



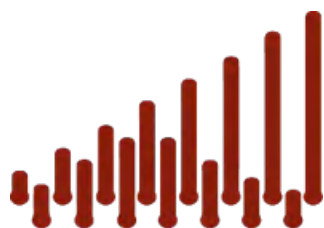
Education
Endowment
Foundation

**Efficacy trial of Talking Time®:
An oral language intervention for early
years**

Further Appendices

July 2026

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National Institute
of Economic and
Social Research



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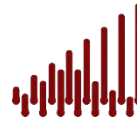
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Talking Time® Evaluation Study Setting Information Sheet

Are you concerned about the oral language development of your preschool children?

Would you like to develop the professional knowledge and practice of your early years staff team relating to oral language pedagogy?

Children need good language skills to do their best at school and become confident and successful learners. Many preschool children do not have the language skills they need to access the curriculum, with children from areas of social disadvantage at greatest risk of delay. Children who enter Reception with poor language skills struggle with literacy and are at risk of social and behavioural difficulties.

The Talking Time® evaluation study will support you to prioritise support for children's oral language through evidence-based professional development (PD) for your early years team.

We are looking for 130 settings (schools and PVI settings) to take part in a research study evaluating the *Talking Time*® oral language development programme.

What is Talking Time®?

Talking Time® is a universal oral language programme for children aged 3 to 5. It supports Early Years practitioners to deliver engaging, structured small-group activities to children and enhance oral language through high-quality interactions. Although manualised, the programme is designed to be flexible and adaptable to suit individual children, settings and contexts. It has three main elements:

1. A flexible intervention programme
2. A practitioner manual, story books and resources
3. Staff professional development (training + in-class modelling, coaching and mentoring)

Children take part in two 15-minute activities per week during regular provision, for a period of 20 weeks. Activities take place in small groups (up to 5 children) of mixed language ability. *Talking Time*® is all about having high-quality conversations with children. It includes three evidence-based activities:

- Story Conversations: shared storytelling and conversation using the illustrations in storybooks as prompts;
- Word Play: games and guided role play designed to develop vocabulary breadth and depth;
- Hexagons: narrative discussion and retelling based on photos of real situations and routines likely to be familiar to children within their lives and local areas.

Through professional development and individual reflection, staff are supported in tailoring plans and prompts to meet the language needs of their children. The aim is to gradually decrease reliance on programme materials so staff feel equipped to plan activities of their own. In the final weeks, staff are supported to plan activities based on books and materials of their own choice.

Talking Time® has already been shown to support children's oral language in other trials, including significant impacts on staff practice, on children's talk in groups, and on children's vocabulary.

What is the Talking Time® evaluation study and who is funding it?

As part of the **Department for Education's Early Years Recovery Programme**, Hubs and the Education Endowment Foundation (EEF) are collaborating to fund Early Years settings' access to evidence-informed programmes, and study the impact on practice and child outcomes. The aim is to support education recovery following the pandemic and develop our understanding of effective professional development in the early years.

The *Talking Time*® programme has already been shown to support children's oral language in other trials. This new independent evaluation, led by the National Institute of Economic and Social Research (NISER), will examine its impact on child language skills and staff practice as part of a larger trial.

Settings are invited to receive funded professional development (PD) through the *Talking Time*® programme delivered by the University of Oxford. Participating settings will be randomly allocated either to the intervention group (who will receive *Talking Time*® from Autumn 2024) or the control group (who will not receive the programme but will receive a financial incentive as a thank you for their research participation). Random allocation is the fairest way to decide which settings receive the programme and the best way of evaluating if a programme has an impact on children's outcomes. All settings (regardless of group allocation) will take part in the research activities, including child assessments, from September 2024 - July 2025. The research will help refine *Talking Time*® and allow us to find out whether it is ready to be provided to more settings and children.

How will my setting benefit from participating?

All settings will participate in research that contributes to evidence on effective practice for oral language development; and will receive a thankyou payment of £400 for completing the research activities mentioned above (£150 in November '24 after the initial child assessments, £250 in summer '25 after research activities are complete).

Settings in the intervention group will receive the programme materials, including five picture books, a manual with flexible plans and conversation prompts for *Talking Time*® sessions, and ideas for reinforcement activities in continuous provision. The manual will support staff in:

- modelling and adapting their language to support conversation and interaction
- encouraging children to understand and use vocabulary
- stimulating and developing language at different levels of challenge for all children
- supporting oral narrative skills.

Staff implementing *Talking Time*® will be offered PD and face-to-face support by an expert mentor to build capacity for oral language support. The elements of the PD are shown in Table 1. It is underpinned by a framework of eight evidence-based language-supporting strategies designed to support staff in rehearsing, noticing, analysing and refining their practice. The PD aims to support staff in:

- implementing *Talking Time*® confidently and effectively;
- learning to apply strategies flexibly and intentionally to meet children's individual language needs;
- adapting and embedding *Talking Time*® longer term in a way which suits your context and children.

The EEF will reimburse intervention group settings approximately 50% of their staff's time/cover cost to attend training. Settings in the intervention group will be compensated for participating in the study.

Settings randomly allocated to the control group will receive the introductory information briefing on oral language development and a payment of £1000 as a thank you for engaging with the research project.

Table 1. *Talking Time*® Professional Development

Introductory sessions	Online briefing on oral language development One welcome session (face-to-face in the setting)	Oct-Nov '24
3 x 1.5hr twilight workshops <i>(all staff delivering Talking Time sessions)</i>	Online training to introduce staff to the three Talking Time activities, the manual and materials, underpinning language-supporting strategies and reflective framework for ongoing professional development.	Dec '24 – Mar '25
4 x 1hr in-class mentoring <i>(Talking Time® leads i.e. practitioners leading on delivery)</i>	These practical, supportive sessions build confidence and expertise in leading Talking Time sessions and using tailored language-supporting interactions to enhance each child's oracy skills. The mentor and practitioner take turns leading a session and reflecting on them. Later sessions support planning and adaptation for sustainment.	3 sessions Dec '24 – Mar '25 1 further session May-June '25
3 x 1hr video mentoring <i>(the team's pedagogical lead for Talking Time®)</i>	These online sessions support ongoing leadership, planning and adaptation of the programme longer-term. Some involve shared reflections on Talking Time sessions video-recorded by the participating staff member.	Jan-Feb 25 Feb-Mar '25 April-May 2025
Weekly individual reflection	In addition to the PD support provided, practitioners are asked to engage in a weekly individual professional reflection on their language enhancing practices. A framework is provided to scaffold this reflection and practitioners select their preferred format e.g. collaborative discussion, individual notetaking.	Throughout

What does participation in Talking Time® involve?

Intervention group settings will be asked to support all participating staff (teachers, teaching assistants and/or Early Years practitioners). This includes ensuring they are able and have time to:

- Deliver the intervention to children twice a week for 15 minutes during regular provision, across the 20-week programme
- Commit to the full range of PD components
- Engage in a weekly individual professional reflection on their language enhancing practices
- Complete weekly records of implementation e.g. register of pupil attendance in sessions
- Engage in a discussion with the evaluation team after implementation (also applies to senior leaders)

All settings will be expected to:

- Agree and sign the Memorandum of Understanding (MoU)
- Consent to random allocation and commit to the assignment to either intervention or control group
- Share information about the project with parents and offer them the chance to withdraw their child from data collection during the study
- Share setting and child information with the evaluation team (Include data protection, the data required and how it will be collected by/shared with the evaluator. Include a link to the privacy notice)
- Support the NISER evaluation team to complete language assessments (Sept-Oct '24, May-June '25)
- Support staff to record themselves leading two small-group activities with children at the start and end of study (we will provide the recorders and all materials needed). This will allow us to establish current practice and assess any changes over the course of the project.

What is the timetable?

Term	All settings	Intervention settings	Control settings
Nov -June '24	Register for interest/sign-up		
Autumn '24	Initial online information briefing Distribute parent information/consent forms Child assessments Session audio-recording Informed of random allocation		
Late Autumn '24	£150 payment for research activities	Welcome visits First PD sessions Begin intervention	Business as usual
Spring '25		PD sessions + mentor support Continue with intervention	Business as usual

Summer '25		PD sessions + mentor support Continue with intervention Staff interviews	Business as usual
Summer '25	Child assessments Session audio-recording £250 payment for research activities		£1000 thank you payment

Who can take part?

Setting type:

- Schools and private, voluntary and independent settings
- Settings are not eligible if they are participating in:
 - Another EEF funded evaluation in the early years
 - The DfE Early Years Professional Development Programme during the year of evaluation delivery
 - Another funded SPH programme between 2022-2025

*130 settings are being recruited to the study.
65 will be allocated to the 'intervention group' and 65 to the 'control group'.*

Staff: Staff in the nursery class/3-year-old room of each setting. Settings will identify two practitioners (*Talking Time leads*) to lead the majority of Talking Time® sessions and receive the in-class mentoring. One will also receive the video mentoring. Mentored staff will be supported to share their learning with the rest of the team.

If you are a large setting with multiple nursery teams/classes/rooms, we will usually only include *one* of these in the study. Other teams would be free to deliver to their classes/rooms if desired. Please ask if you are unsure how this might work for you; we are happy to discuss and help find a practical solution which suits your context.

Geography: Settings will be recruited from local authority areas with SPHs.



Memorandum of Understanding in relation to participation in the Talking Time® Evaluation Study

Setting Name:

Setting Address:

This Memorandum of Understanding (MOU) sets out the roles and responsibilities of settings participating in, and the parties involved in delivering and evaluating, the Talking Time® programme.

This document is being sent to your setting because you have indicated interest in participating in the project.

1. The project team and their roles

The Talking Time® project is a collaboration between the Education Endowment Foundation (EEF), the Early Years Stronger Practice Hubs (EY SPH), the University of Oxford, University College London (UCL) Institute of Education, the National Institute of Economic and Social Research (NIESR) and the Nuffield Foundation. Together, these parties are referred to as the “**project team**” in this MOU. This MOU will also refer to the Talking Time® programme as the “**Intervention**”.

The EEF, Thrive Together EY SPH, Liverpool City Region and Beyond EY SPH, REACHout EY SPH and A Brighter Start EY SPH are the funders of the project. The Nuffield Foundation is also funding specific aspects of the project.

The University of Oxford and UCL Institute of Education (the “delivery team”) will be responsible for designing and delivering the Talking Time® programme and evaluating the impact of the programme on staff practice.

The National Institute of Economic and Social Research (NIESR) (the “evaluation team”) will evaluate the programme’s impact on children’s language skills. They will also explore practitioners’ and settings’ experiences and perceptions of the programme. NIESR will be working with **Qa Research**, who will be undertaking the assessments of children’s oral language skills that form part of the study.

As part of the Department for Education’s Early Years Recovery Programme, the Stronger Practice Hubs and the EEF are working together to fund Early Years settings’ access to evidence-informed programmes and study the programme’s influence on practice and children’s outcomes. This initiative aims to support education recovery following the pandemic, whilst also developing our understanding of effective professional development in the early years.

2. Communication with parents

All participating settings will be required to distribute an information letter, privacy notice and consent form to parents of children eligible to participate in September 2024. This letter, privacy notice and consent form will be provided by the project team.

Settings will be asked to discuss these documents with parents, answer any questions regarding the letter, privacy notice and consent form (or refer these on to the project team), and to ensure, to the best of their ability, that parents are giving informed consent to their children's participation.

The letter and privacy notice will inform parents of the nature of the project, the personal data that will be collected about them and their child and how this data will be processed. They will set out details of:

- a) the assessments (audio-recorded) which will be conducted with children at the start and end of the project;
- b) the audio recordings of small group activities (two at the start of the project and two towards to the end) which will allow current practice to be established and for identification and exploration of any practice changes over the course of the project; and
- c) video recordings of Talking Time sessions (three during the programme duration) which will support mentoring of participating staff and allow the project team to see if the programme is going as originally planned.

The consent form will allow parents to provide consent to their child's participation in the audio-recorded assessments and the video/audio recording. Parents will be able to consent to whichever of the three elements of data gathering they wish to.

Where parents do not confirm consent to their child's participation in the assessments, settings should not provide data for these children when sharing information with the project team.

If parents/carers give consent to any aspects of data collection, they will be able to withdraw this consent at any point during the project by contacting the project team directly at TalkingTime@niesr.ac.uk or TalkingTime@education.ox.ac.uk

Parents/carers will be provided with full details on their rights under data protection laws and contact details for the project team in the information letter (which the project team will provide to settings).

3. Who can participate?

We welcome all applications but, where demand is high, we will be prioritising early years settings that meet the following priority criteria:

- in geographically clustered areas
- serving a higher proportion of families eligible for the Early Years Pupil Premium
- not using another intervention programme which may interfere with delivery of *Talking Time*®

4. The evaluation

The evaluation of the programme is being conducted by NIESR. The project involves the evaluation of the *Talking Time*® programme through a randomised controlled trial (RCT). This means that it will be decided at random which settings receive the programme, and which do not. Around half of participating settings will be allocated to each group, but both groups form part of the study. Using randomly assigned groups is widely considered one of the most robust ways of determining whether a programme has an impact on the intended outcomes.

As part of the evaluation, settings will be asked to:

- Facilitate the gathering of parental consent from at least 5 children (aged 3-4 years old, attending 15 hours (or more) of provision per week)
- Provide selected information about participating children (a template will be provided by the evaluation team)
- Facilitate the assessments (audio-recorded) of pupils prior to the programme (September-October 2024) and towards the end of the programme (June-July 2025)
- Provide the workplace contact details for their staff members, as well as some brief information about their role, experience in education and qualifications
- In some settings, staff (both practitioners and setting leads) will be asked to take part in a short survey and interviews towards the end of the programme. A small number of settings will also be invited to take part in follow-up interviews in Spring 2026.
- Agree to information security procedures for video and audio recordings

5. Data sharing and data protection

- For the purposes of conducting the evaluation to assess the impact of *Talking Time*, the teams at NIESR, the University of Oxford and UCL IoE will all become data controllers of personal data of children and setting staff obtained from settings and other sources such as the National Pupil Database. They may share personal data where necessary across the institutions within the project team and with trusted processors such as mentors, academics, test administrators (Qa Research), transcribers and research assistants solely for the purposes of proper delivery, management and evaluation of the project. At the end of

the project, children's outcome data will be submitted to the EEF's data archive which is managed by the Fischer Family Trust (FFT). At this point, EEF will become a data controller and FFT will be a data processor.

- The legal basis for processing personal data for this project is legitimate interests (NIESR) and public task (Oxford and UCL).
- The delivery team will securely delete all personal data three years after the project finishing (that is, publication of the evaluation report). The contact details of staff in settings will be securely deleted after programme delivery, unless staff members consent for their details to be kept on record so the delivery team can share the evaluation report, details of Talking Time events and programme updates.
- The evaluation team will securely delete all personal data within three years of completing the project
- The Privacy Notice for this project is available to download at **Privacy Notice**
- Your setting's data will be treated with the strictest confidence and will be transferred securely and saved in secure locations only accessible by the project team in line with GDPR and the Data Protection Act 2018.
- Children will be asked to complete short language assessments in September-October 2024 and June-July 2025. The assessments will be audio- recorded. The responses will be collected by an independent test administrator (Qa) and accessed by the relevant personnel at NIESR, the University of Oxford, UCL IoE, the Department for Education, the EEF's archive manager. In an anonymised form, this data will be shared with the Office for National Statistics and potentially other research teams
- Further matching of the anonymised data to NPD and other administrative data may take place during subsequent research
- A list of settings taking part will be shared with EEF and the SPHs. We will not use names or the name of your setting in any report arising from this project

6. *Responsibilities*

a. **The project team as a whole will:**

- Produce an information sheet, privacy notice and consent form for parents which settings will distribute to parents. This will set out the full details of the project, the anticipated personal data processing and request parental consent to participation.
- Provide intervention group settings that complete the professional development activities with £7.50 per hour for each staff member that attends the professional development activity
- Provide settings that are randomly allocated to the control group a thank-you payment of £1,000 for engaging with the research project and provide all settings with a payment of £150 in November 2024 for supporting the completion of the initial child assessments and £250 in summer 2025 for supporting the completion of the child assessments. at the end of the study
- Provide all settings with an extra £100 by the end of the project if they submitted all the audio recordings of practice at both time points.

b. **The delivery team (Oxford and UCL IoE) will:**

- Engage with settings that have been randomly allocated to the control group at the start of the programme, and periodically contact settings thereafter to maintain contact and interest in the Talking Time programme. Those settings that have been randomly allocated to the

control group will also have the opportunity to use their £1000 thank-you payment to implement the Talking Time programme in the following academic year

- Deliver the Talking Time programme to settings that have been selected at random to receive the programme as part of the RCT
- Support nursery teams in settings selected to receive the programme to:
 - o implement Talking Time© confidently and effectively in your classroom/s;
 - o become skilled and intentional language-supporting practitioners;
 - o adapt Talking Time© and embed within day-to-day practice, to suit your context and children and support sustainable long-term improvement.
- Take a partnership approach to practice development, supporting practitioners to take control of their own learning by:
 - o reviewing and refining established practice
 - o developing and extending teaching and learning repertoire
 - o experimenting with alternative teaching and learning strategies
 - o engaging with non-judgemental questioning, analysis and support
 - o promoting a culture of openness, mutual support and critique of professional practice.
- In settings selected to receive the programme:
 - o Provide an initial briefing/ webinar
 - o Provide staff manual and all programme materials, including 5 picture books
Provide the professional development following the planned schedule (detailed in Information Sheet), including individual support from a trainer-mentor (both face-to-face and virtual)
 - o Provide on-going project-related support to the setting during the project timeframe
 - o Review weekly implementation logs and clarify details with practitioners where appropriate
- Gather audio recordings of small group activities, once near to the start of the programme and once at the end.
- Support settings to ensure they have appropriate equipment to complete video and audio recordings securely
- Act as the main point of contact for settings for anything to do with the programme delivery

c. The evaluation team will:

- Share a data collection template with settings and assist settings with data collection where necessary
- Conduct the randomisation of settings to the intervention (receiving the programme) and control groups (not receiving the programme)
- Act as the main point of contact for settings regarding data collection
- Facilitate data sharing with other members of the project team as necessary for the implementation and evaluation of the project
- Coordinate with the independent test administrator (Qa Research) and settings to help arrange testing in September-October 2024 and June-July 2025
- Carry out a short survey and interviews with staff in a selection of participating settings
- Collect and analyse the data from the project and write up the findings
- Disseminate findings from the study - the final summary report for this project will be shared with all participating settings and will be available online on the EEF's website

d. The settings will:

- Consent to random allocation and commit to the outcome, whether assigned to the intervention or control group
- Identify two 'Talking Time Leads' to lead the majority of Talking Time sessions and to receive the in-class mentoring, if your setting is assigned to the group that will be receiving the programme. They should also act as the main point of contact for the setting with the project team
- Send parents of eligible children the parent information letter and privacy notice, support parents in understanding the requirements of the study and in returning consent forms (where parents are happy to give consent), and collect completed consent forms
- Liaise with the delivery team to ensure that the setting has appropriate equipment to complete video and audio recordings securely and agree to follow information security guidance provided by the delivery team.
- Provide the evaluation team with the data required to evaluate the project for all children whose parents have given their consent, ensuring accuracy of the data. A template will be provided for this purpose. Ensure that data for children without consent to participate is not provided, and removal of all parents and pupils who have who withdraw from the study after initially giving consent.
- Allow time for each assessment phase and liaise with the independent test administrator to find appropriate dates and times for assessments to take place
- Liaise with the evaluation team and assist in the arrangement of interviews, if selected to take part in this element of the research
- Ensure staff are briefed about the programme and their role in it and support them to complete the surveys at the beginning and end of the project
- Assist in collecting staff contact details and information that will be linked to evaluation activities
- Inform the delivery team if the setting is taking part in another SPH or EEF funded project
- Ensure the shared understanding and support of all staff for the project and personnel involved
- Release staff so they can participate in training sessions and the range of mentoring and reflection activities
- Within settings, Talking Time leads will:
 - Be committed and willing to make time for all elements of the professional development and to implement the Talking Time programme, following the proposed schedule
 - Be open to ongoing reflection about their own professional learning and engage with the partnership approach (detailed above)
 - Be willing to participate in an interview (if selected), and to audio record themselves leading two small-group activities with children, at the start and end of the study
 - Keep records of their Talking Time implementation and own professional learning.

e. All parties will:

- Provide reasonable assistance to each other where required in order to enable all parties to comply with any requests from parents and children who are involved in the project to exercise their rights under data protection legislation

- Comply with EU data protection laws including the General Data Protection Regulation and the data protection laws of the UK including the Data Protection Act 2018
- To work together collaboratively and productively, in particular in relation to meeting key dates and timeframes set out in the Setting Information sheet

7. Funding and costs

All participating settings will receive a thank you payment of £400 for completing the research activities described in this MoU (£150 in November '24 for supporting parental consent and the completion of the initial child assessments, £250 in summer '25 for supporting the completion of the child assessments at the end of the study. All participating settings will receive an extra £100 at the end of the project if they submit all the audio recordings of practice, at both time points.

Settings randomly allocated to the control group will receive a payment of £1000 as a thank you for engaging with the project.

8. No partnership or agency

Nothing in this agreement is intended to, or shall be deemed to, establish any legal partnership or joint venture between any of the parties, constitute any party the agent of another party, or authorise any party to make or enter into any commitments for or on behalf of any other party.

9. Binding Terms

Nothing in this document will constitute or evidence a legally binding contract to create legal relations between the Parties.

We commit to participating in the Talking Time study as detailed above

Signature of authorised officer of the Setting: _____

Date: _____

Full name: _____

Position: _____

Contact email: _____

Programme Lead(s) (if different to authorised officer named above):

Name: _____

Job title/role: _____

Email address: _____

Name: _____

Job title/role: _____

Email address: _____

10. Who do I contact if I have questions?

If you have any questions about the Talking Time programme, contact the Talking Time team at talkingtime@education.ox.ac.uk.

If you have any questions about the data collection activities, or concerns about how your data is being processed, please feel free to contact the evaluation team at TalkingTime@niesr.ac.uk, or by calling 020 3948 4488.

Privacy notice

Talking Time evaluation

Introduction

Your early years setting is participating in a research project testing the impact of a programme called 'Talking Time'. Talking Time includes activities and games designed to develop children's speaking and listening skills.

