of the primary outcomes, we described an ITT and TT procedures to account for non-compliance. However, before computing and reporting ITT and TT, we suggest profiling intervention schools and virtual schools by their extent of compliance, comparing descriptively some of their main background and performance data, and if in doubt, undertaking qualitative investigation to find out why they did not comply. This may be important for the interpretation of the effects and the validity of ITT and TT indices.

Regarding compliance, we propose monitoring our data for widespread partial compliance. If we observe that more than 10% of teachers demonstrate varying degrees of compliance (i.e., teachers tend to make several absences), we suggest fitting a more nuanced model for the primary outcomes, aiming to estimate 'dosage' effects. We propose to investigate the dataset for partial compliers. As the treatment of partial compliers can be very complicated (Van der Windt, 2014), we propose to convert the Treat_j variable (Models 1-4) to a numeric variable, indicating the degree of compliance for every school, as a proportion of sessions attended by teachers. E.g. for school j with two teachers, who between them have attended 4 workshops (out of 6 workshops), partial compliance is Treat_j=1-4/(2*6)=0.66. Essentially, it would be similar to investigating different degrees of exposure, or different dosage in a medical experiment (although compliance here is subject to self-selection, which means that we cannot be sure that dosage per se is responsible for any impact on the outcome).

The fact that the schools can choose the subject of the workshop may pose some problems for the identification of the impact, if the choice is influenced by the potential outcome achieved by the school. For instance, schools may be more likely to choose a subject where they know performance of CIN/LAC is worse. In this case, we may not see large differences between treatment and control schools because intervention schools start from a significantly disadvantaged situation than the intervention ones. Controlling for baseline outcomes will partly mitigate for this effect. However, as part of the exploratory analysis, we will check whether school choice is related to past performance, based on administrative data collected from the schools. We will compare descriptive statistics (means and standard deviations) on Literacy and Mathematics for schools which chose to focus on either of the subjects. In addition, we will also employ formal hypothesis testing. Although the impact of the treatment on Literacy and Mathematics scores will be tested for all schools in the

analysis of Models 1-3, independently of the chosen subject of the workshop (following the requirements to maintain the integrity of randomisation) it is reasonable to expect stronger impacts on pupil outcomes in the subject chosen by the school. We propose to fit alternative CRM models by replacing the dichotomous treatment variable (Treat_j), described in the above models, with another variable which takes three values (1:control group, 2:intervention focusing on Literacy, 3:intervention focusing on Mathematics). The coefficient of each of the dummy variables for the intervention groups (the control group will be the reference variable) will indicate whether focusing on a specific subject has an increased impact on pupil performance in that particular subject. Again, these models include the self-selection of schools to subject which means that the results of these models are less robust than the ITT analysis of primary outcomes. As regards the selection of subthemes within the subjects, we will consider how the analysis will be conducted after the schools have made their choices after the beginning of the programme. Initially, we anticipate multinomial logistic models to identify which themes are chosen but will review the most appropriate way to construct the choices data after inspection of the choice outcomes.

Finally, a set of socio-demographic variables and other variables (collected from NPD and from the administrative data provided from the schools) will be included in extended impact regression models to test for differences in the impact found. These variables will be aggregated at the school level, which may increase the power of the analysis and also help to smooth out any chance of imbalances in the distribution of the characteristics of the treatment and control groups, should this arise. These covariates will include: percentage of pupils in a given age category, percentage of male and female pupils, percentage of pupils by ethnicity, percentage of pupils with English as a first language, percentage of SEN and percentage of FSM in the current year.

For teacher analysis we will use the following individual-level covariates:

- teacher status (classroom teacher, middle leader (such as head of department, subject, or curriculum subject area leader); senior leader (deputy or assistant headteacher); headteacher, principal or director; SEN teacher; supply, cover or Planning, Preparation and Assessment (PPA) teacher; high level teaching assistant)
- teaching experience
- years teaching in the school
- whether the respondent holds a postgraduate qualification.

We note that analysis of exploratory outcomes will not be included in the multiple test adjustments for the primary and secondary outcomes. However, we will provide naïve and adjusted significance tests levels for the exploratory models, treating these as a separate block of analysis.

