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Story Choices— Teacher Choices

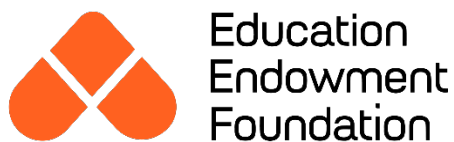
Further Appendices

October 2026

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Thompson



UNIVERSITY OF
BIRMINGHAM



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Contents

Appendix C: Findings from the Scoping Phase.....	5
Appendix D: Recruitment Documents and Parent Information Sheets	8
Appendix E: Storybook Vocabulary Measure.....	28
Appendix G: Educator Guidance.....	34
Appendix H: R Script for Randomisation	63
Appendix J: Post-trial Educator Survey	98
Appendix K: Example completed observation sheet for case study visit	101
Appendix L: Characteristics of the settings	107
Appendix M: Example completed session records.....	110

About the evaluator

The project was evaluated by a team from the University of Birmingham in partnership with Coventry University. The trial director and principal investigator was Professor Julia Carroll. The trial manager was Dr Tanvir Ahmed. Dr Sian Alsop led the development of the vocabulary assessment measure and Dr Paul Thompson and Dr Carlo Tramontano acted as trial statisticians.

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Appendix C: Findings from the Scoping Phase

Coventry University were commissioned to carry out a scoping phase on the topic area of Early Language for the Teacher Choices trial in early 2023. We were asked to investigate the feasibility and importance of four potential research topics, as follows:

1. Which approach is the most effective for pre-teaching key vocabulary to a small group of children?
2. Which approach to monitoring/planning guided play is most effective?
3. Which approach to supporting role play in the classroom is the most effective?
4. Which whole class/group approach is the most effective for teaching language skills through stories?

We identified through initial literature searches and educator survey responses that research topic 1 (RT1) was adequately answered within the literature (for example, Coyne et al, 2007; Senechal, 1997) and was not a significant dilemma for educators. Both educators and researchers agreed that using multiple approaches to teaching were important for vocabulary acquisition.

We agreed through Study Advisory Board (SAB) discussions following initial literature searches that RT3 was not suitable for addressing using the Teacher Choices approach, because it was difficult to see how fidelity could be measured. For example, Skene et al (2022) documents some of the difficulties in assessing whether play-based intervention had an effect on language outcomes.

This allowed us to focus on RT2 and RT4 in further survey work, focus groups and pilot work. Both questions were significant dilemmas of choice for early years educators, but eventually it was agreed that RT4 was the most feasible question to address using a Teacher Choices methodology. It was felt that guided play tended to be carried out spontaneously with individuals and in small groups and it would be difficult to monitor the amount of guided play input provided for each child without onerous educator monitoring. In addition, it would be difficult to provide the level of guidance necessary for educators within the Teacher Choices framework of brief written guidance.

Feasibility Assessment

The feasibility of RT2 and RT4 are summarised in . On the basis of this assessment, we selected RT4 as the most feasible research question to address in the full evaluation.

Table 3: Feasibility Assessment

Feasibility Factors	RT2 Planning Guided Play	RT4 Storybook Reading
True dilemma of choice	Moderate. Teachers agree it is important but not much discussion about how to structure it.	High. Settings tend to use one approach or another and will argue why their approach is best
Effectiveness of choice approaches	Previous research suggests that scaffolding/guided play is crucial to early learning, but there is a gap in the literature about how to best plan/structure it	Extensive evidence suggests that interactive storybook reading is effective at improving language but there is a gap in the literature on how to plan it.

Teacher interest in question	Moderate. All educators mentioned guided play as important.	Moderate – as detailed above most educators tended to believe that they took the most effective approach to storybook reading in their context
Trial implementation feasibility	Implementation would be relatively straightforward with some simplification	Implementation would be straightforward – almost all settings regularly use storybook sessions and they are clearly delineated from freeflow play
Prevalence of choices in normal practice	High. Most educators said guided play is the most common activity they do	High. Most educators read storybooks in group situations most days
Heterogeneity in choice implementation	Moderate. Some settings have key worker system for monitoring, but there is little planning of interactions	High. Approximately one third of settings surveyed planned their books, one third were child led and one third used a combination of the two approaches.

Evidence supporting the selection and refinement of RT4

There is extensive evidence supporting the value of storybook reading with preschool children as a method of improving language skills (Dowdall et al, 2020). In fact, almost all preschool group language interventions that we encountered include storybook reading as an element (for example, Toub et al, 2018; West et al, 2024).

There is also evidence supporting interactive book reading approaches (also known as dialogic approaches) (Whitehurst et al, 1988). However, we did not find any previous research addressing the issue of planned versus spontaneous interactive reading sessions within an Early Years setting. Much of the previous work on storybook reading interventions centres on parent based intervention rather than educator based intervention (Dowdall et al, 2020).