The Talking Time project is a collaboration between the Education Endowment Foundation (EEF), the Thrive Together Early Years Stronger Practice Hub (SPH), the Liverpool City Region and Beyond Early Years SPH, the REACHout Early Years SPH, A Brighter Start Early Years SPH, the University of Oxford, University College London (UCL) Institute of Education, the National Institute of Economic and Social Research (NIESR) and the Nuffield Foundation. The roles of each organisation named above are as follows:

- The EEF and the Stronger Practice Hubs named above are the funders of the project. As part of the [Department for Education's Early Years Recovery Programme](#), Stronger Practice Hubs and the EEF are working together to fund Early Years settings' access to evidence-informed programmes and study the programme's influence on practice and children's outcomes. This initiative aims to support education recovery following the pandemic, whilst also developing our understanding of effective professional development in the early years. The Nuffield Foundation is co-funding specific aspects of the project (the audio recordings of practice and associated analysis)
- The University of Oxford and UCL Institute of Education will be responsible for designing and delivering the programme; for collecting the audio recordings of practice; and for collecting information on how staff implement Talking Time (including videos of sessions). They will use this information to understand how early years staff interact with children and support their language, to find out how they use the Talking Time programme and to assess the impact of the programme on staff practice.
- NIESR will evaluate the impact of the programme on children's outcomes. They will also explore your (early years practitioners') experiences of the programme and your perceptions of its impact.
- UCL IOE, the University of Oxford and NIESR are referred to as the 'Research Team' in this privacy notice.

Settings are invited to receive funded professional development through the Talking Time© programme delivered by the University of Oxford. All participating settings will be randomly allocated either to the intervention group (who will receive Talking Time© from Autumn 2024) or the control group.

This work has been reviewed and received approval from the ethics committee at NIESR (NIESR project code EP30) and also a subcommittee of the University of Oxford Central

University Research Ethics Committee. (University of Oxford ethics reference: EDUC_C1A_24_011_Amendment_02)).

As part of the programme, early years settings will share your name, contact details with a member of the Research Team. This privacy notice sets out how the Research Team will collect and use your personal data.

Once your setting has shared your personal data with the Research Team, each member of the Research Team will become a separate data controller of this personal data to perform the roles set out above. The University of Oxford will be data controller for staff names, contacts and role related details. UCL Institute of Education will be joint data controllers with the University of Oxford for audio and video recordings data and implementation records.

Your data will be treated with the strictest confidence and processed in accordance with the GDPR and the Data Protection Act 2018. We will not use your name or the name of the setting in any report arising from the research.

We promise to respect any of your personal information which is under our control and to keep it safe. We aim to be clear when we collect your information about what we will do with it and let you know of any material changes to this notice.

The Research Team deals with and shares your personal data pursuant to a data sharing agreement between the Research Team members. The agreement sets out the purposes for which we may process and share your personal data and our agreement to cooperate to protect your personal data and deal with any requests you may have.

What kind of information do we collect?

You and/or your setting will share the following information with the Research Team, who may share it between the members of the Research Team as necessary for them to fulfil their roles:

- Your name
- Setting name
- Workplace contact details
- Details relevant to your role and participation in Talking Time, for example:
 - The qualifications you have obtained to work in an early years' setting
 - The number of years you have been working in early years' settings in total
 - The number of years you have been working in your current early years' setting
- Your attendance at the professional development sessions (if your setting has been selected to receive the Talking Time programme)
- Your implementation of the Talking Time programme (via implementation records) and your feedback on the Talking Time programme (if your setting has been selected to receive the Talking Time programme)

NIESR will match the attendance data at professional development sessions listed above to data on child outcomes. This will include data from assessments carried out as part of the project. These are standard assessments of language skills. These assessments will be administered by a team from Qa Research. These assessments will enable the research team to identify whether the Talking Time programme has an impact on the oral language skills of young children.

The teams at the University of Oxford and UCL Institute of Education are interested in understanding current practices that develop children's speaking and listening skills, as well as whether there is a change in staff practices over the course of the project. For this reason, you will be asked to make audio recordings of yourself leading two small-group activities: two recordings near to the start of the project, and two recordings at the end of the programme. These recordings will be used to understand current practice and assess how the Talking Time professional development programme has changed staff practices.

If your setting is selected to receive the Talking Time programme, you may be asked to participate in a short survey and/or an interview with a NIESR researcher. These interviews will ask about your experiences of delivering Talking Time in your setting. If your setting is not selected to take part in the Talking Time programme and you are the setting leader, we might also approach you for a short interview.

If your setting is selected to receive the Talking Time programme, you may also be asked to make video recordings leading Talking Time group activities as part of the video mentoring element of the programme. These will only be created and shared with your consent. The video recording will only be accessed by the teams at the University of Oxford and UCL Institute of Education who want to understand how staff deliver the Talking Time programme and support staff with their professional development. Although you will be visible and audible in the audio and video recordings, and your name may be captured in the recordings, this will never be typed up or reported. If you provide consent, these forms will also be collected and stored.

Oxford and UCL may match the data from these audio recordings to the attendance data listed above and/or to data on child outcomes. This will help them to understand how the professional development settings received played a role in changing practice; and what role change in practice plays in influencing child outcomes (if any).

Original electronic copies of the audio and video recordings will be anonymised and stored securely within the University of Oxford file server for 3 years following publication of the NIESR evaluation report. Only Talking Time® team members (Oxford and UCL) will have access to the files. Audio and video recordings will be transcribed but no names of children, staff or nursery settings will be typed up or reported. Any extracts from the transcripts which are used, for example in reports/publications/at conferences, will be completely anonymised and no identifying information will be included.

What do we do with the information we collect?

Each organisation will use the data for different purposes:

University of Oxford and UCL Institute of Education

- To run the programme in early years settings and understand how it is implemented
- To act as the main point of contact for settings
- To understand how early years staff interact with children and support their language
- To assess the impact of the programme on practice in early years settings, exploring whether the programme has an impact on the way in which practitioners speak with children; what role professional development plays in changing practice; and what role change in practice plays in influencing child outcomes (if any);
- To contact settings when the evaluation report is published
- To contact settings with programme updates and future Talking Time events, if practitioners indicated consent to being contacted after the programme delivery
- To share completely anonymised examples of interactions/practice, for example in publications/reports/at conferences.

NIESR

- To conduct the randomisation (i.e., to randomly allocate settings to receive or not receive the programme)
- To match data received from settings to NPD data and child outcome data
- To contact some settings requesting staff participating in interviews and/or surveys about their experiences of the delivery of Talking Time, conduct those interviews/survey, and analyse that data.
- To instruct and liaise with Qa research, the independent test administrators and to oversee the collection of data on children's outcomes
- To evaluate the impact and effectiveness of the programme and prepare a report about the project

EEF

- At the end of the project, the pupil outcome data collected by Qa research will be submitted to the EEF's data archive which is managed by the Fischer Family Trust (FFT). At this point, EEF will become a data controller and FFT will be a data processor. The privacy notice for the EEF's data archive can be viewed here: www.educationendowmentfoundation.org.uk/privacy-notices/privacy-notice-for-the-eef-data-archive

We will only use your data for the purposes for which we collected it, unless we reasonably consider that we need to use it for another related reason and that reason is compatible with the original purpose. If we need to use your data for an unrelated purpose, we will seek your consent to use it for that new purpose. Your data will be treated with the strictest confidence and in line with the GDPR and the Data Protection Act 2018.

For the purposes of research and archiving, pupil outcome data will be linked with information about the children from the National Pupil Database (NPD) and shared with the University of Oxford, UCL Institute of Education, the Department for Education,

the EEF, the EEF's archive manager, and in an anonymised form, the Office for National Statistics and potentially other research teams.

A list of settings taking part in the project will be shared with the EEF and the Stronger Practice hubs co-funding the project.

UCL Institute of Education are joint data controllers with the University of Oxford for audio and video recordings data and implementation records. The University of Oxford is data controller of staff details (name, contacts, role related details). The University of Oxford will share information with NIESR for the purposes of programme evaluation. Further matching to NPD and other administrative data may take place during subsequent research. Your data will be treated with the strictest confidence and in line with the GDPR and the Data Protection Act 2018.

What is the lawful basis for processing your personal data?

We will only use your personal data where we have a lawful basis for doing so.

- NIESR's legal basis for processing personal data is 'legitimate interest'. The evaluation of Talking Time fulfils one of NIESR's core business purposes (undertaking research, evaluation and information activities) and is therefore in our legitimate interest, that processing personal information is necessary for the conduct of the evaluation. Our condition for processing special category personal data is that this is necessary for scientific research purposes and is in the public interest.
- The University of Oxford and UCL Institute of Education's lawful basis for processing data is 'public interest task.'
- When the EEF becomes data controller at the end of the project as the child outcome data is submitted to the data archive, the legal basis for processing personal data is 'legitimate interest'. These legitimate interests include gathering data about what educational interventions work best, under what conditions, for which pupils, with a view to increasing attainment and reducing educational disadvantage.

Who else has access to your information?

The Research Team may disclose your information to third parties in connection with the purposes of processing your personal data set out in this notice. These third parties may include suppliers, research assistants, trusted academic partners and subcontractors who may process information on behalf of the Research Team to carry out such work as administering tests, undertaking surveys, undertaking interviews, transcribing interviews, and archiving data. They will also include the Talking Time mentors, who will process data for specified purposes including programme delivery and mentoring. In all cases, the Research Team will ensure that these third parties enter into appropriate data processing agreements with us and that they keep your personal data secure and confidential. Where your data is shared with third parties, we will seek to share the minimum amount necessary.

Contact details shared on the expression of interest form or Memorandum of Understanding may be shared with the funders of this project, to enable them to check if settings taking part in this project have also signed up for other programmes of support that they are funding. Stronger Practice Hubs may contact settings to let them know about support available through the Hub

We may also disclose your personal information if required by law, or to protect or defend ourselves or others against illegal or harmful activities, or as part of a reorganisation or restructuring of our organisations.

International Transfers

Your personal information will not be transferred outside of the EEA.

Security

We take all reasonable steps to protect your personal information and follow procedures designed to minimise unauthorised access, alteration, loss, or disclosure of your information.

We have put in place procedures to deal with any suspected personal data breach and will notify you and any applicable regulator of a breach where we are legally required to do so.

Data Retention

We ensure that your data is securely stored, using secure servers located within the UK. Original electronic copies of the video and audio recordings of group activities will be anonymised and stored securely in the University of Oxford File Server for 3 years after publication of the evaluation report. Only Talking Time© team members (at Oxford, UCL) will have access to the files. Video and audio recordings will be typed up, but no names of children, staff or schools/nurseries will be typed up or reported. Paper copies of consent forms will always be kept in a locked filing cabinet at the Department of Education at the University of Oxford.

We will only retain your personal data for as long as necessary to fulfil the purposes we collected it for, including for the purposes of satisfying any legal, accounting, or reporting requirements. When it is no longer necessary to retain your personal data, it will be securely deleted.

To determine the appropriate retention period for personal data, we consider the amount, nature, and sensitivity of the personal data, the potential risk of harm from unauthorised use or disclosure of your personal data, the purposes for which we process your personal data and whether we can achieve those purposes through other means, and the applicable legal requirements.

- € NIESR will delete any personal data three years after project completion
- € The University of Oxford will delete staff contact details after the delivery of the programme, unless staff members consent for their details to be kept on record for the purpose of sharing the evaluation report, details of Talking Time events and programme updates.

- € The University of Oxford will keep all other personal data, including audio, video, implementation records, staff experience/qualification details and copies of consent forms for three years following the publication of the final evaluation report. Thereafter, these data will be securely deleted. Anonymised data (e.g. anonymised transcripts of the audio/video recordings) may be kept for longer to support future research which is compatible with the original purpose.
- € NIESR will send outcome data to the Fischer Family Trust (FFT) archive within three months of project completion. FFT will keep the data on behalf of EEF, at which point EEF take responsibility for Data Protection Compliance

Please note that, under Data Protection legislation, and in compliance with the relevant data processing conditions, personal data can be kept for longer periods of time when processed purely for archiving purposes in the public interest, scientific or historical research, and statistical purposes.

Your legal rights

Under certain circumstances, you have rights under data protection laws in relation to your personal data and that of your child, including rights:

- To request access to your personal data: this enables you to receive a copy of the personal data we hold about you and to check we are lawfully processing it
- To request correction of your personal data: this enables you to have any incomplete or inaccurate data we hold about you corrected.
- To request erasure of your personal data: this enables you to ask us to delete or remove personal data where there is no good reason for us continuing to process it
- To object to processing of your personal data: you can object where we are relying on a legitimate interest (or those of a third party) and there is something about your particular situation which makes you want to object to processing on this ground as you feel it impacts on your fundamental rights and freedoms.
- To request restriction of processing your personal data: This enables you to ask us to suspend the processing of your personal data.
- To request transfer of your personal data
- To object to direct marketing (including profiling) and processing for the purposes of scientific/historical research and statistics
- Not to be subject to decisions based purely on automated processing where it produces a legal or similarly significant effect on you

If you have questions or concerns over how your data is being processed, or wish to exercise any of the rights in connection with this project, you can contact:

- For the staff contacts, audio, video recordings and implementation records: data.protection@admin.ox.ac.uk or data-protection@ucl.ac.uk
- For the child language assessments, interviews and survey conducted as part of this study: TalkingTime@niesr.ac.uk

If you wish to exercise any of the rights set out above in connection with this research project, please contact TalkingTime@niesr.ac.uk

You will not have to pay a fee to access your personal data (or to exercise any of the other rights). However, we may charge a reasonable fee if your request is clearly unfounded, repetitive, or excessive. Alternatively, we may refuse to comply with your request in these circumstances.

We may need to request specific information from you to help us confirm your identity and ensure your right to access your personal data (or to exercise any of your other rights). This is a security measure to ensure that personal data is not disclosed to any person who has no right to receive it. We may also contact you to ask you for further information in relation to your request to speed up our response.

We try to respond to all legitimate requests within one month. Occasionally it may take us longer than a month if your request is particularly complex or you have made several requests. In this case, we will notify you and keep you updated.

If you have concern about any other aspect of this project activity, please contact:

- NIESR: Edoardo Masset TalkingTime@niesr.ac.uk
- University of Oxford: Dr Sandra Mathers talkingtime@education.ox.ac.uk

We will do our best to answer your query. We will acknowledge your concern within 10 working days and give you an indication of how it will be dealt with. If you remain unhappy or wish to make a formal complaint, please contact:

- University of Oxford Research Governance, Ethics & Assurance (RGEA) team at rgea.complaints@admin.ox.ac.uk or on 01865 616480
- NIESR Ethics committee: Katharine Stockland k.stockland@niesr.ac.uk

If you have any questions about this privacy notice, including any requests to exercise your legal rights in relation to your personal data, please contact NIESR in the first instance.

NIESR, 2 Dean Trench Street, London, SW1P 3HE

Email: TalkingTime@niesr.ac.uk

You also have the right to make a complaint at any time to the Information Commissioner's Office (ICO), the UK supervisory authority for data protection issues (www.ico.org.uk). We would, however, appreciate the chance to deal with your concerns before you approach the ICO, so please contact NIESR in the first instance.

Changes to this Notice

We may change this Privacy Notice from time to time. If we make any significant changes in the way we treat your personal information we will make this clear by contacting settings and ensuring they provide you with an updated version of this Privacy Notice.

Company details for the Research Team and Funder

- NIESR is a company listed by guarantee registered in England, and a registered charity.

- Company Number: 341010
 - Charity registration number: 306083
 - Registered office: NESR, 2 Dean Trench Street, Smith Square, London SW1P 3HE
 - Email: TalkingTime@niesr.ac.ukTalkingTime@niesr.ac.uk
- The University of Oxford is a civil corporation. The University enjoys charitable status as one of the exempt charities listed in Schedule 3 to the Charities Act 2011
 - Registered office: University Offices, Wellington Square, Oxford, OX1 2JD
 - Email: data.protection@admin.ox.ac.uk
- The Education Endowment Foundation is a charity registered in England
 - Registered office: Millbank Tower, 21-24 Millbank, London SW1P 4QP
 - Charity registration number: 1142111
 - Company number: 07587909
 - Email: info@eefoundation.org.uk

Privacy notice

Talking Time evaluation

Introduction

Your child's early years setting is participating in a research project testing the impact of a programme called 'Talking Time'. Talking Time includes activities and games designed to develop children's speaking and listening skills.

The Talking Time project is a collaboration between the Education Endowment Foundation (EEF), the Thrive Together Early Years Stronger Practice Hub (SPH), the Liverpool City Region and Beyond Early Years SPH, the REACHout Early Years SPH, A Brighter Start Early Years SPH, the University of Oxford, University College London (UCL), the Institute of Education, the National Institute of Economic and Social Research (NIESR) and the Nuffield Foundation. The roles of each of these organisations are:

- The EEF and the SPHs named above are the funders of the project. The Nuffield Foundation is co-funding specific aspects of the project (the audio recordings of practice and associated analysis).
- As part of the [Department for Education's Early Years Recovery Programme](#), Stronger Practice Hubs and the EEF are working together to fund Early Years settings' access to evidence-informed programmes and study the programmes' influence on practice and children's outcomes. This initiative aims to support education recovery following the pandemic, whilst also developing our understanding of effective professional development in the early years. The SPHs taking part in Talking Time are named above.
- The University of Oxford and UCL Institute of Education will be responsible for designing and delivering the programme; for collecting the audio recordings of practice; and for collecting information on how staff implement Talking Time (including videos of sessions). They will use this information to understand how early years staff interact with children and support their language, to find out how they use the Talking Time programme, and to assess the impact of the programme on staff practice.
- NIESR will evaluate the impact of the programme on children's outcomes, supported by a team from another research organisation, Qa Research. They will also explore practitioners' experiences of the programme and their perceptions of its impact.
- The 'Research Team' in this privacy notice refers to UCL IOE, the University of Oxford and NIESR.

This work has been reviewed and received approval from the ethics committee at NIESR and also a subcommittee of the University of Oxford Central University Research Ethics Committee. (University of Oxford ethics reference: EDUC_C1A_24_011_Amendment_02; NIESR project code EP30).

This privacy notice sets out how the Research Team will collect and use your personal data. In order to perform their roles (set out above), the members of the Research Team will become data controllers of the different data sets collected. NIESR will become an independent controller of the pupil data, and assessment data collected for the evaluation and together, the University of Oxford will be controllers of the pupil consent information and UCL and Oxford will be joint data controllers of the implementation records, and the video and audio-recordings of practice gathered during the study.

Your child's data will be treated with the strictest confidence and processed in accordance with UK GDPR and the Data Protection Act 2018. We will not use your child's name or the name of the setting in any report arising from the research.

We promise to respect any of your personal data which is under our control and to keep it safe. This privacy notice sets out what we will do with the data, and we will let you know of any material changes to this notice.

The Research Team deals with and shares your personal data according to a data sharing agreement between the Research Team members. The agreement sets out the purposes for which we may process and share your personal data and our agreement to cooperate to protect your personal data and deal with any requests you may have.

What kind of information do we collect?

With your explicit consent, your child's setting will share the following information with NIESR:

- Child name
- Setting name
- Date of birth
- Gender
- Eligibility for the Early Years Pupil Premium
- Any additional needs e.g. whether they need any extra support with their oral language or have language-related SEND
- Weekly attendance patterns
- Records of attendance at Talking Time sessions
- Whether your child uses English as an additional language
- UPN

We will also ask you to answer a question regarding the languages spoken at home. The form to consent to participate in the study will ask you whether you and your family speak at home either: mostly English, a mix of English and other languages, or mostly other languages.

NIESR will match the information listed above to data from assessments of children's language carried out as part of the project. These are standard assessments of language skills. These assessments will be administered by a team from Qa Research. The

assessments will be audio recorded to support accurate scoring. These assessments will only be used to enable the research team to identify whether the Talking Time programme has an impact on the oral language skills of young children.

As part of the project, but only with your explicit consent, your child might be involved in:

- Audio recordings of two book sharing sessions (two near the start and two near the end of the project)
- Video recordings of Talking Time sessions as part of the mentoring and feedback to practitioners that forms part of the programme; and to see how the programme is implemented in settings.

Where parents have given consent for these **audio and video recordings** of their child, these recordings **will only be created and shared with** the University of **Oxford** team **where parents have given consent**. Although your child will be visible and audible in the video, and the staff member may use their name during the recording, this will never be typed up or reported. The University of Oxford and UCL Institute of Education may occasionally use anonymised extracts from the transcripts, for example in reports/publications/at conferences. These extracts will always be completely anonymous and no identifying information will be included.

As UCL is a joint data controller with the University of Oxford for the video and audio recordings and Talking Time session attendance records, the Oxford team may share these data with the team at UCL for the purposes of research. Oxford and UCL may match the data from these audio recordings to the information from the child language assessments.

What do we do with the information we collect?

Each organisation will use the data for different purposes:

University of Oxford and UCL Institute of Education

- To run the programme in early years settings and understand how it is implemented
- To act as the main point of contact for settings
- To understand how early years staff interact with children and support their language,
- To assess the impact of the programme on practice in early years settings, exploring whether the programme has an impact on the way in which practitioners interact with children and the role this plays in supporting children's language skills.
- To contact settings when the evaluation report is published
- To contact settings with programme updates and future Talking Time events, if the setting indicated its consent to being contacted after the programme delivery
- To share anonymised examples of interactions/practice via extracts of transcripts, for example in publications/reports/at conferences.

NIESR

- To monitor and evaluate the implementation of Talking Time
- To conduct the randomisation of settings (i.e., to randomly allocate settings to receive or not receive the programme)

- To match data received from settings to NPD data and child outcome data
- To contact some settings requesting staff participate in interviews and/or surveys about their experiences of the delivery of Talking Time, conduct those interviews/surveys, and analyse that data.
- To instruct and liaise with Qa, whose independent trained staff will carry out the tests and to oversee the collection of data on children's outcomes
- To evaluate the impact and effectiveness of the programme and prepare a report about the project

EEF

- At the end of the project, child outcome data will be submitted to the EEF's data archive which is managed by the Fischer Family Trust (FFT). At this point, EEF will become a data controller and FFT will be a data processor

We will only use your child's data for the purposes for which we collected it, unless we reasonably consider that we need to use it for another related reason and that reason is compatible with the original purpose. If we need to use your data for an unrelated purpose, we will seek your consent to use it for that new purpose. Your child's data will be treated with the strictest confidence and in line with the GDPR and the Data Protection Act 2018.

For the purposes of research and archiving, the data provided by settings and the assessment data will be shared with the University of Oxford, University College London, the Department for Education, the EEF, the EEF's archive manager, and in an anonymised form with the Office for National Statistics and potentially other research teams. Further matching to NPD and other administrative data may take place during subsequent research.

What is the lawful basis for processing your personal data?

We will only use your personal data where we have a lawful basis for doing so.

- NIESR's legal basis for processing personal data is 'legitimate interests'. The evaluation of Talking Time fulfils one of NIESR's core purposes (undertaking research, evaluation and information activities) and is therefore in our legitimate interest, that processing personal information is necessary for the conduct of the evaluation. Our condition for processing special category personal data is that this is necessary for scientific research purposes and is in the public interest.
- The University of Oxford and UCL Institute of Education's lawful basis for processing data is 'public interest task.'
- When the EEF becomes data controller at the end of the project as the child outcome data is submitted to the data archive, the legal basis for processing personal data is 'legitimate interests'. These legitimate interests include gathering data about what educational interventions work best, under what conditions, for which pupils, with a view to increasing attainment and reducing educational disadvantage.