Missing data policy

Missing data can reduce statistical power through reducing sample size and introduce bias into the impact estimator if data loss is not independent of treatment assignment. Our principal concern is with missing outcome data as this will make the most difference to our ability to accurately estimate the impact.

Analysis of pupil outcomes is undertaken on NPD administrative outcomes, which, in theory, should be complete. Teacher outcomes are based on self-reported questionnaire data and there is a greater potential for incomplete data both at unit (teacher) and (questionnaire) item level.

Outcome data

Outcome data are critical for the impact evaluation and, as such, we do not propose to impute missing data for them. If missing data constitute less than 5% of the data for an

outcome, listwise deletion will occur, with no further adjustment. We propose to accept a threshold of 5% missing data for a complete case analysis on the remaining 95% of the sample. Though this 5% threshold is somewhat arbitrary, it is reasonable to expect any bias arising from this low level of missingness to be low to negligible. It also represents a comparatively small decrease in the precision of the impact estimator.

Where data loss exceeds 5% for outcomes, we will create a binary indicator distinguishing missing from not missing and check for a significant difference in missingness between treatment and control groups using a logistic model including the covariates listed above. If there are no significant coefficients in the model, the data will be considered missing completely at random. If any characteristics are significantly associated with the propensity for missingness a weight will be created and the primary and secondary analysis will be re-run with a weight included in the models with the standard errors adjusted appropriately for the weight, to ensure appropriate significance testing the treatment effect.

Baseline and covariate data

For levels of missing baseline and covariate data under 10%, we propose to add a missingness indicator to the covariate coding. For levels of missingness, of 10% or greater, multiple imputation is proposed using the MICE package in R, Van Buuren and Groothuis-Oudshoorn (2011). The practical details of the imputation will have to be decided at the time of analysis as the extent of the missing data and the actual variables with the missing data may affect the imputation approach.

Implementation and process evaluation

Aims

The implementation and process evaluation (IPE) will explain the impact of the RLC programme on teachers and CIN/LAC Reading and Mathematics outcomes and enhance the evidence base on effective implementation of the RLC as well as other programmes of a similar nature.

Research questions

The evaluation will answer the following questions:

1. What are the reasons behind the outcomes identified in the RCT?
2. What, how and to what extent external factors, context, internal programme features, and different stakeholders influence the delivery and outcomes of the RLC programme?
3. What are the critical factors of implementation, especially at a school level, that support improvements in teacher and pupil outcomes and those that hinder it?

Design and methods

The IPE will use realistic evaluation principles in order to build a comprehensive evidence base on what works, for whom, in what circumstances and why. The evaluation will be guided by Humphrey et al.'s (2016) framework and will employ a mixed methods approach involving:

- A pre and post-intervention questionnaire;
- Workshop observations; and
- Case studies with intervention and control schools.

A detailed description of the methods and indicators to be used using Humphrey's framework is presented in the table below.

Design and Methods: Research Framework

Table 4: Evaluation research framework

Evaluation questions	Indicators or outputs	Methods
Fidelity		
• What is teachers' attendance to the RLC programme workshops?	• Attendance rate of Subject Leads and Designated Teachers • Number of workshops delivered against original plan	• Session and teacher attendance data collected by the delivery team
Dosage		
• Is the implementation of the RLC programme consistent with its design? • What are Subject Leads and Designated Teachers views of the frequency, timing, and duration of the workshops? • To what extent are Subject Leads and Designated Teachers able to study independently? • To what extent do Subject Leads and Designated Teachers collaborate with year 5 and 6 teachers to co-develop and implement Theories of Action in their schools?	• Adherence of workshops to workshop agenda and RLC cycle of inquiry • Perceived suitability of workshops' frequency, timing, and workshop duration by Subject Leads and Designated Teachers • Perceived significance of the RLC approach and of the new/adapted strategies for CIN/LAC compared to previous approaches/strategies • Understanding of factors influencing dosage, including support of school leadership; time and resources/costs to participation; hours of independent study	• Interviews with the delivery team • Pre and post teacher questionnaire • Workshop observations • Case studies
Quality		
• What are the views of Subject Leads and Designated Teachers on the quality of workshop content, structure, support, and environment (or the space created for collaboration and open and honest conversations)?	• Perceived quality and relevance of workshop content and activities, facilitation, and facilitator support as well as of collaboration and participation among participants • Proportion of Subject Leads and Designated Teachers who develop Theories of Action as per the RLC workshop guidance materials	• Pre and post teacher questionnaire • Workshop observations • Case studies