Our educator survey indicated that all respondents recognised the value of storybook reading and they all included some kind of group storybook reading in their weekly routine. Similar proportions of the sample used each of the three different proposed approaches: pre-planning sessions, responding to child choice or a mixture of the two. Hence, this was a genuine dilemma of choice on an important issue in early years settings.

Given the small changes between the conditions, we anticipated small effects on standardised measures of vocabulary. We therefore looked at ways of maximising the sensitivity of the trial to allow us to detect small effects. We decided to do the following:

- Reduce the number of approaches to be compared to two rather than three, increasing power for the remaining comparison.
- Implement a storybook reading vocabulary measure that should be maximally sensitive to changes in the vocabulary used in storybooks aimed at this age range.

Evidence supporting the feasibility of implementation and the value of the teacher guidance

We carried out pilot studies giving educators a draft of the educator guidance (shown in appendix 1) and asking them to complete the record forms as indicated, working with a small group of around 6 children. We trialled the storybook reading

and contingent interaction approaches. Four educators trialled the storybook reading approaches – two for the planned storybook reading approach and two for the child-led storybook reading approach.

The guidance provided general information on interactive storybook reading and linked to videos and guidance freely available on the EEF website. This information was provided for educators in both conditions. In the planned approach, educators were asked to plan the books they will read ahead of time and the discussion points around those books, while in the child led approach, educators were asked not to plan which book to read but instead to offer children a choice of books.

Five settings took part in this phase. Feedback on the storybook reading approaches was all positive. Educators found the guidance clear and the videos on the EEF website useful. However, there are some reasons to be slightly cautious about these findings – educators only used the approach for one week, and only with a small group of children rather than a large group. We might expect to find that adherence to the guidance was less consistent over a longer period of time, and with a larger and more diverse group of children.

Appendix D: Recruitment Documents and Parent Information Sheets

D1: Setting information sheet

Story Choices Project: SETTING INFORMATION SHEET

What is this project about?

All Early Years settings know about the value of storybooks to their day-to-day practice, and most already use some of the principles of **interactive book reading**. This project will investigate how much **planning** these storybook activities makes a difference to outcomes.

We want to compare **two different approaches** to planning interactive storybook reading:

a) **Responsive or Child-led Approach:** Educators ask children to select the book for the daily group reading session or actively involve them in the book selection process. While reading, the questions and discussion points occur spontaneously.

b) **Planned Storybook and Discussion Points Approach:** Educators not only select the storybook ahead of time, but they also plan the specific discussion points they will use while engaging children in conversations about the story.

We will randomly allocate settings to deliver one of the approaches and ask you to stick to that approach for your main storybook sessions for fifteen weeks. Other aspects of your storybook reading routine can remain the same (for example, whether you read in key worker groups or with the whole class).

Why should I take part?

We are interested in looking at how powerful relatively small changes in everyday practice can be, with a focus on changes that individual educators can make themselves. This means that:

- You will be taking part in research with immediate, practical relevance for others in your position. This will help us understand how storybook reading practices in preschool influence children's progress.
- We won't be comparing a 'control' and 'intervention' – we will be comparing two approaches which we think will both have positive effects for the children. We believe all children will benefit in this project.
- You will not be required to attend training or have to take time away from your day-to-day teaching.
- This project can work flexibly with a variety of weekly routines in different contexts. As long as you have regular group storybook reading sessions, you can do this project.
- You will be asked to make relatively small changes to your everyday practice, keeping the other elements of your work the same.
- This project will give you a chance to reflect on the best ways to implement storybook reading. We will ask about other aspects of your storybook reading routine, but we don't want you to change them.
- At the end of the project, your setting will receive an Amazon voucher of £200 as a thank you for your support.

What will we have to do?

We will ask settings to commit to doing the following:

- Pass on information sheets to parents/carers
- Provide researchers with background demographic data on the children (date of birth, whether they have English as an additional language, eligibility for early years pupil premium, any special educational needs and disabilities, normal hours of attendance).

- Allow researchers to work with the children individually to assess their vocabulary level before the intervention and their language, vocabulary and interest in books after the intervention. This will take around 15 minutes per child in November 2024 and 30 minutes per child in May 2025.
- Ask the staff in their setting to complete the educator survey prior to the intervention – this takes around 20 minutes and asks about their background experience, and asks them to rate two videos showing examples of oral language teaching
- Follow the guidelines for storybook reading according to the condition you have been allocated to.
- Record which book was read and which children attended for each session on a monitoring form.
- Carry out storybook reading sessions according to the guidelines at least three times a week for fifteen weeks.
- Ask the staff in their setting to complete the feedback survey after the intervention to give their views of the guidance and the approach
- Consider taking part as a ‘case study setting’. We will ask eight settings to provide more detailed information on how the approaches were implemented in their classes. This would involve researchers visiting the setting, observing some storybook reading sessions, and interviewing the staff members about their experiences.