Who else has access to your information?

The Research Team may disclose your information to third parties in connection with the purposes of processing your personal data set out in this notice. These third parties may include suppliers, research assistants, trusted academic partners and subcontractors who may process information on behalf of the Research Team to carry out such work as administering tests, undertaking interviews, transcribing interviews and archiving data. They will also include the Talking Time mentors, who will process data for specified purposes including programme delivery and mentoring. In all cases, the Research Team will ensure that these third parties enter into appropriate data processing agreements with us and that they keep your personal data secure and confidential. Where your data is shared with third parties, we will seek to share the minimum amount necessary.

We may also disclose your personal information if required by law, or to protect or defend ourselves or others against illegal or harmful activities, or as part of a reorganisation or restructuring of our organisations.

International Transfers

Your personal information will not be transferred outside of the EEA.

Security

We take all reasonable steps to protect your personal information and follow procedures designed to minimise unauthorised access, alteration, loss or disclosure of your information.

We have put in place procedures to deal with any suspected personal data breach and will notify you and any applicable regulator of a breach where we are legally required to do so.

Data Retention

We ensure that your data is securely stored, using secure servers located within the UK. Original electronic copies of the video and audio recordings of group activities will be anonymised and stored securely in the University of Oxford File Server for 3 years after publication of the evaluation report. Only Talking Time© team members (at Oxford, UCL) will have access to the files. Video and audio recordings will be typed up, but no names of children, staff or schools/nurseries will be typed up or reported. Paper copies of consent forms will always be kept in a locked filing cabinet at the Department of Education at the University of Oxford.

The audio recordings that are collected by Qa Research to aid in assessment scoring will be collected on secure handheld devices that will be stored securely in Qa's UK-based office. Original electronic copies of the audio recordings will be anonymised and stored securely in Qa's Server for six months after publication of the evaluation report. Only Qa Research team members will have access to the files. They may be shared with NIESR colleagues for training and quality assurance purposes via their secure folders.

We will only retain your personal data for as long as necessary to fulfil the purposes we collected it for, including for the purposes of satisfying any legal, accounting, or reporting requirements. When it is no longer necessary to retain your personal data, it will be securely deleted.

To determine the appropriate retention period for personal data, we consider the amount, nature, and sensitivity of the personal data, the potential risk of harm from unauthorised use or disclosure of your personal data, the purposes for which we process your personal data and whether we can achieve those purposes through other means, and the applicable legal requirements.

- ⌘ NIESR will delete all personal data three years after the completion of the project
- ⌘ The University of Oxford will delete staff contact details after the delivery of the programme, unless staff members consent for their details to be kept on record for the purpose of sharing the evaluation report, details of Talking Time events and programme updates
- ⌘ The University of Oxford will keep all other personal data (e.g. video or audio recordings) for three years following the publication of the final evaluation report. Thereafter, these data will be securely deleted. Anonymised data (e.g. anonymised transcripts of the audio/video recordings) may be kept for longer to support future research which is compatible with the original purpose.
- ⌘ NIESR will send the child outcome data to the Fischer Family Trust (FFT) archive within three months of project completion. FFT will keep the data on behalf of EEF, at which point EEF take responsibility for Data Protection Compliance

Please note that, under Data Protection legislation, and in compliance with the relevant data processing conditions, personal data can be kept for longer periods of time when processed purely for archiving purposes in the public interest, scientific or historical research, and statistical purposes.

Your legal rights

Under certain circumstances, you have rights under data protection laws in relation to your personal data and that of your child, including rights:

- To request access to your or your child's personal data: this enables you to receive a copy of the personal data we hold about you and to check we are lawfully processing it
- To request correction of your or your child's personal data: this enables you to have any incomplete or inaccurate data we hold about you corrected
- To request erasure of your or your child's personal data: this enables you to ask us to delete or remove personal data where there is no good reason for us continuing to process it
- To object to processing of your or your child's personal data: you can object where we are relying on a legitimate interest (or those of a third party) and there is something about your particular situation which makes you want to object to

processing on this ground as you feel it impacts on your fundamental rights and freedoms

- To request restriction of processing your or your child's personal data: This enables you to ask us to suspend the processing of your personal data
- To request transfer of your or your child's personal data
- To object to direct marketing (including profiling) and processing for the purposes of scientific/historical research and statistics
- Not to be subject to decisions based purely on automated processing where it produces a legal or similarly significant effect on you

If you have questions or concerns over how your data is being processed, or wish to exercise any of the rights in connection with this project, you can contact:

- For the language assessments (including audio recordings of assessments) and all individual children's data gathered by NIESR: Edoardo Masset TalkingTime@niesr.ac.uk or dataprotection@niesr.ac.uk
- For the audio and video recordings of group activities and attendance records for Talking Time sessions: data.protection@admin.ox.ac.uk or data-protection@ucl.ac.uk

You will not have to pay a fee to access your personal data (or to exercise any of the other rights). However, we may charge a reasonable fee if your request is clearly unfounded, repetitive or excessive. Alternatively, we may refuse to comply with your request in these circumstances.

We may need to request specific information from you to help us confirm your identity and ensure your right to access your personal data (or to exercise any of your other rights). This is a security measure to ensure that personal data is not disclosed to any person who has no right to receive it. We may also contact you to ask you for further information in relation to your request to speed up our response.

We try to respond to all legitimate requests within one month. Occasionally it may take us longer than a month if your request is particularly complex or you have made a number of requests. In this case, we will notify you and keep you updated.

If you have concern about any other aspect of this project activity, please contact:

- NIESR ethics contact: Katharine Stockland k.stockland@niesr.ac.uk
- University of Oxford: Dr Sandra Mathers talkingtime@education.ox.ac.uk

We will do our best to answer your query. We will acknowledge your concern within 10 working days and give you an indication of how it will be dealt with. If you remain unhappy or wish to make a formal complaint, please contact:

- University of Oxford Research Governance, Ethics & Assurance (RGEA) team at rgea.complaints@admin.ox.ac.uk or on 01865 616480
- NIESR Ethics committee: Katharine Stockland k.stockland@niesr.ac.uk

If you have any questions about this privacy notice, including any requests to exercise your legal rights in relation to your personal data, please contact NIESR in the first instance.

NIESR, 2 Dean Trench Street, London, SW1P 3HE

Email: TalkingTime@niesr.ac.uk

You also have the right to make a complaint at any time to the Information Commissioner's Office (ICO), the UK supervisory authority for data protection issues (www.ico.org.uk). However, we might be able to address your concerns, so please contact NIESR first.

Changes to this Notice

We may change this Privacy Notice from time to time. If we make any significant changes in the way we treat your personal information we will make this clear by contacting your child's nursery setting and ensuring they provide you with an updated version of this Privacy Notice.

Company details for the Research Team and Funder

- NIESR is a company listed by guarantee registered in England, and a registered charity.
 - Company Number: 341010
 - Charity registration number: 306083
 - Registered office: NESR, 2 Dean Trench Street, Smith Square, London SW1P 3HE
 - Email: TalkingTime@niesr.ac.uk
- The University of Oxford is a civil corporation. The University enjoys charitable status as one of the exempt charities listed in Schedule 3 to the Charities Act 2011
 - Registered office: University Offices, Wellington Square, Oxford, OX1 2JD
 - Email: data.protection@admin.ox.ac.uk
- The Education Endowment Foundation is a charity registered in England
 - Registered office: Millbank Tower, 21-24 Millbank, London SW1P 4QP
 - Charity registration number: 1142111
 - Company number: 07587909
 - Email: info@eefoundation.org.uk

Appendix D: Evaluation Preparation study

Evaluation of Talking Time Efficacy Trial: Evaluation preparation study

National Institute of Economic and Social Research

July 2024

About the National Institute of Economic and Social Research

The National Institute of Economic and Social Research is Britain's longest established independent research institute, founded in 1938. The vision of our founders was to carry out research to improve understanding of the economic and social forces that affect people's lives, and the ways in which policy can bring about change. Over eighty years later, this remains central to NIESR's ethos. We continue to apply our expertise in both quantitative and qualitative methods and our understanding of economic and social issues to current debates and to influence policy. The Institute is independent of all party-political interests.

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Executive Summary

Introduction

Talking Time is a universal intervention targeting the oral language skills of children aged 3-5 years. It provides professional development through the input of a mentor and online sessions. This supports early years practitioners in each setting, to carry out structured activities delivered to children who take part in two 15-minute sessions per week, for 20 weeks, in small groups (up to 5 children) of mixed language attainment.

This evaluation is designed to gather initial practitioner perceptions and experience, and feed those back to the delivery team and EEF to inform the main trial. The Research Questions focus on the perceived benefits and challenges of Talking Time for both children and practitioners.

Methods

We conducted online interviews with 13 staff from 5 different settings, in 10 interview sessions. These involved 6 practitioners involved in delivering Talking Time and 7 senior staff (hereafter referred to as setting leaders) from a sample of PVI settings. The setting leader volunteered their setting for participating in this preparation study.

Standard ethical guarantees of confidentiality, anonymity, informed consent, and right to withdraw were shared through information and privacy sheets, and reiterated in emails arranging the interviews, and again, at the beginning of each interview.

The five participating PVI settings were in different areas of England, and of different sizes, serving different local markets. Four were private for-profit settings, although with different ownership arrangements, and one a community-run organisation

Findings

Context: Family characteristics

The five settings discussed in this report had varied populations in terms of socio-economic disadvantage and ethnicity. Using the IDACI rankings¹, the proportion of children in each setting's locality who live in income-deprived families varied from 38% to 14%, and the percentage of children with English as an Additional Language (EAL) varied from 62.7% to 6.3%. However, these figures were not always an accurate representation of the children who attended the settings at the time of the interviews.

RQ1: How do PVI practitioners and setting leads perceive the programme?

Initial perceptions

The reasons for settings deciding to take up Talking Time unsurprisingly focused on the potential benefits of the programme for the development of the children's oracy and literacy skills – with the pandemic understood as still having an affect (the target group of 3-4 year olds were babies during the pandemic) - and the benefits for staff professional development.

Decisions were made by setting leaders, sometimes with the involvement of advisers external to the nursery.

¹ The IDACI (Income Deprivation Affecting Children Index) rankings focus on a small area, and are commonly used to measure the proportion of all children living in income-deprived families.

Practitioners, however, seemed less involved in the decision-making, and initially, less well-prepared to undertake Talking Time.

Later perceptions

The interviews took place towards the end of the intervention. Participant perceptions of Talking Time were very positive, both about the professional development, seen to be of high quality; the provision of engaging materials, and the beneficial effects of the programme on the children. They also pointed to some significant challenges, to do with delivering the programme within the constraints of busy settings, with variable attendance from both children and staff.

Benefits that staff noted for children included improvements in the children's confidence, vocabulary, and speaking and listening skills, as well as a greater interest in books.

Talking Time had also had a clear impact on practitioners in terms of their own confidence, and knowledge and understanding of working with pre-school children.

All practitioners agreed that delivering the Talking Time programme has led to changes in how they interacted with the children, as they moved away from adult-led to child-led practice.

The setting leaders largely agreed, with the majority enthusiastic, especially about the degree and quality of support offered, although one had reservations, suggesting that the programme was over-complicated for delivery. However, **all** participants said that they were keen to continue delivering Talking Time.

RQ2: Are there barriers to delivery and engagement in PVI settings?

• Challenges: time, space and managing small groups

Participant perceptions of the challenges involved in delivering Talking Time can be summarised as managing small group work and delivering Talking Time through the required number of sessions (two per week). It is notable that the setting that reported the least difficulty here was the one with the smallest number of children involved in Talking Time (2 groups).

All the other four settings reported significant difficulties with consistency – that is, with staffing the initiative, managing the small groups, and delivering two 'doses' per week. Various factors impacted the smooth delivery of the programme, including and particularly variable attendance by children and staff. Other factors mentioned included children's willingness to engage, other activities and commitments within the setting, and having a suitable space available.

Staff responses

As a result of these challenges, staff recounted that they have adapted the programme by increasing the number of children in a group, or by missing sessions.

Three practitioners suggested more flexibility in the structure with less of an emphasis on delivering two sessions per week (although this is a core Talking Time principle).

The settings were all interested in spreading the training to other staff, although some setting leads commented that the Talking Time practitioners found cascading the approach difficult.

Participant views on different components of Talking Time

As noted, all participants rated Talking Time positively. Practitioners and setting leads felt that Talking Time was engaging, productive, and a more focused and structured development of their usual practice.

For practitioners, however, the first impressions of Talking Time were often quite negative, with four participants specifically using the word ‘overwhelming’ to describe either their feelings or that of their staff member. Others used phrases such as ‘a lot to take on’ and ‘panic-mode’ to describe initial reactions.

However, it is important to emphasise that being ‘overwhelmed’ was an initial reaction, and one ameliorated by the input from mentors. Indeed, participants were particularly positive about the support available from their mentor, and also about the three components of Talking Time: Story Conversations, Word Play and Hexagons.

Mentors played a crucial role in supporting practitioners in becoming comfortable and familiar with Talking Time, responding to any concerns, questions and building practitioners’ confidence.

Participants generally were also highly appreciative of the Talking Time **materials for use** with the children finding them to be high quality, supportive, well-targeted, and engaging for the children. In particular, several commented on how much the children enjoyed the stories and associated activities.

There were mixed views on other aspects of the programme. Anxieties and concerns included the length of the manual, being recorded, completing the reflective logs, and the timing of the training sessions.

The interview data suggests the following possible **adaptations** in delivering the Talking Time programme (although the first point requires continuity, not change).

- | *Mentors* are crucial to the success of the programme, both for the support and explanations that they offer.
- | *Encouraging practitioner engagement with the programme from the earliest stages* in order to enhance their sense of ownership
- | *Guidance on adaptations*: clarity around the desirability of particular, on-the-ground adaptations would provide staff with useful guidance.

The participants themselves also suggested:

- | Parent packs
- | Visits to settings already delivering Talking Time
- | Paper versions of the reflective logs, as these would be easier to complete
- | Having fewer picture books to cover, so more time could be spent on each one.
- | Having just one Story Conversation a week
- | Shortening the online professional development sessions
- | Providing a list of other story books that could be used with the Talking Time approach
- | Providing guidance on adaptations to Talking Time to make it accessible for younger children.
- | Pairing a confident practitioner as Talking Time lead with a newer/less confident colleague
- | Having three (not two) staff involved in the Talking Time training, so that there was a third person available to step in, if either of the other two were absent.

RQ4: Are there any unexpected challenges or benefits seen in PVI settings?

• Challenges

Time and fitting in the intervention within the fluctuating and busy timetables of day nursery settings, with varying attendance levels from staff and children, stands out as a particular challenge in PVI settings.

The inclusion of children with higher needs was perceived as a challenge in three settings as staff suggested that the ‘SEN children’ were not able to fully engage with Talking Time.

• Benefits

Parents were reported as interested in and impressed with Talking Time activities. Parental feedback to staff suggested that the children also spoke about the books and related activities at home, and some could potentially be more involved.

Conclusion

This light touch and preliminary qualitative enquiry has identified staff enthusiasm about the Talking Time approach, balanced against their difficulties in delivering the programme within its stated parameters. It highlights three factors in particular:

1. The importance of the mentor role in providing in-person support and advice. Will mentors be able to maintain their current high levels of approachability and responsiveness when the main trial is in progress?
2. That staff are making *ad hoc* on-the-ground adaptations to Talking Time, some of which challenge the core characteristics of the programme. Greater clarity around which adaptations are acceptable, and which are less so would be useful.
3. The degree to which Talking Time is beginning to change early years practitioners' thinking and practice around developing language skills in young children.

Introduction

This report discusses the findings of a qualitative preparation study of Talking Time.

Talking Time is a universal intervention targeting the oral language skills of children aged between 3 to 5 years. The intervention is designed to provide high quality professional development to early years practitioners that will enable them to deliver a project of engaging, structured activities to support the oral language skills of children in small groups in the nursery setting. The project aims to develop meaningful and engaging structured small-group experiences, which allow children to hear and rehearse language in the context of multi-turn conversations.

With on-going professional development (through the input of a mentor and online sessions) the Talking Time leads carry out structured activities delivered to 3-4 year old children who take part in two 15-minute sessions per week, for 20 weeks, in small groups (up to 5 children) of mixed language attainment. There are three types of activity:

- Story Conversations: shared storytelling and conversation using the illustrations in storybooks as prompts;
- Word Play: games and guided role play designed to develop vocabulary breadth and depth;
- Hexagons: narrative discussion and retelling based on photos of real situations and routines likely to be familiar to children within their lives and local areas.

Methods

This evaluation is designed to gather initial practitioner perceptions and experience, feed those back to the delivery team and EEF to inform the main trial, and (for the evaluation team) to pilot the interview schedules. We conducted interviews with staff - practitioners involved in delivering Talking Time and the setting leaders - from a sample of PVI settings where the manager had volunteered their setting for participating in this preparation study.

The key **research questions** (RQ) are:

- RQ1: How do PVI practitioners and setting leads perceive the programme?
- RQ2: Are there barriers to delivery and engagement in PVI settings?
- RQ3: Is the programme content accessible to practitioners in PVI settings? Do any elements need adapting?
- RQ4: Are there any unexpected challenges or benefits seen in PVI settings?

We conducted 10 interviews in total, across 5 settings, with the setting leader and the Talking Time lead in each setting. In three of the settings, two people participated in the interview, so in total, the data is generated from conversation with 13 people (6 practitioners and 7 senior staff, i.e. leaders and deputies).

The interviews lasted between 30 and 50 minutes. Information and privacy sheets were shared by the delivery team, and interviews were conducted online. In emails to the settings and at the start of the conversation, participants were reminded that their involvement would be anonymous, their data stored securely, and that they had the right to withdraw/not answer particular questions at any point without giving a reason. The interviews were recorded with the participant's permission and then transcribed by professional transcribers. They are stored securely on NIESR servers. The data was analysed using a framework approach, a systematic method for categorising and organising qualitative data, in order to be able to compare and contrast aspects of the data.

The types of providers reflect the diversity of the current PVI market. Four out of five were private-for-profit, with these ranging from a nursery belonging to a large chain, to an individually-owned business. The fifth setting was a community provision provided by a church.

Findings

Context: Family characteristics

The five settings had varied populations in terms of socio-economic disadvantage and ethnicity. Using the IDACI rankings², the proportion of children in each setting's locality who live in income-deprived families varied from 38% to 14% (these figures can be misleading however, as at least one of the settings appears to operate at least partly as a workplace nursery). The percentage of children with English as an Additional Language (EAL) varied from 62.7% to 6.3%. However, as nursery populations fluctuate, these figures did not necessarily correspond to the children attending the setting at the time when the interview took place. For example, at one setting, the manager commented that just under 90% of the children within that setting spoke another language at home.

RQ1: How do PVI practitioners and setting leads perceive the programme?

• Initial perceptions

The reasons for settings deciding to take up Talking Time unsurprisingly focused on the potential benefits of the programme for the development of the children's oracy and literacy skills – with the pandemic understood as still having an affect (the target 3-4 year olds were babies during the pandemic) - and the benefits for staff professional development. Decisions to be involved were made by setting leaders, and in two cases, an adviser external to the nursery, had suggested the programme.

Communication and language have been a big drive for our borough and for Ofsted. And it's something that we were looking at. So, our early years advisory team for this whole year had been thinking about books and book corners and those kind of things. [...] [Referring to the initial email on Talking Time] I thought that would be really interesting to support the staff and to support the children. Because I have seen, since the pandemic and in the time that I've worked in early years, the change that there has been in the communication skills with the children. Especially children leaving our setting, or our children that are coming up to age 2 and the amount of words that children in the past years used to have versus what the children have now.

[...] It was something that was quite important for the team that are working in preschool. One of them has quite a strong early years background and the other one doesn't. And it's something that we were doing a lot of in-house and other training on as well around communication and language. And I thought this could just support them to support the children to have better outcomes, you know, before they left us to go onto a primary school setting. (Senior Leader (SL) 2)

First of all it was free! That's always a bonus!... I don't really know, it just sounded really good. (SL6)

Most of our children that start from 2, they start with a speech delay. Now that doesn't mean that they are always going to have a delay with communication, they just need us to support their communication [...] We're all about trying to bridge the educational gap before our children go to school. (SL1)

Setting leads generally commented positively on the clarity of the initial information:

When looking at the welcome pack and the parents' information as well, I think that was nicely presented. It was very clear for the parents to understand what the children were going to be receiving and they were very welcoming. (SL2)

However, one common theme in interviews with Talking Time leads (as oppose to the setting leaders) was that they were not fully clear at the beginning as to what Talking Time would involve, and several referred to their first exposure as 'overwhelming', although the input from mentors was key to ameliorating concerns, reassuring practitioners and clarifying ways of working.

² The IDACI (Income Deprivation Affecting Children Index) rankings focus on a small area, and are commonly used to measure the proportion of all children living in income deprived families.

At first with the timetable and the folder [it was] overwhelming ..it was too much to take in at first. It was like 'oh what is this?' But as time went on, ...we got used to what it meant. The tutor helped as well (Practitioner (P) 5)

• Later Perceptions

By the time the interviews took place, the settings were coming to the end of the intervention. Participant perceptions were very positive, especially about the effects of the programme on the children, although they also pointed to some significant challenges, (further discussed below), to do with delivering the programme within the constraints of busy settings, with variable attendance from both children and staff.

Staff identified **benefits for the children** in general terms drawing on their observations and those of colleagues, with only one setting leader saying she needed formal 'tracking' processes to be completed before she commented. Benefits noted included improvements in the children's confidence, vocabulary, and speaking and listening skills, as well as a greater interest in books, with practitioners referencing the positive impressions of other colleagues, parents, and in one case, Ofsted, as well as their own.

Participants described in general terms the benefits for the children. At settings with relatively high numbers of children with English as an Additional Language, they noted, again in broad terms, that these children had particularly benefitted, but the impact on disadvantaged children was less explicit in the data (this is possibly due to the relatively low number of disadvantaged children in some of the settings discussed here). One practitioner mentioned a normally quiet child's key worker being 'amazed' at how much the child spoke in the Talking Time group. Another noted,

Communication has come on so much. Even just the new words and vocabulary that we've been talking about through the book. They've taken them into other activities..in their day to day conversations. (P3)

It's just the confidence in small groups isn't it? They will talk a lot more now, they will get involved a lot more [....] Even in sitting down, listening, paying attention... they're interested, they're engaged. (P1)

I feel like some of the children are starting to be more willing to get a book and sit down [with it]. (P5)

They want to talk about new things. It has opened up new language, new vocabulary. And they're more interested in how a book works. So, they're making their own stories [...] The children have got a lot out of it, especially down to the imagination, the vocab, the understanding of books, how they work and how to use a book, so that has been really good. Our parents have had a really good positive input from it because [the children] want to talk about [the books] at home [....] We actually had an Ofsted [inspection] last week and they observed a Talking Time and they were really impressed with it as well and how the children had a different insight and different input to the different books, so that was fantastic. (SL3)

There's one child in particular [with a speech delay] [...] he's really engaging in that small group activity, and he's really getting a lot more that he wants to say, and wants to get out, which is amazing, it's brilliant. (SL1)

Talking Time was also reported as having **a clear impact on practitioners** in terms of their own confidence, and knowledge and understanding of working with pre-school children.