• Do different stakeholders believe that the programme is addressing their requirements and the outcomes needed to be achieved? • How does the RLC and the role of Subject Leads and/or Designated Teachers work in practice? And how does this enactment differs based on different school contexts? • What supports and what inhibits effective implementation at a programme and school levels and why? • What can be improved? • How do RLC schools compare to control schools?	• Description of approaches to co-developing and implementing relevant academic literature and the Theory of Action cycle by Subject Leads, Designated Teachers, and year 5 and 6 teachers • Perceived barriers and enablers to the programme and schools' implementation, and to achieving better Reading and Mathematics outcomes for CIN/LAC • Perceived benefits of the programme on CIN/LAC Reading and Mathematics outcomes compared to other pupil groups that need more tailored support • Suggested improvements for the RLC programme and school level implementation based on context and circumstances reported by Subject Leads, Designated Teachers, and year 5 and 6 teachers • Differences in practices and perceived outcomes across treatment and control schools	
Responsiveness		
• How do Subject Leads, Designated Teachers and year 5 and 6 teachers expect the RLC programme to impact on their and school practices and on CIN/LAC outcomes? Any unintended impacts? • What are the necessary pre-requisites for the use of research to change teachers' practice and how are the manifested at a school level? • What are the characteristics and practices employed by schools where the RLC programme and the role of Subject Leads and/or Designated Teachers is perceived to be effective? • How do RLC schools compare to control schools?	• Perceived expectations and concerns regarding the RLC approach • Understanding of the support offered by school leadership, time, and resources to participate • Contextual, environmental, and external factors that influence decisions on the approach, processes, and outcomes • Exploration of new teaching strategies implemented and their effectiveness, including enablers and barriers to what appears to 'work' • Discussion of wider changes in school culture/community (if any) • Differences between intervention and control schools	• Case studies

Research question	Indicators or outputs	Methods
Reach		
• How attractive is the idea of the RLC programme to schools? • To what extent do schools engage with the programme and use the resources provided in the workshops?	• Perceived acceptability, relevance, and usefulness of the RLC programme as a whole school approach to improving outcomes for CIN/LAC • Belief that the RLC approaches to developing teaching strategies for CIN/LAC are sustainable beyond the end of the programme • Perceived quality of engagement, participation, and collaboration in the workshops by Subject Leads and Designated Teachers • Year 5 and 6 teachers reached and beyond (if any) and perceptions of the level of use of the resources provided in the RLC workshops	• Pre and post teacher questionnaire • Case studies

Research question	Indicators or outputs	Methods
Service orientation		
• To what extent is the RLC programme genuinely new and innovative? • Does the RLC programme offer support in ways not previously offered?	• Comparison with similar activities previously implemented or ongoing in schools relating to teaching strategies for CIN/LAC • Comparison of the perceived benefits of the RLC programme compared to previous practices relating to teaching CIN/LAC in the schools	• Pre and post teacher questionnaire • Case studies
Adaptation		
• Has implementation diverged from its initial design? • What is the nature of these adaptations and reasons, including: a) how well is the RLC programme adapted to support outcomes for CIN/LAC; and b) how well Subject Leads and Designated Teachers adapt their roles to suit the needs of the programme? • Are these adaptations beneficial or detrimental?	• Explanation of the reasons behind key adaptations to the RLC programme focusing on CIN/LAC compared to its previous versions • Perceived feasibility of delivering the role of the Subject Lead and of the Designated Teachers as required by the RLC programme • Perceived benefits and drawbacks of these adaptations	• Interviews with delivery team • Case studies

Sampling

Data collection will take place with the target sample sizes and at the time points in the table below.

Table 5: Sampling design

Method	Sample	Sub-group	Number per subgroup	Total number
Pre and post teacher questionnaire	Teachers	Subject Leads, Designated Teachers, and year 5 and 6 teachers	4 per school	720 teachers
Workshop observations	Workshop sessions	Introductory & moving forward sessions	2 sessions	8 observations
		Workshop sessions	6 workshops	
Case studies	Schools	Intervention	12	14 case studies
		Control	2	

Pre- and post- teacher questionnaire

Subject Leads, Designated Teachers, and year 5 and 6 teachers in each of the intervention and control schools taking part in the study comprise the sample for the pre and post teacher questionnaire.