In terms of professional development, engagement ...[the Talking Time practitioners] are happy with it. They've really, really enjoyed it. They feel like it's been really informative [...] It's given them that kind of eager feeling, I think [...] [Being enrolled on a new programme such as Talking Time is] something you see them really proud about. (SL1)

Two practitioners described themselves as 'shocked' to see how the children responded to the sessions, and 'how much we got out of them' (P3), 'a lot of them have shocked me...to be honest, what they actually know' (P1). This may suggest that some staff were underestimating the children's abilities. Certainly, all agreed that delivering the Talking Time programme has led to clear changes in how they interacted with the children, as they moved away from adult-led to child-led practice.

It has changed the way I read a book... I'll [now] ask them 'what can you see?' It's become natural to me, I'm not just reading the words and going through the book, I'm encouraging them, 'what can you see in the book? What do you think is going to happen next?' (P5)

When [new practitioner] does story time with other books, she's looking at the pictures and getting the children to tell her what is going on, rather than her saying what's going on. (SL6)

We've been used to reading the book for the children rather than getting the conversation to flow. [It has helped] just for us to wait to see for the children, giving them the power, yes so they don't feel like I'm leading it, so that they also know that they are leading. (P2)

We were told, we don't read the words... sometimes you might read a few, but it was more the pictures and their ideas, that's what I found different [to usual practice]. (P6)

It's really made us think again about how things can be done... So I think everyone has had to reprogramme their minds about how a book was going to be delivered to a group of children. (SL2)

Some children also had to adapt to these changes, with one practitioner noting the children ask 'why aren't you reading the words?'

The setting leaders largely agreed with practitioners' positive perceptions, with the majority enthusiastic, especially about the degree and quality of support offered, although one had reservations, suggesting that the programme was over-complicated for delivery. She observed that Talking Time was,

Very interesting to do and it is beneficial to do, but probably isn't quite going to plan [...] We haven't done the tracking, [so the impact on] the engagement and development of the children, I'm not sure yet [...] It's just all the bits that come with the research, that's the bit that is time consuming and challenging. (SL5)

Others were more positive.

[Talking Time was] better than my expectations [...] All the resources arrived on time, nothing was missing. A lot of contact, a lot of email contact. A lot of input and stuff like that. ... Sometimes I get worried that the staff are not going to understand and then they'll be afraid to ask something and then you just, sort of, end up in a situation where you've missed things in sessions and you're not doing things correctly. But there's been a lot of support and we've had all the resources that we needed and everything.... It was really organised. So, yes, it ran very smoothly [...] I think that, for me, the most important thing [was] that the staff have had someone that has been able to train them to do this. (SL2)

Importantly, **all participants said that they were keen to continue with Talking Time**, although in some cases, not in its entirety.

I think we definitely want to carry on with it, we're going to keep it going. (SL3)

It encourages children to understand books and [helps] with communication, all the reasons why I joined are the reasons why I'd want to continue. (SL5)

I think for sure the story conversations and [word play]... we will continue those two, for sure. (P5)

RQ2: Are there barriers to delivery and engagement in PVI settings?

• Challenges: time, space and managing small groups

Before discussing participants' experiences with different elements of the Talking Time intervention, it is important to contextualise those experiences through a consideration of the challenges that they identified. These can be summarised as managing small group work and delivering Talking Time through the required number of sessions (two per week). It is notable that the setting that reported the least difficulty here was the one with the smallest number of children involved in

Talking Time (2 groups). Even there, the practitioner reported some problems arising from the children's varying attendance rates.

All the other four settings reported **significant difficulties with consistency** – that is, with staffing the initiative, managing the small groups, and 'maintaining the two doses' (P1). Various factors impacted the smooth delivery of the programme, including, and in particular, **variable attendance** by children (due to sickness, holidays, part-time attendance) and staff (due to staff absence, having to cover for other staff, part-time staff). Other factors included competing activities for the children delivered by visitors; children sometimes choosing not to join in; and other events taking place (Ofsted inspections and school transition meetings were given as examples). One setting leader identified challenges with staff retention and high levels of staff sickness, which she felt were affecting the sector more generally.

We're in the world, at the minute, in early years education where people can feel pressure really, really quickly and really, really easily, and it's all about balancing it and making sure that they're being supported [...] But usually if it's something difficult, they'll come to us and have a bit of a breakdown in the office, and that hasn't happened [with Talking Time] so that's good news! (SL1)

Keeping the Talking Time groups to five children was an additional challenge. As a result, staff in these four settings repeatedly felt that they were to 'trying to squeeze [Talking Time] in'.

Sometimes [there are] shortages of staff, we've got SEN children as well...That was the difficult part, I think finding time to do it and where to do it (P6)

The practitioners spoke of planning groups, in line with Talking Time's core principle of universality, with a mix of children with different attainment levels in oracy. One setting had 7 groups. The setting leader commented that, 'The hardest part' [is] 'getting the grouping right' and 'how you're going to work it in to your setting'. She continued, 'we had lists [of children's names] on the wall and we tick them off.. to make sure everyone's getting covered (SL3). However, as children's absences impacted the organisation of the original groups, some practitioners simply merged them.

So, at one point I said to [practitioner] that 'maybe the priority is just doing the Talking Time rather than worrying about the groups because if the children aren't in and you don't do it, then you're getting more and more behind'. I think the groups have been a real challenge. At first [practitioner] just wasn't doing the sessions because she was very keen to follow the rules, so I've suggested that she merge the groups [...] I think we underestimated how time-consuming it is for the girls [TT leads] actually. And some weeks it works really well, but then other weeks you've got staff sickness, and it's a bit of a pain, you know. (SL5)

The children all do different days, different times. So, some do maybe a half day, some will do full days, some might only do 1 day a week. So it is quite difficult to try and fit in the Talking Time session, especially when the children need to be doing two a week [...] We have quite a high level of staff sickness and of staff turnover and sometimes it is hard just to be able to take a low number of children out, especially if you are on a ratio of 1:13. And they only expect you to take 4 or 5 children out. It's not always possible. (P1)

Another challenge was children not wanting to stop what they were doing to attend sessions, and then 'if we miss that ten minute slot, we might not find the time to fit them in' (P5). One setting had addressed this by giving their groups an animal symbol each. This eased the transition from one activity to another for the children, so that when they saw that animal object, they understood that it was a signal that their session was about to start. Staff also reported that the general busy nature of a preschool setting, incorporating other events and visitors, challenged their planned Talking Time timetables.

Space could be another difficulty with staff who had separate rooms in which to offer Talking Time finding it much easier.

In the hall it was distracting other children...too much noise going on, even though we had the boards around, it didn't really work, but then luckily we've got another room outside the hall, and that worked really well. (P6)

• Staff responses

As indicated above, staff recounted instances of having to miss sessions through absence or lack of time, so that the children did not always receive their two 'doses' a week. 'I know that colleague is managing [to hold Talking Time

sessions] at least three times a week' (SL1). Alternatively and/or additionally, they increased the numbers in a group, although recognising that this impacted the effectiveness of the programme. 'I try to do it where there's 5, but realistically it's been 8 or 9' (P1). 'The [Talking Time lead] said, she could totally tell it didn't work as well with 8 children' (SL1).

Three practitioners suggested more flexibility in the structure with less of an emphasis on delivering two sessions per week. One practitioner, if there was no time for sessions, left the relevant book out on the bookshelves for children to look at on their own, and did Word Play activities in the general Circle Time, because 'at least this way we were actually getting a session, rather than not having it at all' (P5).

The settings were all interested in spreading the training to other staff, although some setting leads commented that the Talking Time practitioners found cascading the approach difficult. One setting had tried to ensure that the sessions had an additional staff member present, who was not receiving the formal training, to observe the sessions, thereby increasing their familiarity with Talking Time.

RQ3: Is the programme content accessible to practitioners in PVI settings? Do any elements need adapting?

• Participant views on different components of Talking Time

As set out earlier, all participants rated Talking Time positively. Practitioners and setting leads felt that Talking Time was an engaging, productive, and more focused and structured development of their usual practice.

I remember years ago being, sort of, part of doing communication-friendly spaces and those kinds of things. So, thinking about things that had been done in the past and maybe fallen a bit by the wayside, or that the staff team had changed and then were part of things that they didn't fully understand. So, I think it [Talking Time] was fitting in really well. (SL2)

For practitioners, however, as noted earlier, the first impressions of Talking Time were often quite negative, with four participants specifically using the word 'overwhelming' to describe either their feelings or that of their staff member. Others used phrases such as 'a lot to take on' and 'panic-mode' to describe initial reactions.

Practitioner a: I felt more overwhelmed than I would have liked

Practitioner b: Because the file is so bulky that they send you before the first week, and we were like 'oh my God, what is this? Thinking: 'this is just doubling the workload'.

However, it is important to be clear that being 'overwhelmed' was an initial reaction, and one ameliorated by the input from mentors. Participants were particularly positive about both the support available from their mentor, and the three components of Talking Time.

There were mixed views on other aspects of the programme. Anxieties and concerns included the manual, being recorded, completing the reflective logs, and the timing of the training sessions. We now turn to these perceptions in more detail.

Mentors played a crucial role in supporting practitioners in becoming comfortable and familiar with Talking Time, responding to any concerns, questions and building practitioners' confidence.

At first, I think it feels overwhelming, because you have got all the information, but you are very much guided through it. (SL5)

I really found the video mentoring was really helpful, to go through what I have done and then speak about what I did well, what I could improve. (P5)

The in-person support and the demonstrations of practice was particularly welcome.

[Mentor] came out to do our welcome meeting and she was lovely, and she was reassuring that... if we were unsure, to make sure that we got in touch with her or [colleague] She explained everything really well [...] and gave us time to process it [...] I really think she's been great. Whenever we have had a concern, we have gone to her, and she's praised us for what we've been doing but then also found ways of helping us at the same time. And the way she delivers things and then gives us a chance to do it ourselves and then we'll feedback on what she thinks and what we think, and come together to think 'right when you go and deliver it yourself, this is what you can do better'. (P3)

I think the key point is having a mentor. So [their mentor] has been amazing, and I don't think it would work as well if you were just given the paperwork. So I think that, for me, the most important thing that the staff have had someone that has been able to train them to do this. Otherwise maybe people take too much their own take on it, and it doesn't work out the same way. But just having that support has been excellent and that level of support has been really good as well. (SL2)

[Mentor] was really good. She even when we needed any support, messaging her, emailing her. When she came in and we had the 1-1 session, me and [colleague] were really nervous and she supported us.. and encouraged us (P6).

As noted earlier, Talking Time has three activities – Story Conversations, Word Play and Hexagons ³. Participants generally were highly appreciative of the **materials for use** with the children finding them to be high quality, supportive, well-targeted, and engaging for the children. In particular, several commented on how much the children enjoyed the stories and associated activities.

The prompts for each story were amazing, the lower level, the higher level [...] The Word Play plans have probably been my favourite part of it, just because it has made it so much easier (P3)

I find the Word Play plan very good. And the Hexagons [...] [the mentor] told us that we can make our own Hexagons so we are planning to make our own as well (P2)

The staff enjoyed doing the Word Play, that was really interesting. And they haven't long started with their Hexagons so they are doing that. [...] Even thinking about when we started with the very first book, Good Night, Gorilla, and just thinking about how us as practitioners deliver a story to the children. It's really made us think again about how things can be done (SL2)

The stories have been working really well in the small groups [...] [Practitioner] really enjoys the conversation side of it with the books (SL3).

The **manual** was seen by some as 'unwieldy', too detailed, with practitioners needing a 'quicker way-in'. However other participants appreciated the detailed guidance, one pointing out that it would serve as a useful introduction to new staff.

Participants understood the value of practice being **recorded** and then discussed, but some found the process of being recorded and watching themselves, made them feel very awkward and uncomfortable. One setting lead observed that several parents at her setting had refused consent for their children to be included in recordings.

The **online training sessions** were also enthusiastically received. However, the timing, as several participants noted, appeared to be planned for schools so sessions started at 3.30pm when day nurseries were still active and busy, which meant some settings were stretched when covering for the Talking Time practitioners.

The practitioners mostly enjoyed doing the **reflective logs**, and saw their benefit, but this was the element that seemed most likely not to be completed, with lack of time being cited as the explanation.

I think that [practitioner] has felt quite overwhelmed with the amount of , you know having to go on and upload and give feedback and things, because it's just another thing for her to do' (SL5)

³ Not all practitioners had completed the training on using hexagons when interviewed.

The interview data suggests the following possible **adaptations** in delivering the Talking Time programme (although the first point requires continuity, not change).

- | *Mentors* are crucial to the success of the programme, both for the support and explanations that they offer.
- | *Encouraging practitioner engagement with the programme from the earliest stages:* Practitioners seemed to go into the programme without a very clear sense of what was involved, which might account for the initial reaction of acute concern. It is worth noting that the practitioners were picked by their setting lead, and did not volunteer, and that although all appreciated the value of Talking Time, the sense of ownership seemed to grow slowly. In one setting the practitioners were not invited to attend the welcome meeting, and clearly felt excluded, referring to this several times during the interview.
- | *Guidance on adaptations:* A core feature of Talking Time is the principle of flexible adaptation. Although manualised, the programme is designed to be flexible and adaptable to suit individual children, settings and contexts. However, in response to challenges around time and staffing, practitioners are making *ad-hoc*, on-the-ground adaptations, some of which seem to challenge the key principles of Talking Time (e.g. concerning timetabling and/or sequencing of activities, universal delivery). More clarity around the desirability of particular adaptations would provide staff with useful guidance.

The participants themselves also suggested:

- | Parent packs, so that parents could adopt a similar approach to their children's language development.
- | Visits to settings already delivering Talking Time so that new settings could see it in action.
- | Paper versions of the reflective logs, as computer access was limited in some settings.
- | Having fewer books to cover so more time could be spent on each one.
- | Having just one Story Conversation a week.
- | Shortening the online professional development sessions.
- | Providing a list of other story books not in the programme, but that could be used with the same approach, for settings to purchase.
- | Providing guidance on adaptations to Talking Time to make it accessible for younger children.
- | Pairing a confident practitioner as Talking Time lead with a newer/less confident colleague.
- | Having three (not two) staff involved in the Talking Time training, so that there was a third person available to step in, if either of the other two were absent.

RQ4: Are there any unexpected challenges or benefits seen in PVI settings?

• Challenges

Although initial feelings of being 'overwhelmed' dissipated for practitioners, struggles with time constraints and fitting in Talking Time activities within their busy timetables, stands out as a particular challenge in PVI settings. This may be more of an issue in PVI settings than in schools, as, for example, the fluctuating attendance of both staff and children might impact PVI settings, more than school nursery classes.

[We recognised at the start of the programme] that there could be a few bumps in the road because we're not a school nursery. Because we're not a school nursery, we don't have children who are here everyday, five days a week [...] Some children are term-time, some children are all year round, some staff are term time, some staff aren't. If there's a few weeks or so where there's staff sickness that could put a bit of a bump in the road for us, which we did find. We've tried to work round it, but we were right for the worries that we had. (P1)

The inclusion of children with higher needs stood out in three settings as being perceived as a challenge, with staff suggesting that the 'SEN children' were not able to fully engage with Talking Time.

We've got a little boy ..you just don't know what type of day he's going to have. If [he's] heightened, the first priority is to make sure he's okay and the rest of the children are okay. (P1)

I just didn't think it's working for them. (P6)

• Benefits

Parental feedback to staff suggested that the children also spoke about the books and related activities at home. As a result, although there were concerns from some parents, especially in one setting, about their children being recorded, staff perceived parents as being very positive about the programme, and potentially able to be more involved.

Conclusion

This light touch and preliminary qualitative enquiry has identified staff enthusiasm about the Talking Time approach, balanced against their difficulties in delivering the programme within its stated parameters. It highlights three factors in particular: one is the importance of the mentor role in providing in-person support and advice. Will mentors be able to maintain their current high levels of approachability and responsiveness when the main trial is in progress? The second factor is that staff are making ad hoc on the ground adaptations to Talking Time, some of which challenge the core characteristics of the programme. Greater clarity around what adaptations are acceptable and which are less so, would be useful. The third factor is the degree to which Talking Time is beginning to change early years staff thinking and practice around developing language skills in young children. As one of the setting leads commented,

I'd had in my mind, thinking about really how the children interact and communicate with each other, that was a bit thing. And I've seen a difference with that. But more so, I think for the staff, being confident, being able to deliver something that can just be embedded into our practice and just become part of our weekly and daily routine and our curriculum. It was really, really important that they felt confident enough that they could just deliver this to the children. It's something that we could continue to carry on using with all of the children in the setting. (SL2)

Appendix E: samples of the GAPS and Renfrew assessments

The GAPS sentence repetition assessment

1. Sentence Repetition Score Sheet

Correct score = all words repeated correctly
OR no mistakes on **bold** words / parts of words

Sentence <i>Circle any words or parts of words not repeated correctly</i>	Response <i>Write here what the child said instead of the circled words</i>	✓	✗
Practice Sentences			
a) This is the cat. <i>(Repeat if incorrect)</i>		FILLER	
b) The cat is grey. <i>(Repeat if incorrect)</i>		FILLER	
Test Sentences			
1. The cat with the bell is happy.			
2. The cat wanted some milk.			
3. The milk is pulled by the dog.			
4. You say to Bik: What will the cat drink?			
5. Not milk!		FILLER	
6. You say to Bik: Which dog did the cat push?			
7. The blue dog.		FILLER	
8. The dog gives the cat the milk .			
9. This cat likes milk.			
10. The cat is washing herself .			
11. The dog is licked by the cat.			
12. The cat is washing him .			
13. You say to Bik: Who did the cat wash?			
14. The red dog.		FILLER	
TOTAL:			

A sample of the RAPT test (cards 1 and 2 of 10)

Card 1 What is the girl doing?



Card 2 What is the mother going to do?



Appendix F: Randomisation algorithm

```

/* RESTRICTED RANDOMISATION*/

global X="idaciscore EYPP EAL"                // balancing variables

cap program drop randssel                      // restricted randomisation program
program define randssel
  use randsample, clear
  local seed=777+`1'                          // set new seed at each draw to keep same results
  set seed `seed'
  qui generate rand=uniform()                  // generate a random number
  sort re_sstrata rand                        // sort observations by the random number within strata
  local start = round(runiform(0, 1))          // set a random start (0 or 1)
  local end=`start'+1
  egen sel`1'=seq(), from(`start') to(`end') // assign every other observation to the intervention group
  qui replace sel`1'=0 if sel`1'==2
  drop rand
  sort settingname
  qui save sel`1', replace                    // save the random allocation in a separate file
  use randsample, clear                      // open original file
  sort settingname
  qui merge settingname using sel`1'          // merge to the saved random allocation
  qui drop _merge
  qui reg sel`1' $X                          // regress the random selection on the covariates
  di in green "selection "`1'" " in yellow "R2="e(r2) // display the R-square
  qui save randsample, replace
  erase sel`1'.dta
  end

forvalues i=1(1)10000 {                      //run the program a 10000 times
  randssel `i'

```


Appendix G: full analysis code

```

////////////////// PRIMARY OUTCOME ////////////////////

/*create index composite score*/
/* - each score is standardised by the baseline pooled standard deviation
   - we take the arithmetic mean of the standardised scores */

/*calculate pooled standard deviation and mean*/
foreach var of varlist score_apt_info score_apt_grammar score_expvoc {
    sum `var'
    global mean_`var'=r(mean)
    ttest `var', by(arm)
    global s1= r(sd_2)          // set the sd of the project group
    global s2= r(sd_1)          // set the sd of the control group
    global n1= r(N_2)           // set the sample size of the project group
    global n2= r(N_1)           // set the sample size of the control group
    global sd_pooled_`var'= sqrt(((s1^2)*($n1-1)+(s2^2)*($n2-1))/($n1+$n2-2))    // pooled sd
}

/*standardise scores by pooled standard deviation*/
gen i_score_apt_info=(score_apt_info-$mean_score_apt_info)/$sd_pooled_score_apt_info
gen i_score_apt_info_endline=(score_apt_info_endline-$mean_score_apt_info)/$sd_pooled_score_apt_info
gen i_score_apt_grammar=(score_apt_grammar-$mean_score_apt_grammar)/$sd_pooled_score_apt_grammar
gen i_score_apt_grammar_endline=(score_apt_grammar_endline-$mean_score_apt_grammar)/$sd_pooled_score_apt_grammar
gen i_score_expvoc=(score_expvoc-$mean_score_expvoc)/$sd_pooled_score_expvoc
gen i_score_expvoc_endline=(score_expvoc_endline-$mean_score_expvoc)/$sd_pooled_score_expvoc

/* baseline index (arithmetic mean)*/
gen renf_index_b=(i_score_apt_info+i_score_apt_grammar+i_score_expvoc)/3

/* endline index (arithmetic mean)*/
gen renf_index_e=(i_score_apt_info_endline+i_score_apt_grammar_endline+i_score_expvoc_endline)/3

/*create variables for missing values of the index*/
gen miss_index_b=renf_index_b==.

gen miss_index_e=renf_index_e==.
replace miss_index_e=. if miss_index_b==1

////////////////// USEFUL PROGRAMMES ////////////////////

/* Programme to explain and comparing missingness */

cap program drop compare_missing
program define compare_missing
    di ""
    di in white "Determinants of missing values: control group"
    logistic `1' $X if arm==0
    est store model1                                // store the results
    di ""
    di in white "Determinants of missing values: project group"
    logistic `1' $X if arm==1
    est store model2                                // store the results
    qui suest model1 model2                          // Combine the
    estimation results
    di ""
    di in white "Test the equality of coefficients one by one"

```

```

foreach var of varlist $X {
  test [model1_`1']`var' = [model2_`1']`var'
}
di ""
di in white "Test the equality of all coefficients simultaneously"
test ([model1_`1']gender = [model2_`1']gender) ([model1_`1']age_b = [model2_`1']age_b) ([model1_`1']EYPP =
[model2_`1']EYPP) ([model1_`1']EAL = [model2_`1']EAL) ([model1_`1']IDACI = [model2_`1']IDACI)
end

/* Programme for Hedges' g (index score) */
cap program drop Hg
program define Hg
  qui ttest `1' if e(sample)==1, by(arm)
  global s1= r(sd_2) // set the sd of the project group
  global s2= r(sd_1) // set the sd of the control group
  global n1= r(N_2) // set the sample size of the project group
  global n2= r(N_1) // set the sample size of the control group
  global sd_pooled= sqrt(((s1^2)*($n1-1)+(s2^2)*($n2-1))/($n1+$n2-2)) // pooled sd
  global Var1=$s1^2
  global Var2=$s2^2
  global Var=$sd_pooled^2
  global scale=(1-3/(4*(e(N)-2)-1))
  global H=_b[arm]*$scale
  global z=1.959964 // set the normal associated with two-tail 5% critical value
  global CI_l= $H-$z*_se[arm]*$scale
  global CI_u= $H+$z*_se[arm]*$scale

  di in green "Hedges'g" " in yellow $H
  di in green "ST ERROR" " in yellow _se[arm]
  di in green "lower CI" " in yellow $CI_l
  di in green "upper CI" " in yellow $CI_u
  di in green "treatment Var" " in yellow $Var1
  di in green "control Var" " in yellow $Var2
  di in green "pooled Var" " in yellow $Var
end

/* QUICK PROGRAM FOR HEDGES IN INTERACTION MODEL AND ROBUSTNESS ANALYSIS */

cap program drop quick_hedges
program define quick_hedges
  global b=_b[`2'] // save the project impact coefficient
  global se_b=_se[`2'] // save the se of the coefficient
  qui sum `1' if e(sample)==1
  global sd=r(sd) // Save sd of the baseline score
  qui ttest `1' if e(sample)==1, by(arm)
  global z=1.959964 // set the normal associated with two-tail 5% critical value
  global s1= r(sd_2) // set the sd of the project group
  global s2= r(sd_1) // set the sd of the control group
  global n1= r(N_2) // set the sample size of the project group
  global n2= r(N_1) // set the sample size of the control group
  global sd_pooled= sqrt(((s1^2)*($n1-1)+(s2^2)*($n2-1))/($n1+$n2-2)) // pooled sd
  global var_pooled=$sd_pooled^2 // pooled variance
  global d=$b/$sd_pooled // canonical standardised effect size
  global j=1-(3/(4*($n1+$n2-2)-1)) // calculate value of J
  global g=$d*$j // Hedges' g
  global se_g=$j*($se_b/$sd_pooled) // se of Hedges' g
  global ci_lo_g=$g-$z*$se_g // lower CI of Hedges' g
  global ci_up_g=$g+$z*$se_g // upper CI of Hedges' g
  di ""
  di in green "HEDGES G" " in yellow $g
  di in green "ST ERROR" " in yellow $se_g

```

```

di in green "lower CI" " in yellow $ci_lo_g
di in green "upper CI" " in yellow $ci_up_g
end

/** PROGRAMME STANDARDISING EFFECT SIZES FOR DIFFERENT MODELS */
cap program drop standardise_es
program define standardise_es
syntax varlist(min=2 max=2) [if]

// CANONICAL FORM WITHOUT PRE-TESTS//

qui mixed `2' `1' arm strata_2-strata_12 `if' || setting: , mle covariance(unstructured) // use the
mixed model with random intercept
global b=_b[arm]
// save the project impact coefficient
global se_b=_se[arm] // save the se of the coefficient
global rho=_b["`1'"] // save the pre-post intervention
correlation
qui estat icc
// calculate ICC
global ICC=r(icc2)
// Save ICC
qui sum `1' `if'
global sd=r(sd) // Save sd of the baseline score
qui ttest `1' `if' , by(arm)
global z=1.959964 // set the normal associated with two-tail 5% critical value
global s1= r(sd_2) // set the sd of the project group
global s2= r(sd_1) // set the sd of the control group
global n1= r(N_2) // set the sample size of the project group
global n2= r(N_1) // set the sample size of the control group
global sd_pooled= sqrt(((s1^2)*($n1-1)+(s2^2)*($n2-1))/($n1+$n2-2)) // pooled sd
global var_pooled=$sd_pooled^2
// pooled variance
global d=$b/$sd_pooled
// canonical standardised effect size
global var_d= (($n1+$n2)/($n1*$n2))+ ($d^2/(2*($n1+$n2))) // variance of the std effect
global se_d=sqrt($var_d) // se of the std effect
global ci_lo_d=$d-$z*$se_d // lower CI of the std effect
global ci_up_d=$d+$z*$se_d // upper CI of the std effect
global j=1-(3/(4*($n1+$n2-2)-1)) // calculate value of J
global g=$d*$j // Hedges' g
global var_g=$var_d*$j^2 // var of Hedges' g
global se_g=sqrt($var_g) // se of Hedges' g
global ci_lo_g=$g-$z*$se_g // lower CI of Hedges' g
global ci_up_g=$g+$z*$se_g // upper CI of Hedges' g

di in white "Canonical form"
di in green "STD EFFECT SIZE" " in yellow $d
di in green "ST ERROR" " in yellow $se_d
di in green "lower CI" " in yellow $ci_lo_d
di in green "upper CI" " in yellow $ci_up_d
di in green "pooled sd" " in yellow $sd_pooled
di in green "pooled var" " in yellow $var_pooled
di ""
di in green "HEDGES G" " in yellow $g
di in green "ST ERROR" " in yellow $se_g
di in green "lower CI" " in yellow $ci_lo_g
di in green "upper CI" " in yellow $ci_up_g

// CANONICAL FORM WITH PRE-TESTS//

global d_pre=$d //
the effect size is the same as in canonical form

```

```

global var_d_pre= 2*(1-$rho)*(($n1+$n2)/($n1*$n2))*(($n1+$n2-2)/($n1+$n2-4))*(1+($d_pre^2/(2*(1-
$rho)*(($n1+$n2)/($n1*$n2)))))-(($d_pre^2)/($j^2))
global se_d_pre= sqrt($var_d_pre)
// se of the std effec
global ci_lo_d_pre=$d_pre-$z*$se_d_pre
// lower CI of the std effect
global ci_up_d_pre=$d_pre+$z*$se_d_pre
// upper CI of the std effect
global g_pre=$g // Hedge's g
global var_g_pre=$var_d_pre*$j^2 // var of Hedges' g
global se_g_pre=sqrt($var_g_pre) // se of Hedges' g
global ci_lo_g_pre=$g_pre-$z*$se_g_pre // lower CI of Hedges' g
global ci_up_g_pre=$g_pre+$z*$se_g_pre // upper CI of Hedges' g

di ""
di ""
di in white "Canonical form with pre-test"
di in green "STD EFFECT SIZE" " in yellow $d_pre
di in green "ST ERROR" " in yellow $se_d_pre
di in green "lower CI" " in yellow $ci_lo_d_pre
di in green "upper CI" " in yellow $ci_up_d_pre
di ""
di in green "HEDGES G" " in yellow $g_pre
di in green "ST ERROR" " in yellow $se_g_pre
di in green "lower CI" " in yellow $ci_lo_g_pre
di in green "upper CI" " in yellow $ci_up_g_pre

// MIXED MODEL FORM //

global m=130 // number of clusters
global sd_pooled_mix= sqrt((($sd^2)*(($n1+$n2)-1)-((($b^2)*($n1*$n2))/($n1+$n2)))/($n1+$n2-2)) // sd pooled
for mixed model
global lambda= 1- ((2*((($n1+$n2)/$m)*$ICC)/($n1+$n2-1)) // lambdaadjustment

global d_mix= ($b/$sd_pooled_mix)*sqrt($lambda)
// std effect mixed model
global h=((($n1+$n2-2)- 2*((($n1+$n2)/$m)-1)*$ICC)^2)/((($n1+$n2-2)*((1-$ICC)^2)+((($n1+$n2)/$m)*((($n1+$n2)-
2*((($n1+$n2)/$m))*$ICC^2+2*((($n1+$n2)-2*((($n1+$n2)/$m))*$ICC*(1-$ICC))
global var_d_mix= ($lambda*($se_b/$sd_pooled_mix)^2)+ ($d_mix^2/(2*$h)) // var of std effect
global se_d_mix=sqrt($var_d_mix)
// se of std effect
global ci_lo_d_mix=$d_mix-$z*$se_d_mix
// lower CI of the std effect
global ci_up_d_mix=$d_mix+$z*$se_d_mix
// upper CI of the std effect
global g_mix=$j*$d_mix*sqrt($lambda)
// Hedges's g mixed model
global var_g_mix= ($j^2)*($lambda*($se_b/$sd_pooled_mix)^2)+($g_mix^2/(2*$h)) // var Hedges' g mixed model
global se_g_mix= sqrt($var_g_mix)
// se Hedges' g mixed model
global ci_lo_g_mix=$g_pre-$z*$se_g_mix
// lower CI of Hedges' g
global ci_up_g_mix=$g_pre+$z*$se_g_mix
// upper CI of Hedges' g

di ""
di ""
di in white "Mixed model form"
di in green "STD EFFECT SIZE" " in yellow $d_mix
di in green "ST ERROR" " in yellow $se_d_mix
di in green "lower CI" " in yellow $ci_lo_d_mix
di in green "upper CI" " in yellow $ci_up_d_mix

```



```

di ""
di in green "HEDGES G" " in yellow $g_mix
di in green "ST ERROR" " in yellow $se_g_mix
di in green "lower CI" " in yellow $ci_lo_g_mix
di in green "upper CI" " in yellow $ci_up_g_mix
di in green "variance" " in yellow $var_g_mix

end

////////////////////////////////////
////////////////////////////////////ATTRITION RATE////////////////////////////////////

tab any_test_b
tab any_test_b arm

tab any_test_e
tab any_test_e arm, col

////////////////////////////////////PARTICIPANTS FLOW////////////////////////////////////

/*allocated to project and control group excluding withdrawals*/
tab arm

/*baseline missing composite index by arm*/
tab miss_index_b arm

/*baseline missing renf expressive vocabulary by arm*/
tab miss_expvoc_b arm

/*baseline missing renfrew action picture info by arm*/
tab miss_gramm_b arm

/*baseline missing renfrew action picture grammar by arm*/
tab miss_info_b arm

/*baseline missing GAPS by arm*/
tab miss_gaps_b arm

/*endline missing composite index by arm*/
tab miss_index_e arm

/*endline missing renf expressive vocabulary by arm*/
tab miss_expvoc_e arm

/*endline missing renfrew action picture info by arm*/
tab miss_gramm_e arm

/*endline missing renfrew action picture grammar by arm*/
tab miss_info_e arm

/*endline missing GAPS by arm*/
tab miss_gaps_e arm

/*calculate observations used in the analysis and not used*/
ttest renf_index_e , by/arm)
ttest renf_index_e if miss_index_b==0 , by/arm)

ttest renf_expvoc_e , by/arm)
ttest renf_expvoc_e if miss_expvoc_b==0 , by/arm)

```

```

ttest renf_info_e , by(arm)
ttest renf_info_e if miss_info_b==0 , by(arm)

ttest gaps_e , by(arm)
ttest gaps_e if miss_gaps_b==0 , by(arm)

////////////////////////////////////

//////////////////////////////////// MISSING VALUES //////////////////////////////////////

// TABULATE MISSING CASES //

                                //Baseline//

tab miss_expvoc_b
tab miss_info_b
tab miss_gaps_b

tab arm miss_expvoc_b          /* tabulate by treatment condition*/
tab arm miss_info_b
tab arm miss_gaps_b

tab reasonmiss_expvoc_b        /*reason for missing expressive vocabulary*/
tab reasonmiss_appt_b          /*reason for missing action picture test*/
tab reasonmiss_gaps_b          /*reason for missing gaps*/
tab reasonmiss_gaps_zeros_b     /*reason for missing gaps=0 at baseline*/

                                //Endline//

tab miss_expvoc_e
tab miss_info_e
tab miss_gaps_e

tab arm miss_expvoc_e          /* tabulate by treatment condition*/
tab arm miss_info_e
tab arm miss_gaps_e

tab reasonmiss_expvoc_e if miss_expvoc_e==1          /*reason for missing expressive vocabulary*/
tab reasonmiss_appt_e if miss_info_e==1              /*reason for missing action picture test*/
tab reasonmiss_gaps_e if miss_gaps_e==1              /*reason for missing gaps*/

// COMPARE MISSINGNESS BY ASSIGNMENT GROUP //

                                //Baseline//

ttest miss_expvoc_b, by(arm)
ttest miss_info_b, by(arm)
ttest miss_gaps_b, by(arm)

                                //Endline//

ttest miss_expvoc_e, by(arm)
ttest miss_info_e, by(arm)
ttest miss_gaps_e, by(arm)

// IDENTIFY VARIABLES CORRELATED WITH MISSINGNESS //

/*Define the covariates */
global X "gender age_b EYPP EAL IDACI strata_2 strata_3 strata_4 strata_5 strata_6 strata_7 strata_8 strata_9
strata_10 strata_11 strata_12"

/*EXPLAIN AND COMPARE MISSINGNESS */

```

```

compare_missing miss_expvoc_b
compare_missing miss_info_b
compare_missing miss_gaps_b

/*Baseline*/

compare_missing miss_expvoc_e
compare_missing miss_info_e
compare_missing miss_gaps_e

/*Endline*/

////////////////////////////////////

//////////////////////////////////// BASELINE BALANCE //////////////////////////////////////

// Standardise continuous variables //
foreach var of varlist age_b renf_index_b renf_expvoc_b renf_info_b renf_gram_b gaps_b {
  qui sum `var' if arm==0
  global n0=r(N)
  global sd0=r(sd)
  qui sum `var' if arm==1
  global n1=r(N)
  global sd1=r(sd)
  global pooled_sd=sqrt(((sd1^2)*($n1-1)+(sd0^2)*($n0-1))/($n1+$n0-2))
  qui sum `var'
  gen z_`var'=(`var'-r(mean))/pooled_sd
}

// Main comparisons //

// Tabulate means and standard deviations for each variable by assignment //
table ( arm ) (), statistic(mean gender age_b EYPP EAL IDACI pvi renf_index_b renf_expvoc_b renf_info_b
renf_gram_b gaps_b ) statistic(sd gender age_b EYPP EAL IDACI renf_index_b renf_expvoc_b renf_info_b renf_gram_b
gaps_b) nototals nformat(%9.3f)

// Tabulate difference in the means by assignment and se equivalent to sd //
foreach var of varlist z_age_b z_renf_index_b z_renf_expvoc_b z_renf_info_b z_renf_gram_b z_gaps_b {
  qui ttest `var', by(arm)
  di ""
  di in green "`var'"
  di ""
  di in green "difference" in yellow %9.3f r(mu_2)-r(mu_1)
  di in green "standard error" in yellow %9.3f r(se)
  di in green "lower CI" in yellow %9.3f (r(mu_2)-r(mu_1))-1.96*r(se)
  di in green "upper CI" in yellow %9.3f (r(mu_2)-r(mu_1))+1.96*r(se)
  di ""
}

// Sub group comparisons //

/*EYPP subgroup*/

// Tabulate means and standard deviations for each variable by assignment and subgroup //
table ( EYPP arm ) (), statistic(mean gender age_b EAL IDACI renf_index_b renf_expvoc_b renf_info_b renf_gram_b
gaps_b ) statistic(sd gender age_b EAL IDACI renf_index_b renf_expvoc_b renf_info_b renf_gram_b gaps_b) nototals
nformat(%9.3f)

// Tabulate difference in the means by assignment and se equivalent to sd for each subgroup separately //
foreach var of varlist z_age_b z_renf_index_b z_renf_expvoc_b z_renf_info_b z_renf_gram_b z_gaps_b {
  qui ttest `var' if EYPP==0, by(arm)
  di ""
}

```

```

di in green "`var'"
di ""
di in green "difference    " in yellow %9.3f r(mu_2)-r(mu_1)
di in green "standard error  " in yellow %9.3f r(se)
di ""
}

foreach var of varlist z_age_b z_renf_index_b z_renf_expvoc_b z_renf_info_b z_renf_gram_b z_gaps_b {
  qui ttest `var' if EYPP==1, by(arm)
  di ""
  di in green "`var'"
  di ""
  di in green "difference    " in yellow %9.3f r(mu_2)-r(mu_1)
  di in green "standard error  " in yellow %9.3f r(se)
  di ""
}

/*EAL subgroup*/

// Tabulate means and standard deviations for each variable by assignment and subgroup //
table () ( EAL arm ) (), statistic(mean gender age_b EYPP IDACI renf_index_b renf_expvoc_b renf_info_b renf_gram_b
gaps_b ) statistic(sd gender age_b EAL IDACI renf_index_b renf_expvoc_b renf_info_b renf_gram_b gaps_b) nototals
nformat(%9.3f)

// Tabulate difference in the means by assignment and se equivalent to sd for each subgroup separately //
foreach var of varlist z_age_b z_renf_index_b z_renf_expvoc_b z_renf_info_b z_renf_gram_b z_gaps_b {
  qui ttest `var' if EYPP==0, by(arm)
  di ""
  di in green "`var'"
  di ""
  di in green "difference    " in yellow %9.3f r(mu_2)-r(mu_1)
  di in green "standard error  " in yellow %9.3f r(se)
  di ""
}

foreach var of varlist z_age_b z_renf_index_b z_renf_expvoc_b z_renf_info_b z_renf_gram_b z_gaps_b {
  qui ttest `var' if EYPP==1, by(arm)
  di ""
  di in green "`var'"
  di ""
  di in green "difference    " in yellow %9.3f r(mu_2)-r(mu_1)
  di in green "standard error  " in yellow %9.3f r(se)
  di ""
}

/*tabulations for the number counts of observations*/

tab EYPP arm if any_test_b==1
tab EAL arm if any_test_b==1
tab gender arm if any_test_b==1
tab age_b arm if any_test_b==1

////////////////////////////////////

//////////////////////////////////// ANALYSIS BALANCE TABLE //////////////////////////////////////

preserve

/* keep observations with full cases for the primary outcome */

```



```

keep if renf_index_e~= . & renf_index_b~= .

// Main comparisons //

// Tabulate means and standard deviations for each variable by assignment //
table () ( arm ) (), statistic(mean gender age_b EYPP EAL IDACI pvi renf_index_b renf_expvoc_b renf_info_b
renf_gram_b gaps_b ) statistic(sd gender age_b EYPP EAL IDACI renf_index_b renf_expvoc_b renf_info_b renf_gram_b
gaps_b) nototals nformat(%9.3f)

// Tabulate difference in the means by assignment and se equivalent to sd //
foreach var of varlist z_age_b z_renf_index_b z_renf_expvoc_b z_renf_info_b z_renf_gram_b z_gaps_b {
  qui ttest `var', by(arm)
  di ""
  di in green "`var'"
  di ""
  di in green "difference      " in yellow %9.3f r(mu_2)-r(mu_1)
  di in green "standard error  " in yellow %9.3f r(se)
  di in green "lower CI       " in yellow %9.3f (r(mu_2)-r(mu_1))-1.96*r(se)
  di in green "upper CI      " in yellow %9.3f (r(mu_2)-r(mu_1))+1.96*r(se)
  di ""
}

/*tabulations for the number counts of observations*/

tab EYPP arm if any_test_b==1, col
tab EAL arm if any_test_b==1, col
tab gender arm if any_test_b==1, col
tab age_b arm if any_test_b==1, col

restore

////////////////////////////////////

////////////////////////////////////HISTOGRAMS OF ASSESSMENTS////////////////////////////////////

twoway (histogram renf_index_b if arm==0 & renf_index_e ~= ., percent color(orange%30)) ///
(histogram renf_index_b if arm==1 & renf_index_e ~= ., percent color(blue%30)), ///
xtitle("Renfrew index score") ///
ytitle("Percent") ///
yscale(range(0 10)) ///
ylabel(0(2)10) ///
xscale(range(-2 4)) ///
xlabel(-2(1)4) ///
legend(label(1 "Control") label(2 "Talking Time")) ///
title("Baseline by arm")

twoway (histogram renf_index_e if arm==0 & renf_index_b ~= ., percent color(orange%30)) ///
(histogram renf_index_e if arm==1 & renf_index_b ~= ., percent color(blue%30)), ///
xtitle("Renfrew index score") ///
ytitle("Percent") ///
yscale(range(0 10)) ///
ylabel(0(2)10) ///
xscale(range(-2 4)) ///
xlabel(-2(1)4) ///
legend(label(1 "Control") label(2 "Talking Time")) ///
title("Follow-up by arm")

```

```

histogram renf_index_b if renf_index_e==., percent xtitle(`"Renfrew index score"`) title(`"Baseline"`) yscale(range(0
10)) ylabel(0(2)10) xscale(range(-2 4)) xlabel(-2(1)4)
histogram renf_index_e if renf_index_b==., percent xtitle(`"Renfrew index score"`) title(`"Follow-up"`) yscale(range(0
10)) ylabel(0(2)10) xscale(range(-2 4)) xlabel(-2(1)4)

```

```

histogram renf_expvoc_b if renf_index_e~=. , percent xtitle(`"REV score"') title(`"Baseline"') yscale(range(0 10))
ylabel(0(2)10) xscale(range(0 60)) xlabel(0(10)60)
histogram renf_expvoc_e if renf_index_b~=. , percent xtitle(`"REV score"') title(`"Follow-up"') yscale(range(0 10))
ylabel(0(2)10) xscale(range(0 60)) xlabel(0(10)60)

```

```

histogram renf_info_b if renf_info_e==., percent xtitle(`"RAPT info score"`) title(`"Baseline"`) yscale(range(0 10))
ylabel(0(2)10) xscale(range(0 40)) xlabel(0(10)40)
histogram renf_info_e if renf_info_b==., percent xtitle(`"RAPT info score"`) title(`"Follow-up"`) yscale(range(0 10))
ylabel(0(2)10) xscale(range(0 40)) xlabel(0(10)40)

```

```

histogram renf_gram_b if renf_gram_e==., percent xtitle(`"RAPT grammar score"`) title(`"Baseline"`) yscale(range(0
10)) ylabel(0(2)10) xscale(range(0 40)) xlabel(0(10)40)
histogram renf_gram_e if renf_gram_b==., percent xtitle(`"RAPT grammar score"`) title(`"Follow-up"`) yscale(range(0
10)) ylabel(0(2)10) xscale(range(0 40)) xlabel(0(10)40)

```

```

histogram gaps_b if gaps_e==., percent xtitle(`"GAPS score"') title(`"Baseline"') yscale(range(0 50)) ylabel(0(10)100)
histogram gaps_e if gaps_b==., percent xtitle(`"GAPS score"') title(`"Follow_up"') yscale(range(0 50))
ylabel(0(10)100)

```

////////////////////////////////////

//////////////////////////////// PRIMARY ANALYSIS: TREATMENT EFFEECTS //////////////////////////////////

```
/*Primary outcome*/
```

```
// MULTILEVEL RANDOM INTERCEPT MODEL WITH STRATA //
```

```
// Hedges' g //
Hg renf_index_b
```

```
/*level 1 within setting residuals*/
predict r_cond, resid
histogram r_cond, normal
qnorm r_cond
/*level 2 random intercepts residuals*/
predict u_setting, reflects
qnorm u_setting
```