Workshop observations

A total of eight observations will be conducted, covering the programme's two introductory sessions and its six workshops. The approach to sampling the workshop observations will be defined once the recruitment process is completed, if more than a total of eight sessions and workshops are required.

Case studies

We will conduct case studies of 14 participating schools, 12 intervention and two control. We will use purposive sampling to identify case study schools. Purposive sampling will be used, aiming for variation in:

- geography
- percentage of CIN/ LAC
- schools in different improvement stages as judged by Ofsted
- teacher attendance to the RLC introductory session and workshops, if any.

The case studies will involve interviews with schools' head teachers, Subject Leads, Designated Teacher and year 5 and 6 teachers. Consent will be acquired prior to the interview.

Table 6: Case study sampling

	Total no of head teacher interviews	Total no of Subject Lead & Designated Teacher interviews	Total no of year 5 &6 teacher interviews
Intervention schools (x 12)	12 (1 per school)	24 (2 per school)	36 - 48 (estimate of 3-4 per school)
Control (x 2)	2 (1 per school)	4 (2 per school)	6 - 8 (estimate of 3-4 per school)
Total no across schools	**14**	**28**	**42 - 56**

Data collection methods

Pre and post teacher questionnaire

An online pre and post questionnaire will be administered to Subject Leads, Designated Teachers and year 5 and 6 teachers of both the intervention and control schools at the beginning and at the end of the RLC programme. This is the same questionnaire which will be used to assess the impact of the programme with additional questions directly related to the IPE. The IPE questions will be guided by the evaluation framework as outlined in Table 4.

Workshop observations

Workshop observations of RLC sessions will be conducted to ensure key questions included in the IPE evaluation framework are answered. A semi-structured observation guide will be used to ensure data collection is consistent and all relevant data is collected.

Case studies

Case studies will consist of a series of telephone or virtual semi-structured interviews with Head Teachers, Subject Leads, Designated Teachers, and year 5 and 6 teachers in the spring term of the academic year 2021/22. The content of interviews will be guided by the evaluation framework and tailored depending on the interviewee.

Data analysis

Pre and post teacher questionnaires

The analysis of the questionnaire data for the IPE questions will follow the approach outlined in the exploratory analysis section of the impact section discussed earlier in the protocol.

Workshop observations

Workshop observations will be triangulated alongside the findings from the teacher questionnaires and the case study interviews. For closed questions and where appropriate descriptors will be developed with numerical values associated to them or dichotomous answers to support the analysis. Data will be coded and analysed thematically, looking at

specific context, mechanism, outcome relationships as outlined in the programme's Logic Model.

Case studies

All interviews for case studies will be transcribed. Analysis will begin by using NVivo11 for data management and coding. The coding framework will be developed both deductively based on the Logic Model and the IPE evaluation framework, and inductively, including unexpected issues emerging in the data. Setting up the coding framework in NVivo11 will facilitate quality control and ensure that the analysis is comprehensive, rigorous, and underpinned by a consistent approach.

The analysis will develop a detailed understanding of each individual case, which will be followed by an analysis of key themes in the findings across cases. The analysis will include descriptive accounts of what has occurred in each case as well as explanatory accounts about what works, for whom, in what circumstances, and why.

Cost evaluation

Cost Analysis

The cost analysis will be based on the principles set out in the 'Cost evaluation guidance for EEF evaluations' (Education Endowment Foundation, 2019) and thus, the "ingredients method" (Levin, et al., 2018). This method is essentially a bottom-up approach, which allows accounting for the costs of all resources necessary to implement the RLC programme regardless of who incurs the costs.

The ingredient method is linked to the Logic Model: the Logic Model describes the resources that LAs and school need to implement the programme, while the cost analysis finds the monetary value of these resources.

The stakeholders on whom the costs of the RLC programme may fall are:

- LAs (virtual schools)
- Schools
- Delivery partners

The cost analysis will only report costs that are additional to the 'Business as Usual' costs. In other words, the cost analysis will compare the costs of the RLC to the costs of any existing programme or activity already carried out from the point of view of the stakeholders bearing the costs. In some cases, all programme costs will be additional, i.e., if there was no previous programme at the school level, all the school costs would be considered additional.