/*exploratory subgroup analysis by PVI status*/

```
// SEPARATE REGRESSIONS BY GROUP //
mixed renf index e renf index b arm strata 2-strata 12 || setting: if pvi==1. mle covariance(unstructured)
```

```
// Hedges' g //
Hg renf index b
```

```
mixed renf_index_e renf_index_b arm strata_2-strata_12 || setting: if pvi==0, mle covariance(unstructured)
```

```
// Hedges' g //
Hg renf_index_b
```

```
// REGRESSION WITH INTERACTION TERM //
```

```

mixed renf_index_e renf_index_b arm pvi pvi_arm strata_2-strata_12 || setting:, mle covariance(unstructured)

/// standardised effect
quick_hedges renf_index_b pvi_arm

/* Subgroup analysis: Primary outcome EYPP*/

// SEPARATE REGRESSIONS BY GROUP //
mixed renf_index_e renf_index_b arm strata_2-strata_12 || setting: if EYPP==1, mle covariance(unstructured)
  global pv1= 2 * (1 - normal(abs(_b[arm]/_se[arm])))
  global es1=_b[arm]

// Hedges' g //
Hg renf_index_b

mixed renf_index_e renf_index_b arm strata_2-strata_12 || setting: if EYPP==0, mle covariance(unstructured)

// REGRESSION WITH INTERACTION TERM //
gen EYPP_arm=EYPP*arm
mixed renf_index_e renf_index_b arm EYPP EYPP_arm strata_2-strata_12 || setting:, mle covariance(unstructured)

/// standardised effect
quick_hedges renf_index_b EYPP_arm

/* Subgroup analysis: Primary outcome EAL*/

// SEPARATE REGRESSIONS BY GROUP //
mixed renf_index_e renf_index_b arm strata_2-strata_12 || setting: if EAL==1, mle covariance(unstructured)
  global pv2= 2 * (1 - normal(abs(_b[arm]/_se[arm])))
  global es2=_b[arm]

// Hedges' g //
Hg renf_index_b

mixed renf_index_e renf_index_b arm strata_2-strata_12 || setting: if EAL==0, mle covariance(unstructured)

// REGRESSION WITH INTERACTION TERM //
gen EAL_arm=EAL*arm
mixed renf_index_e renf_index_b arm EAL EAL_arm strata_2-strata_12 || setting:, mle covariance(unstructured)

/// standardised effect
quick_hedges renf_index_b EAL_arm

/* TABLE 8: UNADJUSTED MEANS TAKE THE HEDGES VALUE FROM STANDARDISED RESULTS,
THE P-VALUE IS THE SAME AS THE P-VALUE IN THE REGRESSION OUTPUT */

ttest renf_index_e if renf_index_b~., by(arm)

/*TABLE 2 IN THE APPENDIX:
UNADJUSTED DIFFERENCE FROM THE T-TEST ABOVE
ADJUSTED DIFFERENCE FROM THE MIXED MODEL REGRESSION OUTPUT
N_p AND N_c FROM THE T-TEST ABOVE
VARIANCES: SQUARE THE SD FROM THE T-TEST ABOVE
POOLED VARIANCE IS IN THE OUTPUT OF THE STANDARDISED FORM IN THE CANONICAL FORM
*/

/*TABLE 9: UNADJUSTED MEANS FOR THE SUBGROUPS OF EYPP AND EAL
MEANS AND SAMPLES FROM THE TESTS BELOW
CALCULATE THE MISSING VALUES AS THE DIFFERENCE FROM THE OVERALL SAMPLE*/

```

```

ttest renf_index_e if EYPP==1 & renf_index_b~=. , by(arm)
ttest renf_index_e if EYPP==0 & renf_index_b~=. , by(arm)
ttest renf_index_e if renf_index_b~=. , by(arm)

ttest renf_index_e if EAL==1 & renf_index_b~=. , by(arm)
ttest renf_index_e if EAL==0 & renf_index_b~=. , by(arm)
ttest renf_index_e if renf_index_b~=. , by(arm)

ttest renf_index_e if pvi==1 & renf_index_b~=. , by(arm)
ttest renf_index_e if pvi==0 & renf_index_b~=. , by(arm)

/////////////////////////////////////////////////////////////////

///////////////////////////////////////////////////////////////// SECONDARY ANALYSIS: TREATMENT EFFECTS ///////////////////////////////////////////////////////////////////

                                                                    /*Secondary outcomes*/

// MULTILEVEL RANDOM INTERCEPT MODEL WITH STRATA //
mixed renf_expvoc_e renf_expvoc_b arm strata_2-strata_12 || setting:, mle covariance(unstructured)

// MULTILEVEL RANDOM INTERCEPT MODEL WITH STRATA //
mixed renf_info_e renf_info_b arm strata_2-strata_12 || setting:, mle covariance(unstructured)

// MULTILEVEL RANDOM INTERCEPT MODEL WITH STRATA //
mixed renf_gram_e renf_gram_b arm strata_2-strata_12 || setting:, mle covariance(unstructured)

// MULTILEVEL RANDOM INTERCEPT MODEL WITH STRATA //
mixed gaps_e gaps_b arm strata_2-strata_12 || setting:, mle covariance(unstructured)

/* Subgroup analysis: secondary outcomes EYPP */

                                                                    /** Subgroup analysis: renfrew expressive vocabulary */

mixed renf_expvoc_e renf_expvoc_b arm strata_2-strata_12 || setting: if EYPP==1, mle covariance(unstructured)
  global pv3= 2 * (1 - normal(abs(_b[arm])/_se[arm])))
  global es3=_b[arm]

mixed renf_expvoc_e renf_expvoc_b arm strata_2-strata_12 || setting: if EYPP==0, mle covariance(unstructured)

// REGRESSION WITH INTERACTION TERM //
mixed renf_expvoc_e renf_expvoc_b arm EYPP EYPP_arm strata_2-strata_12 || setting:, mle
covariance(unstructured)

/// standardised effect
quick_hedges renf_expvoc_b EYPP_arm

                                                                    /** Subgroup analysis: renfrew apt info */

mixed renf_info_e renf_info_b arm strata_2-strata_12 || setting: if EYPP==1, mle covariance(unstructured)
  global pv4= 2 * (1 - normal(abs(_b[arm])/_se[arm])))
  global es4=_b[arm]

mixed renf_expvoc_e renf_expvoc_b arm strata_2-strata_12 || setting: if EYPP==0, mle covariance(unstructured)

// REGRESSION WITH INTERACTION TERM //
mixed renf_info_e renf_info_b arm EYPP EYPP_arm strata_2-strata_12 || setting:, mle covariance(unstructured)

```



```

/// standardised effect
quick_hedges renf_info_b EYPP_arm

                                                                    /** Subgroup analysis: renfrew grammar */
mixed renf_gram_e renf_gram_b arm strata_2-strata_12 || setting: if EYPP==1, mle covariance(unstructured)
  global pv5= 2 * (1 - normal(abs(_b[arm]/_se[arm])))
  global es5=_b[arm]

mixed renf_gram_e renf_gram_b arm strata_2-strata_12 || setting: if EYPP==0, mle covariance(unstructured)

// REGRESSION WITH INTERACTION TERM //
mixed renf_gram_e renf_gram_b arm EYPP EYPP_arm strata_2-strata_12 || setting:, mle covariance(unstructured)

/// standardised effect
quick_hedges renf_gram_b EYPP_arm

                                                                    /** Subgroup analysis: GAPS */

mixed gaps_e gaps_b arm strata_2-strata_12 || setting: if EYPP==1, mle covariance(unstructured)
  global pv6= 2 * (1 - normal(abs(_b[arm]/_se[arm])))
  global es6=_b[arm]

mixed gaps_e gaps_b arm strata_2-strata_12 || setting: if EYPP==0, mle covariance(unstructured)

// REGRESSION WITH INTERACTION TERM //
mixed gaps_e gaps_b arm EYPP EYPP_arm strata_2-strata_12 || setting:, mle covariance(unstructured)

/// standardised effect
quick_hedges gaps_b EYPP_arm

                                                                    /* Secondary outcomes EAL */

                                                                    /** Subgroup analysis: renfrew expressive vocabulary */

mixed renf_expvoc_e renf_expvoc_b arm strata_2-strata_12 || setting: if EAL==1, mle covariance(unstructured)
  global pv7= 2 * (1 - normal(abs(_b[arm]/_se[arm])))
  global es7=_b[arm]

mixed renf_expvoc_e renf_expvoc_b arm strata_2-strata_12 || setting: if EAL==0, mle covariance(unstructured)

// REGRESSION WITH INTERACTION TERM //
mixed renf_expvoc_e renf_expvoc_b arm EAL EAL_arm strata_2-strata_12 || setting:, mle covariance(unstructured)

/// standardised effect
quick_hedges renf_expvoc_b EAL_arm

                                                                    /** Subgroup analysis: renfrew apt info */

mixed renf_info_e renf_info_b arm strata_2-strata_12 || setting: if EAL==1, mle covariance(unstructured)
  global pv8= 2 * (1 - normal(abs(_b[arm]/_se[arm])))
  global es8=_b[arm]

mixed renf_expvoc_e renf_expvoc_b arm || setting: if EAL==0, mle covariance(unstructured)

// REGRESSION WITH INTERACTION TERM //
mixed renf_info_e renf_info_b arm EAL EAL_arm strata_2-strata_12 || setting:, mle covariance(unstructured)

/// standardised effect
quick_hedges renf_info_b EAL_arm

                                                                    /** Subgroup analysis: renfrew gram */

mixed renf_gram_e renf_gram_b arm strata_2-strata_12 || setting: if EAL==1, mle covariance(unstructured)

```

```

global pv9= 2 * (1 - normal(abs(_b[arm]/_se[arm])))
global es9=_b[arm]

mixed renf_gram_e renf_gram_b arm strata_2-strata_12 || setting: if EAL==0, mle covariance(unstructured)

// REGRESSION WITH INTERACTION TERM //
mixed renf_gram_e renf_gram_b arm EAL EAL_arm strata_2-strata_12 || setting:, mle covariance(unstructured)

/// standardised effect
quick_hedges renf_gram_b EAL_arm

                                                                    /** Subgroup analysis: GAPS */

mixed gaps_e gaps_b arm strata_2-strata_12 || setting: if EAL==1, mle covariance(unstructured)
global pv10= 2 * (1 - normal(abs(_b[arm]/_se[arm])))
global es10=_b[arm]

mixed gaps_e gaps_b arm strata_2-strata_12 || setting: if EAL==0, mle covariance(unstructured)

// REGRESSION WITH INTERACTION TERM //
mixed gaps_e gaps_b arm EAL EAL_arm strata_2-strata_12 || setting:, mle covariance(unstructured)

/// standardised effect
quick_hedges gaps_b EAL_arm

/* TABLE 11: UNADJUSTED MEANS TAKE THE HEDGES VALUE FROM STANDARDISED RESULTS,
THE P-VALUE IS THE SAME AS THE P-VALUE IN THE REGRESSION OUTPUT */

ttest renf_expvoc_e if renf_expvoc_b~=. , by(arm)
ttest renf_info_e if renf_info_b~=. , by(arm)
ttest renf_gram_e if renf_gram_b~=. , by(arm)
ttest gaps_e if gaps_b~=. , by(arm)

/*TABLE 2 IN THE APPENDIX:
UNADJUSTED DIFFERENCE FROM THE T-TEST ABOVE
ADJUSTED DIFFERENCE FROM THE MIXED MODEL REGRESSION OUTPUT
N_p AND N_c FROM THE T-TEST ABOVE
VARIANCES: SQUARE THE SD FROM THE T-TEST ABOVE
POOLED VARIANCE IS IN THE OUTPUT OF THE STANDARDISED FORM IN THE CANONICAL FORM
*/

/*TABLE 9: UNADJUSTED MEANS FOR THE SUBGROUPS OF EYPP AND EAL
MEANS AND SAMPLES FROM THE TESTS BELOW
CALCULATE THE MISSING VALUES AS THE DIFFERENCE FROM THE OVERALL SAMPLE*/

cap program drop subgroup_means
program define subgroup_means

ttest `1' if EYPP==1 & `2'~=. , by(arm)
ttest `1' if EYPP==0 & `2'~=. , by(arm)
ttest `1' if `2'~=. , by(arm)

ttest `1' if EAL==1 & `2'~=. , by(arm)
ttest `1' if EAL==0 & `2'~=. , by(arm)
ttest `1' if `2'~=. , by(arm)
end

subgroup_means renf_expvoc_e renf_expvoc_b
subgroup_means renf_info_e renf_info_b
subgroup_means renf_gram_e renf_gram_b
subgroup_means gaps_e gaps_b

```

[illegible]

////////////////////// MULTIPLE HYPOTHESES TESTING //

```
// Save previous dataset
preserve
```

```
// Create a dataset with the saved p-values //
clear
set obs 10
gen pv=0
replace pv=$pv1 in 1
replace pv=$pv2 in 2
replace pv=$pv3 in 3
replace pv=$pv4 in 4
replace pv=$pv5 in 5
replace pv=$pv6 in 6
replace pv=$pv7 in 7
replace pv=$pv8 in 8
replace pv=$pv9 in 9
replace pv=$pv10 in 10
```

```
gen es=0
replace es=$es1 in 1
replace es=$es2 in 2
replace es=$es3 in 3
replace es=$es4 in 4
replace es=$es5 in 5
replace es=$es6 in 6
replace es=$es7 in 7
replace es=$es8 in 8
replace es=$es9 in 9
replace es=$es10 in 10
```

```
// Apply FDR adjustment
sort pv // Sort effect sizes by the p-value
gen i=_n // Index p-values in ascending order
gen pi=(i/10)*0.10 // Generate BH threshold
gen FDR=0
replace FDR=1 if pv<pi // Find FDR-significant results
egen pimax=max(pi) if FDR==1 // Find maximum BH threshold
qui sum pimax
replace FDR=1 if pi<r(mean) & pimax~=.
replace pimax=r(mean) if FDR==1
list es pv pi FDR pimax
```

```
// Restore previous dataset
restore
```

////////////////////////////////////

////////// STANDARDISE THE RESULTS (SECONDARY OUTCOMES ASSESSMENTS) //////////

```
expressive vocabulary *//                                     /* Renfrew
standardise_es renf_expvoc_b renf_expvoc_e
```

```

RAPT info *//                                     /* Renfrew

standardise_es renf_info_b renf_info_e

                                                    /* Renfrew

RAPT grammar *//

standardise_es renf_gram_b renf_gram_e

                                                    /* GAPS */

standardise_es gaps_b gaps_e

                                                    /* Subgroup effects*/

                                                    // EYPP //

standardise_es renf_expvoc_b renf_expvoc_e if EYPP==1      /* Renfrew expressive vocabulary */

standardise_es renf_info_b renf_info_e if EYPP==1          /* Renfrew RAPT info */

standardise_es renf_gram_b renf_gram_e if EYPP==1          /* Renfrew RAPT grammar */

standardise_es gaps_b gaps_e if EYPP==1                    /* GAPS */

                                                    // EAL //

standardise_es renf_expvoc_b renf_expvoc_e if EAL==1        /* Renfrew expressive vocabulary */

standardise_es renf_info_b renf_info_e if EAL==1            /* Renfrew RAPT info */

standardise_es renf_gram_b renf_gram_e if EAL==1            /* Renfrew RAPT grammar */

standardise_es gaps_b gaps_e if EAL==1                      /* GAPS */


////////////////////////////////////////////////////////////////////////////////////////////////////////////////

////////////////////////////////////////////////////////////////////////////////////////////////////////////////** ROBUSTNESS ANALYSIS **////////////////////////////////////////////////////////////////////////////////////////////////////////////////

cap program drop robustness
program define robustness

di in white "LEAST SQUARE MODEL WITH STRATA FIXED EFFECTS"
reg `1' `2' arm strata_2-strata_12, cluster(setting)

/// standardised effect
quick_hedges `2' arm

di ""
di in white "MULTILEVEL RANDOM INTERCEPT MODEL WITH RANDOM SLOPES"
mixed `1' `2' arm strata_2-strata_12 || setting: arm, mle covariance(unstructured) technique(nr dfp bfgs)
estimates store randslope                                // store the results //

/// standardised effect
quick_hedges `2' arm

```



```

di in white ""
di in white "MULTILEVEL RANDOM INTERCEPT MODEL"
mixed `1' `2' arm strata_2-strata_12 || setting:, mle covariance(unstructured)
estimates store randint                                     // store the results //

di ""
di in white "LIKELIHOOD RATIO TEST OF DIFFERENCE BETWEEN RANDOM SLOPE AND RANDOM INTERCEPT
MODELS"
lrtest randslope randint                                     // test the random slope model
against the other //
/*the likelihood ratio test, assesses whether the more complex model (random slope) improve model fit
if model fit improves with complex model, the hypothesis is rejected and pvalue<0.05
random slope should be accepted, otherwise the simpler model should be retained*/

di ""
di ""
di in white "SATURATED MODELS"

di in white "SATURATED LEAST SQUARE MODEL WITH STRATA FIXED EFFECTS AND COVARIATES"
reg `1' `2' arm $X, cluster(school)

/// standardised effect
quick_hedges `2' arm

di ""
di in white "SATURATED MULTILEVEL RANDOM INTERCEPT MODEL"
mixed `1' `2' arm $X || setting:, mle covariance(unstructured)

/// standardised effect
quick_hedges `2' arm

di ""
di in white "SATURATED MULTILEVEL RANDOM INTERCEPT MODEL WITH RANDOM SLOPES"
mixed `1' `2' arm $X || setting: arm, mle covariance(unstructured) technique(nr dfp bfgs)

/// standardised effect
quick_hedges `2' arm

di ""
di in white "SATURATED MULTILEVEL RANDOM INTERCEPT MODEL: EYPPP" //
mixed `1' `2' arm EYPP_arm $X || setting:, mle covariance(unstructured)

di ""
di in white "SATURATED MULTILEVEL RANDOM INTERCEPT MODEL: EAL"
mixed `1' `2' arm EAL_arm $X || setting: , mle covariance(unstructured)
end

                                     //Robustness analysis for each assessment//

robustness renf_index_e renf_index_b

robustness renf_expvoc_e renf_expvoc_b

robustness renf_info_e renf_info_b

robustness renf_gram_e renf_gram_b

robustness gaps_e gaps_b

cap program drop robustness_index

```

```

program define robustness_index

di in white "LEAST SQUARE MODEL WITH STRATA FIXED EFFECTS"
reg `1' `2' arm strata_2-strata_12, cluster(setting)

/// standardised effect
Hg renf_index_b

di ""
di in white "MULTILEVEL RANDOM INTERCEPT MODEL WITH RANDOM SLOPES"
mixed `1' `2' arm strata_2-strata_12 || setting: arm, mle covariance(unstructured) technique(nr dfp bfgs)
estimates store randslope // store the results //

/// standardised effect
Hg renf_index_b

di in white ""
di in white "MULTILEVEL RANDOM INTERCEPT MODEL"
mixed `1' `2' arm strata_2-strata_12 || setting:, mle covariance(unstructured)
estimates store randint // store the results //

di ""
di in white "LIKELIHOOD RATIO TEST OF DIFFERENCE BETWEEN RANDOM SLOPE AND RANDOM INTERCEPT
MODELS"
lrtest randslope randint // test the random slope model
against the other //
/*the likelihood ratio test, assesses whether the more complex model (random slope) improve model fit
if model fit improves with complex model, the hypothesis is rejected and pvalue<0.05
random slope should be accepted, otherwise the simpler model should be retained*/

di ""
di ""
di in white "SATURATED MODELS"

di in white "SATURATED LEAST SQUARE MODEL WITH STRATA FIXED EFFECTS AND COVARIATES"
reg `1' `2' arm $X, cluster(school)

/// standardised effect
Hg renf_index_b

di ""
di in white "SATURATED MULTILEVEL RANDOM INTERCEPT MODEL"
mixed `1' `2' arm $X || setting:, mle covariance(unstructured)

/// standardised effect
Hg renf_index_b

di ""
di in white "SATURATED MULTILEVEL RANDOM INTERCEPT MODEL WITH RANDOM SLOPES"
mixed `1' `2' arm $X || setting: arm, mle covariance(unstructured) technique(nr dfp bfgs)

/// standardised effect
Hg renf_index_b

di ""
di in white "SATURATED MULTILEVEL RANDOM INTERCEPT MODEL: EYPPP" //
mixed `1' `2' arm EYPP_arm $X || setting:, mle covariance(unstructured)

di ""
di in white "SATURATED MULTILEVEL RANDOM INTERCEPT MODEL: EAL"
mixed `1' `2' arm EAL_arm $X || setting: , mle covariance(unstructured)
end

```

```

robustness_index renf_index_e renf_index_b

////////// PRE-POST TEST CORRELATION //////////

corr renf_index_e renf_index_b

//////////

////////// INTRA-CLUSTER CORRELATIONS //////////

cap program drop calculate_ICC
program define calculate_ICC
di in white "EMPTY MODEL WITH NOT COVARIATES PRE-INTERVENTION ICC"
qui mixed `1' strata_2-strata_12 || setting:, mle
estat icc

di in white "MODEL WITH COVARIATES PRE-INTERVENTION ICC"
qui mixed `1' $X strata_2-strata_12 || setting:, mle
estat icc

di in white "EMPTY MODEL WITH NOT COVARIATES POST-INTERVENTION ICC"
qui mixed `2' strata_2-strata_12 || setting:, mle
estat icc

di in white "MODEL WITH COVARIATES POST-INTERVENTION ICC"
qui mixed `2' `1' $X strata_2-strata_12 || setting:, mle
estat icc
end

calculate_ICC renf_index_b renf_index_e

calculate_ICC renf_expvoc_b renf_expvoc_e

calculate_ICC renf_info_b renf_info_e

calculate_ICC renf_gram_b renf_gram_e

calculate_ICC gaps_b gaps_e

//////////

////////// GAPS floor effects //////////

// internal consistency using Cronbach's alpha */
alpha gaps_correct_1 gaps_correct_2 gaps_correct_3 gaps_correct_4 gaps_correct_6 gaps_correct_8
gaps_correct_9 gaps_correct_10 gaps_correct_11 gaps_correct_12 gaps_correct_13, item

alpha gaps_correct_1_endline gaps_correct_2_endline gaps_correct_3_endline gaps_correct_4_endline
gaps_correct_6_endline gaps_correct_8_endline gaps_correct_9_endline gaps_correct_10_endline
gaps_correct_11_endline gaps_correct_12_endline gaps_correct_13_endline, item

/* regress endline GAPS against the baseline Renfrew index */
mixed gaps_e renf_index_b arm || setting:, mle covariance(unstructured)

mixed gaps_e renf_index_b arm strata_2-strata_12 || setting:, mle covariance(unstructured)

mixed gaps_e renf_index_b arm $X || setting:, mle covariance(unstructured)