The analysis will distinguish between:

- **Pre-requisites costs**, including all resources (e.g., equipment, staff) required for the implementation of the programme, but that the actors bearing the costs already have. For instance, the training may be delivered through computer or online equipment, which the school already have. These will not be considered additional costs (unless schools bought these on purpose) but will be reported separately for information. Similarly, delivery partners might have already the necessary equipment in place to develop the training material (e.g., existing templates, printers, etc…)
- **Start-up costs**: they include the necessary resources to start the implementation of a programme each year. For instance, the cost of developing the training material would be a start-up cost which will not be incurred again (at least not in the same amount) once the programme is scaled-up.
- **Recurring costs**: refers to the resources needed each year to implement the programme. These are important elements to consider for a future scale-up of the programme.

The following cost categories will be included in the analysis (other categories might emerge during the IPE):

- **Staff costs for the implementation of the programme**, including salaries of the RLC facilitators, if possible, broken down by seniority of the staff involved.
- **Staff costs during RLC workshops and sessions,** including costs of teacher cover for the hours the teachers spend in the workshops, as well as any cost to attend the workshops (e.g., transportation costs)
- **Programme costs incurred by the virtual schools,** including costs of recruiting schools and any preparation costs for the programme. As VSHs are supposed to carry out these activities during their working time, these costs will not be considered "additional", but they will be reported separately to provide an estimate of the time commitment required for the programme

- **Facilities, equipment, and materials,** including any costs for printing training material (which may be incurred by the delivery partners or the schools), provision of venue (if the training is outside the school premises) or other technical equipment. We expect these to be low for the RLC as many schools will already have facilities and spaces where to conduct the training, hence the RLC training will not create large additional costs.
- **Other costs** (residual category), including the existence of other costs will be revealed during the IPE, which will gather further details on the implementation requirements in each school.

Data will be collected using a proforma filled in by the Durham delivery team with additional information collected from schools as part of the post-questionnaire to Subject Leaders and/or Designated Teachers (see IPE Section).

In some cases, assumptions will be necessary to estimate costs. A typical example are the costs of equipment, which may be used both for the programme, and other (including business as usual) activities. Splitting the costs to attribute to the programme may be challenging and requires assumptions formulated based on discussions with stakeholders.

The primary output of the cost analysis will be the total cost of the programme per CIN/LAC per school. This will be obtained by dividing the total costs of the programme by the total number of participating schools and then by the total number of CIN/LAC in year 6 in the participating schools.

A sensitivity analysis will aim to explore the variability of costs incurred by the main actors, e.g. virtual schools and schools.

We envisage carrying out the following sensitivity analyses:
- Reporting, for each item of costs, mean, median, standard deviation, minimum and maximum, to have a sense of the dispersion of costs across schools.
- Breakdown of the costs by school size (number of pupils).
- Breakdown of the costs by size of the target population in the schools.

The sensitivity analysis will also test (if needed) the implication of any assumptions made for the estimation of the costs. This will be done by recomputing total costs-per-pupil per school change changing under different assumptions on the costs.

Ethics and Participation

Process for obtaining ethical approval

We obtained research ethics advice through Ipsos MORI's research ethics process in September 2021. This process included completing an ethics review form with detailed information on the project as well as submitting relevant information sheets and consent forms for review. The ethics reviewers were independent and not otherwise involved in any evaluation activities. The evaluation team submitted the relevant materials to the Ipsos Ethics Group on Monday 23rd August, 2021, and received feedback from the reviewers which has been reflected in this section. If any changes occur to the intervention delivery or evaluation, the Principal Investigator will make these known to the chair of the Ipsos MORI Public Affairs Research Ethics Group.

In conversation with Durham University and the What Works for Children's Social Care, we have considered ethical risks and trade-offs of conducting an experimental evaluation and are satisfied that these are reasonable. We also believe that the evaluation has merit in providing evidence on the effectiveness of the RLC programme for improving learning outcomes for CIN/ LAC.

Consent

Administrative data collection and analysis

We will seek consent to randomisation from schools via their school leadership. To do so, we will provide virtual schools with information to distribute to schools and Head Teachers via virtual schools. Virtual schools will be responsible for sharing information with schools as part of the recruitment process. This information will include information packs with details on the nature of the intervention as well as the evaluation and the RCT methodology. Schools will also be invited to two webinars (hosted by the WWCSC and Durham University) where we will explain the purpose and nature of the evaluation and respond to any questions they have in order to ensure that they are fully informed.

After schools have confirmed their interest in participating in the programme, we will disseminate a consent form requiring sign off by Head Teachers, which will detail the terms and conditions of participation in the RLC programme and evaluation, including their agreement to participate in the evaluation following their allocation to the intervention or control group.

National Pupil Database administrative data on year 6 CIN/LAC

KS2 attainment data will be collected on the basis of legitimate public interests. Since it is collected as part of schools' regular reporting obligations and will not include any personally identifiable information on CIN/LAC, consent from parents, guardians, or carers will not be required. Data collection will be minimised to ensure that no personally identifiable information is collected or can be linked back to individual pupils.

Questionnaires and case studies with teachers

We will seek consent for participation in the teacher questionnaires and case study interviews from individual teachers. For the questionnaires, we will include a consent form for teachers to provide their consent to participate at the start of the survey questionnaire. For the case study interviews, interviewers will check and record whether interviewees consent before starting each interview.

Teachers will be informed about the nature of the evaluation and their role in it via their schools through the information packs (which will be disseminated prior to the distribution of the survey link). This will include an electronic copy of our information sheet and consent form to Head Teachers. The information sheet will include details on the evaluation, the data that will be collected, how it will be collected, stored, and secured, and how they can withdraw their consent if they choose not to participate. It will clearly state that teachers' participation is voluntary and that they do not have to complete the questionnaire or participate in case studies if they do not want to. Once case study schools are selected, participants will be informed again about the nature of the research that their participation is voluntary.

Ethical considerations relating to the interviews

In terms of content, the interviews will not ask teachers to discuss personal details of CIN/ LAC or any potentially sensitive information, and will instead focus on the experience of participating in the RLC, collaborating with other teachers, applying new teaching strategies, and related changes in pupils' behaviour. These expectations will be clearly explained to the interviewee before the interview takes place.

Despite our focus on the RLC intervention (not personal histories) some teachers may be prompted to reflect on things that have happened with CIN/LAC in their pasts. Asking about new teaching strategies to engage CIN/LAC in a research interview may make teachers recall traumatic events experienced by CIN/LAC. We will develop plans for what to do if an interviewee becomes upset. We will go through this plan with moderators in a briefing session before we start the fieldwork and include it as a separate guidance sheet along with the topic guides. We will include techniques for supporting participants who become upset, such as:

- Making sure moderators are aware of any topics that could potentially be upsetting;
- Alternating between "light" and "heavy" topics in the discussion guide, or having a light topic fully immediately after a heavy topic;
- Giving participants enough space to talk about something difficult/upsetting, but knowing when to sensitively move the conversation on; and
- Making sure to end the interview on a positive note if possible.

During interviews we will be flexible, use open questions, and take a friendly and encouraging approach. We will be willing to take breaks and explore topics of interest to the teacher rather than being bound by the topic guide. To build rapport, we will use questions to check understanding; combining verbal and non-verbal communication to facilitate understanding; and allow plenty of time and tailored support for teachers to make a decision about participation or answering individual questions.

Researchers will make it clear to teachers, both in writing and verbally, that whilst the information they give is confidential, researchers will be legally bound to report anything that suggests children or someone else is at risk of serious harm.

Registration

In line with WWCSC requirements we will register this trial with the Open Science Framework (OSF) and update this trial registry with results at the end of the project.

Data protection

We will ensure compliance with all data protection regulations (GDPR) and Ipsos MORI's strict information security policy. A Data Privacy Impact Assessment may be considered

necessary, as the study will be collecting information from administrative sources about CIN/ LAC gender and ethnicity, which is considered sensitive.

Data protection considerations differ for teachers and year 6 CIN/LAC. For the teacher sample, Ipsos MORI will not provide any identifiable information to WWCSC or virtual schools from teachers and will thus act as data controller. For year 6 CIN/LAC data, provided by the DfE through the NPD, Ipsos MORI will act as data processor.