```

```
replace gaps_b=. if gaps_b==0
```

```
gsem ///
  (renf_gram_e <- renf_gram_b arm) ///
  (renf_expvoc_e <- renf_expvoc_b arm) ///
  (gaps_e <- gaps_b arm) ///
  (renf_info_e <- renf_info_b arm), ///
  latent(lat_set) ///
  cov(e.renf_gram_e*e.renf_expvoc_e) ///
  cov(e.renf_gram_e*e.gaps_e) ///
  cov(e.renf_gram_e*e.renf_info_e) ///
  cov(e.renf_expvoc_e*e.gaps_e) ///
  cov(e.renf_expvoc_e*e.renf_info_e) ///
  cov(e.gaps_e*e.renf_info_e)
```

```
/*use multiple imputation to assign values to missing baseline GAPS observations */
```

```
mi set wide
```

```
mi register imputed gaps_b
```

```
mi register regular gaps_e arm gender age_b EYPP EAL renf_expvoc_b renf_info_b renf_gram_b setting strata
```

```
mi impute chained (regress) gaps_b = gaps_e arm arm gender age_b EYPP EAL renf_expvoc_b renf_info_b
renf_gram_b i.setting i.strata, add(50) rseed(202503) force
```

```
mi estimate: mixed gaps_e gaps_b arm || setting:, mle covariance(unstructured)
```

```
////////// ATTENDANCE //////////////////////////////////////
```

```
/* attendance of all sessions*/
```

```
egen att=rowtotal(att_w1_1 att_w1_2 att_w2_1 att_w2_2 att_w3_1 att_w3_2 att_w4_1 att_w4_2 att_w5_1 att_w5_2
att_w6_1 att_w6_2 att_w7_1 att_w7_2 att_w8_1 att_w8_2 att_w9_1 att_w9_2 att_w10_1 att_w10_2 att_w11_1
att_w11_2 att_w11_3 att_w12_1 att_w12_2 att_w13_1 att_w13_2 att_w14_1 att_w14_2 att_w15_1 att_w15_2
att_w16_1 att_w16_2 att_w17_1 att_w17_2 att_w18_1 att_w18_2 att_w19_1 att_w19_2 att_w20_1 att_w20_2)
```

```
/*attendance of SC sessions*/
```

```
egen att_sc=rowtotal(att_w1_1 att_w1_2 att_w2_1 att_w2_2 att_w3_1 att_w3_2 att_w4_1 att_w5_1 att_w6_1 att_w7_1
att_w8_1 att_w9_1 att_w10_1 att_w11_1 att_w12_1 att_w13_1 att_w14_1 att_w15_1 att_w16_1 att_w17_1 att_w18_1
att_w19_1 att_w20_1)
```

```
/*attendance at WP sessions*/
```

```
egen att_wp=rowtotal(att_w4_2 att_w5_2 att_w6_2 att_w7_2 att_w8_2 att_w9_2 att_w10_2 att_w11_2)
```

```
/*attendance at HEX sessions*/
```

```
egen att_hex=rowtotal(att_w11_3 att_w12_2 att_w13_2 att_w14_2 att_w15_2 att_w16_2 att_w17_2 att_w18_2
att_w19_2 att_w20_2)
```

```
/*set attendance to missing in the control group*/
```

```
foreach var of varlist att att_sc att_wp att_hex {
  replace `var'=. if arm==0
}
```

```
/*generate percent attendance at all sessions*/
```

```
gen att_pc=att/41
gen att_sc_pc=att_sc/23
gen att_wp_pc=att_wp/8
```



```

gen att_hex_pc=att_hex/10

/* only include children who took any test at the endline */

/* number of sessions attended */

histogram att if any_test_e==1, ///
  ytitle("Percent attended") ///
  xtitle("Talking Time sessions") ///
  xlabel(0(5)41)

/* percent of sessions attended overall and per module */

sum att_pc att_sc_pc att_wp_pc att_hex_pc
sum att_pc att_sc_pc att_wp_pc att_hex_pc if any_test_b==1
sum att_pc att_sc_pc att_wp_pc att_hex_pc if any_test_e==1

/* plot of percent of children attending at least n sessions */

preserve
keep if any_test_e==1
keep if arm==1
keep att

// Expand dataset to create thresholds 0..41 for each observation
gen id = _n
expand 42
bysort id: gen threshold = _n - 1

gen at_least = att >= threshold

// Collapse to percentage
collapse (mean) at_least, by(threshold)
rename at_least pct

twoway line pct threshold, ///
  ytitle("Proportion attending this number of sessions or more") ///
  xtitle("Number of sessions attended") ///
  ylabel(0(0.10)1.00) ///
  xlabel(0(5)41)

restore

/* plot percent of children attending at least x percent of sessions */

preserve

keep if any_test_e==1
keep if arm==1
keep att_pc

* 1. Sort p
sort att_pc

* 2. Compute the reverse cumulative proportion
gen pct = (_N - _n + 1) / _N

* 3. Plot
twoway line pct att_pc, ///
  ytitle("Percent attending this percent of sessions or above") ///
  xtitle("Percent of sessions attended") ///
  ylabel(0(0.10)1.00) ///

```

```

    xlabel(0(0.10)1.00)

restore

/* plot average sessions attendance per week */

preserve

keep if any_test_e==1
keep if arm==1

forvalues i = 1(1)20 {
    egen w`i' = rowmean(att_w`i'_1 att_w`i'_2)
}

collapse w1-w20
gen z=1
reshape long w, i(z) j(week)
drop z

twoway line w week, ///
    ytitle("Proportion of children attending") ///
    xtitle("week") ///
    ylabel(0(0.10)1.00) ///
    xlabel(1(1)20)

restore

//////////////////////////////////// CACE EFFECTS //////////////////////////////////////

gen comp=att
replace comp=0 if comp==.

forvalues t = 1/41 {
    gen comp`t=0
    replace comp`t = 1 if att >= `t' & att~=.
}

cap program drop threshold
program define threshold

* Keep your main data intact; create empty variables to store results
qui gen threshold = .
qui gen coef = .
qui gen lb = .
qui gen ub = .

qui summ `2' if arm == 0
local s1 = r(sd)
local n1 = r(N)

qui summ `2' if arm == 1
local s2 = r(sd)
local n2 = r(N)

local sd = sqrt(((`n1'-1)*`s1'^2 + (`n2'-1)*`s2'^2) / (`n1'+`n2'-2))

qui gen z_`1' = `1' / `sd'
qui gen z_`2' = `2' / `sd'

forvalues t = 1/40 {

    qui ivregress 2sls z_`1' z_`2' EYPP EAL strata_2-strata_12 age_b gender (comp`t = arm), cluster(setting)

```

```
local c = _b[comp` t']
local s = _se[comp` t']

qui replace threshhold = `t' in `t'
qui replace coef = `c' in `t'
qui replace lb = `c' - 1.96*`s' in `t'
qui replace ub = `c' + 1.96*`s' in `t'
}

qui ivregress 2sls z_`1' z_`2' EYPP EAL strata_2-strata_12 age_b gender (comp = arm), cluster(setting)
estat firststage
ivreg2 z_`1' z_`2' EYPP EAL strata_2-strata_12 age_b gender (comp = arm), cluster(setting) first

twoway ///
    (line coef threshhold, lcolor(blue) lwidth(medium)) /// coefficient line
    (rarea lb ub threshhold, color(blue%20)), /// 95% CI shaded area
    xlabel(0(5)40) ylabel(0(0.2)1, angle(horizontal)) ///
    xtitle("Compliance threshold") ///
    ytitle("CACE") ///
    title("`3'") ///
    legend(off)

drop threshhold coef lb ub

end

threshold renf_index_e renf_index_b "Renfrew index"

threshold renf_expvoc_e renf_expvoc_b "Expressive vocabulary"

threshold renf_info_e renf_info_b "APT information"

threshold renf_gram_e renf_gram_b "APT grammar"

threshold gaps_e gaps_b "GAPS"
```

Appendix H: Follow-up study report

Introduction

This addendum report acts as a follow-up to the Implementation and Process Evaluation in the main body of the report. The aim of the report is to examine the fidelity and perceived impact of Talking Time© beyond the endline evaluation, and the programme's long-term sustainability. For this report, we conducted follow-up semi-structured interviews from February to April 2026 with 6 settings (3 PVI; 2 school based-nurseries; 1 maintained nursery school) and received email responses from 3 settings (1 PVI; 2 school-based nurseries) which are referred to in this report.

Six research questions guide this report. Together, these questions examine whether and how Talking Time© continues to be delivered, the extent to which core principles are maintained or adapted, and the factors that influence how the programme is embedded over time. Attention is also given to whether Talking Time© is still considered to be impactful on children's oral language development and whether it has led to lasting changes in staff practice. They are as follows:

RQ1: Why have settings continued or discontinued the delivery of Talking Time©?

RQ2: To what extent do settings continue to deliver Talking Time© in accordance with its core components?

RQ3: What have been the facilitators and challenges to sustaining the delivery of Talking Time©?

RQ4: What is the perceived impact of Talking Time© on children's oral language development during this round of delivery?

RQ5: To what extent has Talking Time© led to lasting changes in staff practices, including beyond formal Talking Time© activities?

RQ6: What does the experience of revisited settings indicate about the longer term sustainability of Talking Time©?

The report is structured around the research questions. Overall, the findings indicate that Talking Time© was largely sustained beyond the trial period, with a perceived positive impact on children's oral language development and strong leadership support as key enablers to its continuation. Staff turnover emerged as the primary challenge to long term sustainability. In terms of delivery, for most of the revisited settings, the programme's core components were retained. However in some cases, small adaptations to these components were made in response to staff capacity and cohort needs. Notably, practitioners consistently reported lasting benefits for children's communication and for staff practice. The summary of findings are outlined below.

Summary of findings

- *Continuation of delivery was common but not universal:* Of the settings that responded following the trial, all interviewed settings (6) and one additional setting via email reported continuing delivery of Talking Time©. In contrast, two settings reported discontinuation, citing staff turnover and the loss of trained practitioners as the primary reason.

- *Positive impacts on children's oral language were consistently perceived:* All settings that reported continuation of Talking Time© reported ongoing positive impacts on children's oral language development. Improvements were noted in confidence, listening, turn-taking, and engagement in group discussion. Within school settings, reception teachers had noted the positive effects on children who have previously received Talking Time© sessions.
 - *There were some adaptations to activity delivery:*
 - Story Conversations were consistently maintained across all continuing settings, delivered in small mixed-ability groups and in line with programme guidance.
 - Word Play was continued in most settings, though two settings delivered it exclusively through continuous provision rather than as a small-group session.
 - Delivery of Hexagons showed the greatest variation: some settings had not yet introduced it due to slower sequencing for staff training, while one setting removed it from their Talking Time© timetable based on cohort readiness and resource relevance.
 - *Dosage and group structure was broadly maintained but adapted on some occasions:*
 - Most interviewed settings continued to deliver Talking Time© twice weekly to groups of no more than 5 children, in line with programme guidance. Two settings reported adapting frequency and two settings increased group size from five to six children.
 - *Professional development effects were sustained across all interviewed settings:* All practitioners interviewed reported lasting changes to their practice beyond Talking Time© sessions. These included increased use of open-ended questioning, greater tolerance for pause and silence, more child-led book interactions, and more intentional use of language-support strategies in everyday practice.
 - *Reflective practice became embedded post-trial:* While scheduled and formal reflection was challenging during the original trial, the majority of interviewees reported that reflection had become routine during independent delivery, through post-session discussion, written reflections, or structured team meetings.
 - *Leadership support was a decisive factor in sustainability:* In all settings interviewed, explicit senior leadership support enabled Talking Time© to be prioritised, with one setting embedding it within the school improvement plan.
 - *Staff turnover posed the greatest risk to long-term sustainability:* Staff turnover directly resulted in cessation of delivery in two settings and was reported as a challenge in several others. Sustainability was strongest where multiple staff were trained and where leadership enabled time for onboarding new practitioners.
- Ongoing light-touch external support may strengthen sustainability:* Practitioners (across both school-based and PVI settings) suggested that refresher training, mentor check-ins, or support for new staff would help maintain quality and reduce pressure during periods of staffing change.

Findings

RQ1: Why have settings continued or discontinued the delivery of Talking Time©?

All settings that took part in interviews (six) and one setting out of the three who sent in responses to questions via email reported continuing to deliver Talking Time© following the end of formal involvement in the efficacy trial. One setting noted that the programme had been '*embedded ... into [their] curriculum*' (SL01, PVI setting lead). In contrast, two settings out of the three who responded via email reported that they had been unable to continue delivery (and therefore declined an interview), citing staff turnover as the primary barrier. This included trained staff leaving or moving to different year groups. The fact that those who did agree to participate in an interview all continued to deliver Talking Time©, means that the insights

from the interviews outlined below should be understood as skewed towards the insights of those who continued delivery.

Reasons for continuing

A key driver for continuing Talking Time© was the perceived impact on children's communication and language development. Practitioners reflected on improvements in children's speaking, listening, and turn-taking both with adults and amongst peers. These observations were reinforced by positive feedback from parents in two of the settings we spoke to, who commented on improvements in their children's communication. In two cases, decisions to continue were also supported by improvements in formal assessments, with children making strong progress and leaving settings at age-related expectations despite having started behind.

"I did see a very big change last year in terms of the children's communication and language and their assessments by the end of the year." (TP18, school-based practitioner)

One practitioner from a PVI setting also reflected on the programme's fit within the flexibility of the Early Years Foundation Stage curriculum, describing Talking Time© as providing a helpful and enjoyable structure that enhanced existing practice. Beyond child outcomes, staff also reported positive impacts on practice, including the spread of Talking Time© techniques to colleagues who had not been directly involved in delivery, reinforcing its perceived value, sustainability and influencing decisions to continue.

RQ2: To what extent do settings continue to deliver Talking Time© in accordance with its core components?

Talking Time© encourages flexibility in delivery to ensure sessions meet the needs of different nursery cohorts. However, several elements are considered core to the programme's implementation. These include small-group delivery of up to five children, mixed-ability groupings, twice-weekly sessions, and the inclusion of reinforcement activities in continuous provision.

Talking Time© comprises three core activities: Story Conversations, Word Plays and Hexagons. During the 20-week structured delivery period, settings are guided to deliver these activities in this sequence. As settings take on independent delivery, some adjustment to timetabling is expected to enable practitioners to tailor implementation to their cohort's needs.

Continued activities

Settings reported continued delivery of core Talking Time© activities, though with some adaptations to reflect cohort needs, staffing capacity and perceived effectiveness.

Story Conversations was consistently maintained and delivered according to programme guidelines, namely all settings began their new cycle of delivery with this activity and delivered it in small mixed-ability groups. Most settings continued to use the books included with the programme, alongside additional books they had selected – something that is encouraged as part of the programme.

Word Play was continued across all settings interviewed, although two settings chose to retain it as an exclusively continuous provision activity rather than delivering it as a small group session. Practitioners felt this led to better child engagement, reflecting that, in small-group sessions, some children were less comfortable with the child-led approach and more likely to expect practitioner direction.

"It didn't work for our children, bringing them out of provision [...] I think when they came out of provision into a small group, they almost expected the teacher to lead it more and they were like

looking at us as a “what should we do” rather than playing with the things naturally as they would do in class.” (TP04, maintained nursery practitioner)

One of these practitioners described that they had continued Word Play in continuous provision but disconnected in from the books focused on during Story Conversations, instead offering it as an ongoing activity that children could engage with at any time.

The use of Hexagons was more variable. This was partly because it is the final activity to be introduced in the sequence of activities provided in the handbook. Two settings noted that they had introduced each activity more slowly than outlined in the original timetable in order to allow time to train new staff in each activity. As a result, they had not yet implemented Hexagons but stated they intended to do so. Settings that continued to use Hexagons generally chose to create new resources so that the images reflected activities that were more relatable to children, an adaptation that settings are encouraged to make. One practitioner described how her setting had removed Hexagons from their Talking Time timetable, as she felt her children struggled to engage with the activity. She gave two reasons for this. Despite settings being encouraged to create their own Hexagon resources where necessary, the first reason related to the pictured activities not being relatable to the children. The second reason she gave was that she felt her children were not intellectually ready for activities that involved constructing timelines:

“We’re quite a deprived area and our biggest focus at the moment is building that vocab and extending sentences more than constructing timelines at the minute. [...] I don’t know if it was a personal thing with it that I just struggled with it. I just felt the children weren’t intellectually ready.” (TP06, PVI practitioner)

That said, she went on to explain that she had created her own Hexagon resources based around the setting’s lunchtime routine that she used in an ad hoc way rather part of a suite of Talking Time activities. She felt this activity was more effective when used in an ad hoc way to support children, particularly some children with SEN, to gain familiarity with the sequence of daily routines, rather than as an oral language exercise focused on narrative building.

Finally, reinforcement activities were commonly sustained, with resources from small group activities left available in provision to support consolidation of language beyond structured sessions.

Timetabling and sequencing of activities

Most settings who were part of the follow-up study continued to use the timetable outlined in the Talking Time© handbook to structure their delivery. As mentioned above, two practitioners highlighted that they had stretched out their timetables in order to support the training of new staff. One PVI practitioner reported spending the first two terms focusing mainly on Story Conversations. This was to ensure newly trained staff were confident in adapting sessions through prompts and questioning to suit children’s abilities. At the time of the interview, they had begun drip feeding in Word Play sessions with plans to introduce it into the structured timetable after Easter.

“We’re delivering at a slower pace for some of the staff that are newer. They’ve struggled with having to pause and ask questions, so we’re focused on getting the questioning right first with those staff and then bringing in the word play.” (TP02, PVI practitioner)

Settings also reported adjusting the original timetable where necessary to be mindful of practical considerations, such as avoiding splitting books across half-term breaks and adjusting schedules around school calendar events. Additionally, some settings reported shifting the order the books were delivered in order to better match with wider curriculum themes. These issues had been highlighted during the

efficacy trial however, with greater flexibility in timetabling during independent delivery, settings reported that they were able to address them more easily.

Frequency

Frequency of delivery broadly remained aligned with the programme's guidelines, with most settings interviewed reporting delivering two Talking Time© sessions per week. Two settings described adaptations to this approach. One setting described a phased increase from one to two sessions during the process of training new staff, while another adopted a rotating model, delivering three sessions one week and two the next believing that the increased exposure was beneficial to children's language development. Additionally, for the two settings mentioned above who chose to retain Word Play as continuous provision activity only, children's exposure to this activity will likely be increased.

Grouping

Across settings, mixed ability and small-group delivery (up to 5 children) was consistently maintained. Groups were put together to ensure a mixed level of confidence, "chattiness", language ability, and a distribution of children with EAL and SEND. While settings tried to keep groupings consistent, some variation in group stability was reported, particularly in contexts of high child absence. Additionally, two settings reported increasing group size slightly to six children to reduce the total number of groups required and manage staffing constraints.

"We've tried to retain small groups but we've had to go up to six because we can't do it with five. We have had to tweak that a little bit [...] we just don't have the time to get that last group in." (TP18, school-based practitioner)

One PVI setting and one maintained nursery school reported extending delivery to two-year-olds. The PVI setting described benefits from mixed-age grouping and language modelling by older peers, while the maintained nursery school grouped two-year-olds separately within the preschool room, delivering Story Conversations using age-appropriate books and prompts.

RQ3: What have been the facilitators and challenges to sustaining the delivery of Talking Time©?

Facilitators

A key facilitator to the continued delivery of Talking Time© was strong senior leadership team (SLT) support. In the school settings (3) and the maintained nursery school setting that were part of the follow-up study, it was explicitly stated that SLT endorsement and buy-in to the programme's pedagogy and aims enabled Talking Time© to be prioritised within the nursery's timetable. In one case, Talking Time© has been carried forward into the school improvement plan, where it had become embedded within a broader whole-school strategy for improving language and communication skills.

"We are fully supported by SLT. I think SLT were really pleased that we felt that it was such a positive strategy and have carried it forward into this year's school improvement plan. So it's very much there strategically but were also supported and given the freedom as a team to plan it as we see fit." (TP03, school-based practitioner)

It was also highlighted that leadership buy-in facilitated protected time for staff training, reflection and planning, which was particularly important when onboarding new staff.

The interviewees from PVI settings were all setting-leads, and their commitment and oversight played a key role in sustaining delivery and ensuring it was embedded in a setting's overall curriculum and strategic decision-making. One PVI practitioner described deliberately recruiting new staff qualified at Level 6 and

above for the current academic year with previous staff's difficulty in engaging with Talking Time© training cited as one of the reasons for this. She felt that that higher staff qualifications supported a stronger understanding of the underlying pedagogical strategies of Talking Time© – an area she had found more challenging with a less qualified staff team the previous year.

“So we've changed some of the staff. I've got three graduates in now, which has made all the difference. So now when I go through the handbook, I don't have to explain everything in detail because they're sort of used to the language.” (TP06, PVI practitioner)

It is worth noting here that other settings described successfully training those with pre-degree level qualifications.

Another key facilitator noted across some settings was the retention of shared planning and reflective practice. Some practitioners reflected on the importance of training multiple staff members to deliver Talking Time©, ensuring opportunities for joint planning and discussion. Having at least one colleague to work alongside was described as valuable to *“pick their brains”* (TP04, maintained nursery school practitioner).i.e. sense-checking the quality of delivery. Group planning was seen as critical to ensuring that all staff delivering sessions were clear on the overall focus of the programme and able to adapt sessions appropriately for their individual groups.

The ability to be flexible in how the programme is implemented was also regarded as important for sustaining the delivery of Talking Time© activities. For all settings interviewed, the ability to adapt resources (notably the books used for Story Conversations and the resources for Hexagons) in response to children's engagement and to modify prompts according to children's language abilities was a key facilitator for retaining delivery in their settings. However, in some cases, perceptions of flexibility led to adaptations that shifted delivery away from core components, such as changes to dosage (two settings) or group size (two settings), the delivery of Word Play exclusively through continuous provision rather than as a small group activity in two settings, or the removal of Hexagons as an oral language focused activity (one setting)..

The varied elements of Talking Time© that need to be considered, for example book options, groupings, timetabling in sessions, led many practitioners to emphasise the importance of being organised, such as setting up groups and timetables in advance and maintaining a regular routine. Strong organisation was considered to protect Talking Time© sessions from being sidelined and reduce staff stress.

“Once you've got that plan, that takes a lot of the stress away. I think for us that was probably the most stressful thing. How, when, what are the groups going to be? Who's going to do it? When, you know, how are we going to fit it in so that every group does two sessions? So taking the time to sit down and do that and asking for support with that [...] And then trying to stick to that is helpful.” (TP03, school-based practitioner)

Finally, practitioner mindset was identified as an important facilitator. Being open to the child-led nature of discussions, gaining confidence over time, and accepting that sessions might move in unexpected directions were seen as key to sustaining delivery in line with Talking Time©'s core strategies.