For the teacher questionnaire and case study interviews, we rely on the legal basis of consent for processing interviewee and questionnaire respondent data. For the administrative data request, we rely on legitimate interests as our legal basis for data processing. This includes demographic data (including gender and ethnicity), child's care status, and KS2 attainment scores. The additional condition for processing the special category data on ethnic group is Article 9(j) of the DPA 2018 (Archiving, research and statistics). We are aware that such processing is subject to appropriate safeguards. We plan a number of steps to ensure data minimisation. We consider the administrative data to be pseudonymised. The data will be transferred to WWCSC's data archive on completion of the project.

All Ipsos MORI's research operations are governed by the Market Research Society Code of Conduct. We also hold the following international quality standards covering quality management systems, interviewer quality and information security: ISO 20252:2006, ISO 9001:2008 and ISO 27001:2005.

Data security

Our data security processes meet the standards outlined in the Data Protection Act 2018. Ipsos MORI has the Cyber Essentials standard. Any personal data will be held securely on our UK servers, and securely destroyed at the end of the project. Ipsos MORI uses a purpose-built and dedicated file services solution hosted by Rackspace UK, located in Berkshire. This is accessed and controlled by Ipsos employees only. Rackspace UK are a highly regarded industry leader and carry a full set of ISO certifications. The environmentally friendly data centre ensures enhanced levels of power and cooling and physical security on a 24x7x365 basis.

Any enhanced sample data will be encrypted and sent over our secure file transfer system, Ipsos Transfer. All projects that involve personal data processing are required to complete a data flow and post a privacy policy online for respondents, using standardised templates.

Data protection statement

This Ipsos MORI Study and your personal data: Research Learning Communities (RLC) Evaluation

- Ipsos MORI is inviting you to take part in this evaluation on behalf of the What Works Centre for Children's Social Care (WWCSC), to help the WWCSC assess the impact of the RLC programme and develop a better understanding of how to support teachers to improve teaching practices for children in need and looked after children, to ultimately improve their learning outcomes.
- This Privacy Notice explains who we are, the personal data we collect, how we use it, who we share it with, and what your legal rights are.

About Ipsos MORI
- Market and Opinion Research International Limited is a specialist research agency, commonly known as "Ipsos MORI". Ipsos MORI is part of the Ipsos worldwide group of companies, and a member of the Market Research Society. As such we abide by the Market Research Society Code of Conduct and associated regulations and guidelines.

About What Works for Children's Social Care
- WWCSC were commissioned by the DfE to work alongside CASCADE at Cardiff University. Engagement and co-design are central to our approach and we are working in close consultation with leaders, practitioners, children and young people, families and researchers across the sector to:
  - Identify gaps in the evidence, and create new evidence through trials and evaluations
  - Collate, synthesise and review existing evidence
  - Develop, test and publish tools and services that support the greater use of evidence and inform the design of the future Centre
  - Champion the application of robust standards of evidence in children's social care research

What personal data has Ipsos MORI received from WWCSC for this evaluation?
- The WWCSC has shared a limited amount of your personal data so that we can invite you to take part in the evaluation, including an online survey and (if selected) workshop observations and/or interviews.
- The personal data that WWCSC has shared with us for the evaluation includes your name, job role, and email address.

How has this personal data been obtained?
- WWCSC obtained the above personal data from consent forms completed and signed by the Head Teacher of each participating school. The forms required Head Teachers to provide their consent to participate in the RLC programme and evaluation as well as the names, job roles, and email addresses of Subject Leads, Designated Teachers, and year 5 and 6 teachers in their schools.

What is Ipsos MORI's legal basis for processing your personal data?
- Ipsos MORI require a legal basis to process your personal data. Our legal basis for processing is your consent to take part in this study. If you wish to withdraw your consent at any time, please see the section below covering 'Your Rights'.

Do I have to take part?
- Taking part is entirely voluntary and any answers you give are given with your consent.

How will Ipsos MORI use any personal data including survey responses you provide?
- Firstly, taking part in the questionnaires, observations, and/or interviews is entirely voluntary.
- Ipsos MORI will keep your responses in strict confidence in accordance with this Privacy Policy. Anonymised individual responses may be shared with the WWCSC, however Ipsos MORI can assure you that you and your school will NOT be identifiable to the WWCSC or in any published results.
- Ipsos MORI and WWCSC will only use your personal data and responses solely for research purposes.