Challenges

The most significant challenge to sustaining Talking Time© was staff turnover and capacity. Changes in staffing, including trained staff leaving or moving roles, limited some settings' capacity to deliver and were identified as a key threat to sustainability. As noted above, two settings responded over email to state they were unable to continue Talking Time© due to trained staff leaving the setting. For all settings that had continued, SLT support and protected training time emerged as critical in mitigating staffing challenges.

For example, two settings who had continued the delivery of Talking Time© also reported trained member of staff leaving but were able to dedicate time training up new members of staff due to SLT support of the programme.

A further challenge to sustaining the delivery of Talking Time© was related to book selection. Two practitioners described finding it more difficult than anticipated to identify books that consistently engaged children, with one PVI practitioner noting it was particularly challenging to find a book that suited a wide age range (from two to nearly five years). It was suggested by one practitioner based at a school nursery that access to a curated bank of recommended books would support planning and reduce trial-and-error when selecting resources:

“You can't just buy a book off Amazon and hope that it's going to be OK. You've got to really think about the pictures in it and I think if there's not a massively wide selection in the bookshop that you're in, that sometimes becomes a little bit tricky. So I think that it would really help to have some sort of a bank of these are good books to start.” (TP18, school-based practitioner)

Finally, limited access to external trainer-mentor support following the end of the trial was identified as a challenge by two settings. One PVI setting suggested that additional check-ins from trainer-mentors would provide helpful external monitoring and reassurance that Talking Time© continued to be delivered as intended. A school-based practitioner similarly noted that access to external training for new staff would have reduced pressure during a period of high staff turnover – an investment she and SLT felt would have been worthwhile.

RQ4: What is the perceived impact of Talking Time© on children’s oral language development during this round of delivery?

Across settings, practitioners consistently reported positive impacts of Talking Time© on children’s oral language development during the current round of delivery. Many noted that changes were evident despite relatively short implementation periods. Children across ability levels were described as becoming more confident, talkative and engaged, with improvements observed in listening, turn-taking, and participation within group discussions.

Several practitioners reflected on changes in how children approached books and images both within Talking Time© activities and outside of structured sessions. Rather than flipping quickly through pages, children were described as spending more time looking closely at pictures, noticing details, and talking about what they could see. One school-based nursery reported feedback from a Reception teacher indicating that children who had experienced TalkingTime© the previous year were better able to construct narratives from images in books compared to previous cohorts:

“They’re much more tuned into being able to look at and notice things in the picture... their skill of noticing and observing and being able to tell a story from images is greater this year than it has been previously.” (TP03, school-based practitioner)

Another school-based practitioner also reported on the positive feedback received from Reception staff on the impact of the children having received Talking Time© sessions in nursery:

“Reception teachers can’t believe the difference in the children’s speaking, listening, understanding and teamwork skills.” (TP20, school-based practitioner)

Some practitioners in non-school settings (two from PVI settings and one from a maintained nursery school) highlighted benefits associated with cohort continuity (something not possible in school-based nursery nurseries because of the narrower age range they admit). Children who had experienced Talking

Time© the previous year as part of a younger cohort (aged 2–3) were now among the older children and had taken on “mentoring” roles. These children were described as leading discussions, modelling language, and supporting quieter or less confident peers. Practitioners felt this not only supported the language development of younger children but also helped consolidate confidence and language skills among those who had previously taken part in the programme.

“All of the groups had children that had done it before and all the groups had children who hadn't done it before. Actually that was a benefit because even though they'd heard the stories before it kind of supported me. They knew the routine. I think sometimes children tend to pick up more from their peers rather than they do from teachers sometimes.” (TP04, maintained nursery school practitioner)

“We struggled at first because we'd started over again. They obviously remembered the stories and would tell you every little thing [...] So we ended up doing different books with them straight away, but they're the children that we use to support the two-year-olds now. So they're still getting that vocab and they're increasing it more because they're actually mentoring 2 year olds.” (TP06, PVI practitioner)

In relation to specific groups, as was the case within the main study, children with English as an Additional Language (EAL) were repeatedly identified as benefiting strongly from Talking Time© with five out of the seven settings who reported continuing Talking Time© noting this. Practitioners reported that children with EAL were increasingly using English vocabulary within sessions, even when English was not commonly used outside of book-based activities. In contrast, reports on children with higher levels of SEND were mixed. One practitioner described a non-verbal child engaging well and showing improved listening and engagement over time, while another noted that children in her setting with more complex SEND related needs were unable to engage with Talking Time© activities and were therefore not included in sessions.

RQ5: To what extent has Talking Time© led to lasting changes in staff practices, including beyond formal Talking Time© activities?

Practitioners across settings consistently reported that Talking Time© had led to sustained and meaningful changes in staff practices, extending beyond the delivery of formal Talking Time© sessions.

Changed approach to books and conversations

It was most commonly reported by those interviewed that one of the most significant lasting impacts on practice was on how staff and settings engaged with books. Practitioners described growing more confident in their interactions around books and a shift away from adult-led story reading towards a more intentional, child-led approach. This shift was reported to have become embedded within everyday practice across settings. One practitioner described how this change had influenced practice across nursery staff:

“We're much less likely to just pick up a book and read the words without having that stopping and pausing on each page...we also do lots more of [...]letting the children lead the way, really letting them look at the picture.” (TP03, school-based practitioner)

Another practitioner from a PVI setting highlighted that Talking Time© had reframed their understanding of story time as a purposeful opportunity for language development, rather than an activity primarily used to calm children. This had resulted in greater use of smaller group story sessions to ensure all children had opportunities to participate, rather than conversations being dominated by more confident or talkative children.

Beyond the use of books, practitioners across settings also highlighted changes in their conversational practice. Increased use of open-ended questions and giving children time to think and respond were described as strategies that practitioners had either developed or refined through Talking Time© training. These approaches were widely reported to have become embedded in everyday interactions with children.

"I think for us what we've learned is to use our more open questions, pause, allow children to think before answering and aim the questions at different levels." (TP02, PVI practitioner)

Reflective practice

Reflective practice emerged as a particularly strong and enduring outcome across the majority of settings interviewed. While the findings from the main report indicated that settings found it challenging to engage with and schedule formal reflection activities due to time pressures, settings interviewed now reported that reflection had become routinely embedded into practice as a way to self-monitor both the quality and intentions of the implementation of Talking Time© activities, as well as wider practice. This suggests a strong commitment among practitioners to maintaining the learning gained through trainer-mentor support.

Practitioners reported engaging in a range of reflective practices, including regular verbal reflection following sessions which involve discussions about children's engagement, what worked well, and what might need adapting. In some settings, structured reflection had been embedded into wider systems, such as half-termly team discussions or written reflections in work diaries.

"We reflect every time we've done a Talking Time© session. We discuss how my group's been, how the other groups have been, what went well, which children were responding really well, which ones needed a bit more prompting." (TP03, school-based practitioner)

"I've created a new reflection sheet which helps practitioners identify first what went well - and that's the biggest bit because that's psychologically I think that makes a difference and then the things that they'd hoped to achieve that didn't work. I've written it that way so that it's not pointing fingers at their own practice, but it's making them think about it a little bit more." (TP06, PVI practitioner)

More experienced practitioners, who felt that the strategies underpinning Talking Time© aligned with approaches they had previously used, nevertheless described the programme's focus on reflection as reconnecting them with the rationale underpinning effective oral language development and made their use of strategies more intentional.

"I have been teaching for 20 years, so I think for some of the newer staff [the programme] does give them things that they've not worked with before. But I think, I think for me it's been more about reflecting and just making sure that I am using those strategies and bring them to the forefront of my mind." (TP18, school-based practitioner)

The emphasis on reflection was also linked to direct positive impacts on children. One practitioner described how small-group delivery combined with reflective discussion enabled a deeper understanding of individual children's communication abilities, which in turn informed assessment and planning beyond Talking Time© activities.

"I feel like I got to understand the children's abilities more as well. I understood where they needed to go more just from that which was really special and really helpful for assessment and for planning what needs to come next." (TP04, maintained nursery school practitioner)

Ongoing engagement with professional development practices

Practitioners were highly positive about the professional development received as part of the Talking Time© programme and described it as playing a critical role in enabling lasting changes in practice. Some reported starting the programme with relatively low confidence but feeling well equipped and confident by as training got underway. One practitioner described the training as some of the best professional development they had received in their career, noting the personalised and responsive nature of the support:

“I would say that the training and mentoring we had with Talking Time© is some of the best training and mentoring I've had like throughout my teaching career. [...] I think sometimes when people come in, you can feel like you're being observed and being judged. But we never felt like that at all. [...] she picked up on things that we were doing well that we didn't even realise we were doing – it gave us a nice little boost.” (TP04, maintained nursery school practitioner)

Opportunities to observe activities modelled by trainer-mentors were viewed as particularly impactful in supporting independent delivery of the programme. Seeing strategies enacted with children, rather than described in theory, was repeatedly highlighted as key to building confidence and understanding. This helped practitioners recognise that Talking Time© was not a “one-size-fits-all” approach but required thoughtful adaptation to meet children’s needs.

“It was useful actually having the mentors come in and working with the children. It's not one-size-fits-all and I think having the in person session helped us to tweak delivery and get it right for our setting [...] we could work on the bits that we wanted to work on because it's not a cookie cutter programme, it's there to evolve and meet your children where they are.” (TP18, school-based practitioner)

The handbook was frequently described as an important ongoing resource. Over time, practitioners reported relying less heavily on it, using it instead as a reference point when needed. Importantly, some practitioners noted that while the handbook was robust, the mentor support was critical in helping them understand how to use the guidance and resources effectively. Without this early support, some felt the written materials alone would not have been sufficient.

Most settings reported continuing professional development practices such as observation and modelling of delivery, especially for new or less experienced staff. In two settings, video-based reflection had been retained and was seen as particularly valuable for supporting self-evaluation.

“We're training up additional staff and take them through the programme bit by bit. We film ourselves and watch it back together, we also get them to observe us and have discussions after.” (TP20, school-based practitioner)

Some other settings mentioned they wanted to incorporate this into their professional development practices in the future but have not been able to yet due to time constraints.

RQ6: What does the experience of revisited settings indicate about the longer term sustainability of Talking Time©?

Overall, findings from the follow up study suggest that Talking Time© has the potential to be sustained beyond the period of formal support with interviews suggesting that activities and pedagogical approaches learned through Talking Time© have been embedded into setting’s everyday practice.

The professional development element of the Talking Time© programme was central to this sustainability. Settings consistently reported that opportunities to observe strategies modelled by trainer-mentors and structured reflection they had practiced during their time with the trainer-mentor supported staff confidence and competence to deliver Talking Time© independently. The usefulness of the handbook was also commented on often, however practitioners highlighted that the initial mentor support was critical in enabling them to interpret and apply the handbook effectively.

While the programme's built-in flexibility was viewed as a strength, findings suggest that additional flexibility was often required to support longer-term sustainability. Adaptations such as increasing group size to six children, adjusting dosage, delivering Word Play within continuous provision only, or removing Hexagons from the timetable temporarily and permanently were necessary responses to staffing capacity and cohort needs.

Staff turnover emerged as the most significant threat to sustainability. While Talking Time© had led to lasting changes in individual practitioners' approaches to oral language support, these gains were at risk where trained staff left. This risk underscored the importance of SLT buy-in. Where SLT actively supported Talking Time© by embedding it within school improvement plans, curriculum priorities, or wider approaches to language development, settings were better positioned to retain and transmit practices despite staff changes. In contrast, where knowledge and expertise were held by a small number of individuals, sustainability was more vulnerable. This was the case with the contact from two settings over email who reported that Talking Time© activities had discontinued due to members of staff who were trained leaving.

A few practitioners suggested that options for light-touch external monitoring, refresher training, or access to trainer-mentor support for new staff would strengthen longer-term sustainability. Such support was viewed as a way to maintain quality, reinforce core principles, and reduce the burden on existing staff during periods of change.

Conclusion

The follow-up study provides valuable insight into how Talking Time© is implemented once formal trainer-mentor support has ended. By re-interviewing settings after the conclusion of structured support, the study captures how delivery evolves when settings assume full ownership of the programme and highlights the conditions that support longer-term sustainability. In doing so, it sheds light on the ongoing negotiation between maintaining fidelity to core programme components and exercising flexibility within day-to-day, business-as-usual practice.

Overall, the findings indicate that the delivery of Talking Time© can be sustained over the longer term when it has strong support from practitioners, is underpinned by strong leadership, and reinforced through ongoing reflection and staff development. However, although flexibility is built into the programme, sustaining delivery often required adaptations, albeit small, to the programme's core components such as group size, dosage and activity structure, raising questions about whether the flexibility perceived to and actually permitted by the programme may risk the quality and fidelity of implementation over time. Despite this, the enduring shift in practitioners' approaches to books and conversation, alongside the perceived continued impact on children's language development, suggests that even where fidelity to core components may fluctuate, the longer term influence of Talking Time© on practice and perceived outcomes remains strong.

Further recommendations to secure sustainability

Mitigating the impact of staff turnover

Mitigating staff turnover should be a central consideration for future programme design, given that continued delivery is closely linked to access to, and retention of, professional development.

- One key recommendation is to develop a structured training manual or toolkit, to sit alongside the existing handbook, that enables trained staff to support the onboarding and training of new colleagues. This would help to ensure greater consistency in how staff who have not received trainer-mentor support are introduced to the programme, and in how they are supported to understand the core strategies underpinning the activities.
- Opportunities for formal check-ins or light-touch support following the end of the programme's structured delivery should be considered to support quality assurance and reassurance during independent implementation. Such support could also provide a mechanism for new staff to receive professional development from a trainer-mentor. Together with the recommendation above, this may help reduce the resource burden that training new staff can place on settings.
- Extending full training beyond two Talking Time© leads to whole teams may reduce the risk of delivery ceasing when individual trained staff leave, although the cost of expanding training may not be feasible for many settings. In school and maintained nursery school settings in particular, ensuring SLT involvement in at least some training sessions is recommended. The main report noted that trainer-mentors engaged with SLT towards the end of the formal support period, which appeared effective in securing buy-in. Embedding this engagement more fully within the training model may support senior leaders to handover Talking Time© delivery if trained staff leave settings.

Another recommendation that has emerged from the follow-up study is:

- Providing access to a bank of resources, including suggested books and an expanded set of adaptable Hexagons images, to reduce planning burden and support engagement across diverse cohorts.

Appendix I: Covariate balance at the analysis stage

Table 12: Baseline characteristics of groups as randomised

Setting-level (categorical)	National-level mean	Intervention group		Control group		
		n/N (missing)	Count (%)	n/N (missing)	Count (%)	
PVIs	68.4% ^a	62/62 (0)	19%	61/61 (0)	19%	
Setting-level (continuous)		n/N (missing)	Mean (SD)	n/N (missing)	Mean (SD)	
IDACI score	0.16 ^b	62/62 (0)	0.23 (0.11)	61/61 (0)	0.23 (0.11)	
Child-level (categorical)		n/N (missing)	Count (%)	n/N (missing)	Count (%)	
EYPP-eligible	14% ^c	135/719 (1)	18.9%	121/697 (10)	17.4%	
EAL	30.2 ^d	219/725 (0)	30.2%	220/707 (7)	31.1%	
Child-level (categorical)		n/N (missing)	Mean (SD)	n/N (missing)	Mean (SD)	Effect size (SE)
Female		377/725 (0)	0.52 (0.5)	369/714 (0)	0.52 (0.5)	
Child-level (continuous)		n/N (missing)	Mean (SD)	n/N (missing)	Mean (SD)	Effect size (SE)
Age in months		725/725 (0)	43.0 (3.9)	714/714 (0)	43.0 (4.0)	
Renfrew index ^e (primary outcome)		725/725 (0)	0.09 (0.89)	714/714 (0)	-0.01 (0.89)	0.11 (0.05)
Expressive vocabulary ^e (REV)		725/725 (0)	18.4 (9.29)	714/714 (0)	17.8 (9.35)	0.06 (0.05)
Information ^e (vocabulary knowledge) (RAPT)		725/725 (0)	14.6 (6.69)	714/714 (0)	13.4 (6.69)	0.16 (0.05)
Grammar ^e (RAPT)		725/725 (0)	8.9 (6.07)	714/714 (0)	8.4 (6.03)	0.08 (0.05)
GAPS ^e		725/725 (0)	3.6 (3.97)	714/714 (0)	3.4 (3.88)	0.04 (0.05)

^a Based on the 2025 Childcare and Early Years provider survey. In 2025 there were approximately 21,400 group-based providers, and 9,900 school-based providers. https://explore-education-statistics.service.gov.uk/find-statistics/childcare-and-early-years-provider-survey/2025?utm_source=chatgpt.com. ^b Averages of LOAs in England, ^c In 2024 based on DfE statistics at https://explore-education-statistics.service.gov.uk/find-statistics/funded-early-education-and-childcare/2024?utm_source=chatgpt.com, ^d Recorded as having English as an additional language in nursery schools according to DfE statistics at https://dera.ioe.ac.uk/id/eprint/41289/1/Schools%2C%20pupils%20and%20their%20characteristics%2C%20Academic%20year%20202425%20-%20Explore%20education%20statistics%20-%20GOV.UK.pdf?utm_source=chatgpt.com, ^e There are no population-level estimates of average scores of Renfrew and GAPS assessments in England

Appendix J: interaction effects in subgroup analysis

Table H1 reports the impact of Talking Time© on the primary outcome on EYPP children and children with EAL. The table also reports the unadjusted means, sample sizes for the subgroups, and Hedges' g. The effect size is the interaction term between treatment status and subgroup status in a multilevel model including the baseline test score and the stratification dummies. Talking Time© had positive effects on the primary outcomes for the two subgroups. However, in both cases the confidence intervals are wide and include zero.

Table H1: impact of Talking Time© on the primary outcome for EYPP children and children with EAL

	Unadjusted means					Effect size		
	Intervention group			Control group				
	Outcome	n (missing)	Mean (95% CI)	N (missing)	Mean (95% CI)	Total n (intervention; control)	Interactio n (95% CI)	Hedges' g (95% CI)
Renfrew composite index (EYPP)	EYPP=1 EYPP=0	N=135 (6) N=584 (0)	21.39 (20.30, 22.48) 22.01 (21,44, 22.59)	N=121(17) N=576	19.70 (18.41, 20.98) 20.82 (20.22, 21.44)	1,416 (719; 697)	0.168 [- 0.938,1.27 4]	0.025 [- 0.140,0. 190]
Renfrew composite index (EAL)	EAL=1 EAL=0	N=219 (0) N=506 (0)	17.53 (16.54, 18.52) 23.73 (23,21, 24.25)	N=220 (7) N=487 (0)	16.26 (15,33, 17.19) 22.67 (22.10, 23.23)	1432 (725; 714)	0.516 [- 0.408,1.44 0]	0.077 [- 0.061,0. 215]

Tables H2 and H3 report the subgroup effects for all secondary outcomes for EYPP children and for children with EAL respectively. The results for the EYPP subgroup are mixed, with two positive effects and two negative effects. However, as for the primary outcome, all confidence intervals are wide and contain zero.

Table H2: subgroup analysis EYPP children

	Unadjusted means					Effect size		
	Intervention group			Control group				
	Outcome	n (missing)	Mean (95% CI)	N (missing)	Mean (95% CI)	Total n (intervention; control)	Interactio n (95% CI)	Hedges' g (95% CI)
Expressive vocabulary (EYPP)	EYPP=1 EYPP=0	N=136 N=592	26.60 (25.10, 28.09) 27.91 (27.05, 28.76)	N=123 N=584	24.59 (22.77, 26.42) 26.65 (25.78, 27.52)	1,446 (728, 718)	0.203 [- 1.302,1.70 8]	0.022 [- 0.139,0. 183]

RAPT Information (vocabulary knowledge) (EYPP)	EYPP=1 EYPP=0	N=143 N=623	21.32 (20.15, 22.48) 21.70 (21.17, 22.24)	N=127 N=600	20.16 (18.84, 21.48) 20.62 (20.08, 21.16)	1,493 (766, 727)	-0.788 [- 2.154,0.57 7]	-0.116 [- 0.318,0. 085]
RAPT Grammar (EYPP)	EYPP=1 EYPP=0	N=143 N=623	15.04 (13.90, 16.18) 15.72 (15.20, 16.25)	N=127 N=600	13.66 (12.49, 14.82) 14.94 (14.40, 15.48)	1,493 (766, 727)	0.783 [- 0.634,2.20 0]	0.129 [- 0.104,0. 361]
Gaps (EYPP)	EYPP=1 EYPP=0	N=126 N=570	6.18 (5.66, 6.71) 7.10 (6.83, 7.37)	N=108 N=544	6.87 (6.25, 7.49) 7.09 (6.82, 7.38)	1,348 (696, 652)	-0.229 [- 0.981,0.52 4]	-0.058 [- 0.250,0. 134]

The impact of Talking Time on children with EAL is positive for all assessments. However, as before, the confidence intervals are wide and always include zero.

Table H3: subgroup analysis children with EAL

	Unadjusted means					Effect size		
	Intervention group			Control group				
	Outcome	n (missing)	Mean (95% CI)	N (missing)	Mean (95% CI)	Total n (intervention; control)	Interactio n (95% CI)	Hedges' g (95% CI)
Expressive vocabulary (EAL)	EAL=1 EAL=0	N=222 N=512	21.50 (20.18, 22.83) 30.26 (29.44, 31.07)	N=225 N=493	20.19 (18.93, 21.45) 29.21 (28.34, 30.08)	1,452 (734, 718)	0.215 [- 1.042,1.47 3]	0.023 [- 0.111,0. 157]
RAPT Information (vocabulary knowledge) (EAL)	EAL=1 EAL=0	N=236 N=536	17.75 (16.82, 18.67) 23.29 (22.78, 23.80)	N=230 N=507	16.84 (15.93, 17.74) 22.26 (21.73, 22.80)	1,509 (772, 737)	0.644 [-0.496, 1.786]	0.095 [- 0.073,0. 263]
RAPT Grammar (EAL)	EAL=1 EAL=0	N=236 N=536	12,39 (11,49, 13,28) 16.97 (16.45, 17.50)	N=230 N=507	11.43 (10.59, 12.28) 16.27 (15.72. 16.82)	1,509 (772, 737)	0.641 [- 0.528,1.81 0]	0.105 [- 0.087,0. 297]
Gaps (EAL)	EAL=1 EAL=0	N=219 N=482	5.89 (5.44, 6.08) 7.40 (7.13, 7.67)	N=214 N=446	5.64 (5.20, 6.09) 7.78 (7.50, 8.06)	1,361 (701, 660)	0.329 [- 0.273,0.93 1]	0.084 [- 0.070,0. 237]

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