How will Ipsos MORI ensure my personal information is secure?
- Ipsos MORI takes its information security responsibilities seriously and applies various precautions to ensure your information is protected from loss, theft or misuse. Security precautions include appropriate physical security of offices and controlled and limited access to computer systems.
- Ipsos MORI has regular internal and external audits of its information security controls and working practices and is accredited to the International Standard for Information Security, ISO 27001.

How long will Ipsos MORI retain my personal data and identifiable responses?
- Ipsos MORI will only retain your data in a way that can identify you for as long as is necessary to support the research project and findings. In practice, this means that once we have satisfactorily reported the research findings to the WWCSC, we will securely remove your personal, identifying data from our systems by May 2023.

Your rights and the General Data Protection Regulation (GDPR)

- You have the right to access your personal data within the limited period that Ipsos MORI holds it.
- Providing responses to the online questionnaire and in interviews is entirely voluntary and is done so with your consent. You have the right to withdraw your consent to our processing of your personal data at any time, although once data is analysed it is not possible to withdraw your data from the outputs.
- You also have the right to rectify any incorrect or out-of-date personal data about you which we may hold.
- If you want to exercise your rights, please contact Ipsos MORI at the details provided below.
- If you have any complaints, we would appreciate it if you give us the opportunity to resolve any issue first, by contacting us as set out below. You are, however, always entitled to the UK's Information Commissioner's Office (ICO), if you have concerns on how we have processed your personal data. You can find details about how to contact the Information Commissioner's Office at https://ico.org.uk/global/contact-us/ or by sending an email to: casework@ico.org.uk.

Where will my personal data be held and processed?

- All of your personal data used and collected for the evaluation will be stored and processed in data centres and servers within the United Kingdom.

How can I contact Ipsos MORI and WWCSC about this study and/or my personal data?

- **Contact Ipsos MORI: Email:** compliance@ipsos.com with "Research Learning Communities Evaluation" in the email subject line
  Post: Research Learning Communities Evaluation, Compliance Department
  Market and Opinion Research International Limited
  3 Thomas More Square, London E1W 1YW, United Kingdom

- **Contact What Works for Children's Social Care**: Email: Programmes@whatworks-csc.org.uk
  Post: Research Learning Communities Evaluation
  The Evidence Quarter
  Albany House; Petty France
  Westminster, London, SW1H 9EA

Personnel

Delivery team

Table 7: RLC delivery team

Name	Organisation	Roles and responsibilities
Chris Brown	Durham University	Programme Director

Evaluation team

Table 8: Evaluation team

Name	Organisation	Roles and responsibilities
Elpida Achtaridou	Ipsos MORI	Principal Investigator
Nadia Badaoui	Ipsos MORI	Project Manager
Karl Ashworth	Ipsos MORI	RCT Lead
Stella Capuano	Ipsos MORI	RCT Delivery
Jaimin Shah	Ipsos MORI	RCT Delivery
Emily Mason	Ipsos MORI	IPE Lead
Adam Behailu	Ipsos MORI	IPE Delivery

Timeline

Table 9: Evaluation timeline

Dates (w/c)	Activity	Leading
18 Jul	Logic Model development	IM
18 Jul	Protocol development	IM
9 Aug	Governance, contracts	IM / WWCSC
23 Aug	First draft protocol to WWCSC	IM
23 Aug	Ethics board approval	IM
30 Aug	Virtual and individual schools confirmed	WWCSC
16 Sep	Protocol changes agreed	IM
24 Sep	Protocol published	IM / WWCSC
30 Sep	Randomisation completed	IM
1 Oct	Round 1 Teacher survey launched	IM
15 Oct	Programme launch	DU
15 Oct	Protocol changes agreed	IM / WWCSC
1 Nov	Amended protocol published	IM / WWCSC
Mar 2022 – May 2022	RLC workshop observations	IM
Mar 2022 – May 2022	RLC Case study interviews	IM
Apr 2022 – May 2022	Round 2 Teacher survey launched	IM
May 2022 – Aug 2022	NPD application for data	IM
Aug 2022 – Feb 2023	Access to NPD Data	IM
Nov 2022	Interim report	IM
Jun 2022 – Mar 2023	Impact evaluation and IPE analysis	IM
Aug 2022 – Mar 2023	Cost analysis	IM
Mar 2023	Final report	IM

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