Which schools and early years settings can take part?

We are interested in schools and early years settings that cater for children in the year before they start reception (ages 3 to 4). We are keen to recruit settings from the private, voluntary and independent (PVI) sector as well as state-maintained settings. We want to work in settings that have at least **8 children** attending at least 3 days per week.

We are recruiting in the following local authority areas:

West Midlands Local Authorities (14): Birmingham, Coventry, Dudley, Herefordshire, Sandwell, Shropshire, Solihull, Staffordshire, Stoke-on-Trent, Telford & Wrekin, Walsall, Warwickshire, Wolverhampton, Worcestershire

East Midlands Local Authorities (10): Derby, Derbyshire, Lincolnshire, Leicester, Leicestershire, North Northamptonshire, Nottingham City, Nottinghamshire, Rutland, West Northamptonshire,

Greater Manchester Local Authorities (10): Bolton, Bury, Manchester, Oldham, Rochdale, Salford, Stockport, Tameside, Trafford, Wigan

In general, we will not work with settings who are already taking part in research trials relating to literacy or language with this age group. If you are taking part in another research trial but would also like to take part in this project, please contact us to discuss it.

When will the trial take place?

Key Dates:

Date	Activity	Time required
October 2024	Settings will send an information sheet to parents	None
October	Individual educators complete an online survey about their background and knowledge of how to support language	20 minutes
November 2024	Settings provide background information about individual children in their setting	1 hour
November 2024	Assessment of vocabulary of individual children, administered by a researcher	We will visit the setting for one or two days, working individually with children for 15 minutes each
December 2024	We will inform settings which approach they should follow and provide guidance on the approach	None
January 2025-April 2025	Settings carry out the storybook reading approach 3 times a week for 12 weeks. Monitoring sheet to be completed after each session	Approx. 20 minutes storybook reading and 5 minutes completing the form per session
May 2025	Some settings agree to take part in interviews about how the approach worked in their setting	2 hours
June 2025	Individual vocabulary, language and attitudes to books testing, administered by a researcher	We will visit the setting for two or three days, working individually with children for two sessions of 15 minutes each
June 2025	Individual educators complete an online survey about their views of the approach	15 minutes

Our setting is interested! What is the next step?

Please contact us using the following details:

Lead Investigator: Professor Julia Carroll

Trial Co-ordinator: Tanvir Ahmed

Email: j.m.carroll@bham.ac.uk or storychoices@contacts.bham.ac.uk

D2: Memorandum of Understanding for Settings

Story Choices Project: MEMORANDUM OF UNDERSTANDING

This information is for settings wishing to take part in the EEF funded project, Story Choices. Please read this information carefully.

Aims of the Project

All Early Years settings know about the value of storybooks to their day-to-day practice, and most already use some of the principles of **interactive book reading**. This project will investigate how much **planning** these storybook activities makes a difference to outcomes.

Who is leading the project?

A team from The University of Birmingham are carrying out this research, led by Professor Julia Carroll. The project is funded by the Education Endowment Foundation.

You can contact the team using the dedicated email address: **StoryChoices@contacts.bham.ac.uk** or contact the project lead direction on **j.m.carroll@bham.ac.uk** j.m.carroll@bham.ac.uk

All researchers who visit your setting will be fully trained and will have full Disclosure and Barring Service certificates.

What will be involved in the project?

We want to compare **two different approaches** to planning interactive storybook reading:

a) **Responsive or Child-led Approach:** Educators ask children to select the book for the daily group reading session or actively involve them in the book selection process. While reading, the questions and discussion points occur spontaneously.

b) **Planned Storybook and Discussion Points Approach:** Educators not only select the storybook ahead of time, but they also plan the specific discussion points they will use while engaging children in conversations about the story.

We will randomly allocate settings to deliver one of the approaches and ask you to stick to that approach for your main storybook sessions for fifteen weeks. Other aspects of your storybook reading routine can remain the same (for example, whether you read in key worker groups or with the whole class).

What settings are eligible to take part?

We are looking for childcare settings based in the West Midlands, East Midlands or Greater Manchester area. We welcome all types of nurseries and preschools from the maintained or private, voluntary and independent sector. Settings must have a minimum of eight 3-4 year old children attending for at least fifteen hours a week.

What does random allocation mean?

The evaluation will take the form of a 'randomised controlled trial' (RCT). This means that half the settings will be randomly allocated to one approach and half will be allocated to the other approach. The allocation to approach will be decided by someone who hasn't visited the settings, to make sure it is fair. When the trial is completed, outcomes from the children in the settings in one approach will be compared to outcomes from the children in the other approach, to find out whether there is a measurable difference between them. The random allocation is essential to the trial, as it allows us to take account of the many other variations between different settings. It is important that you understand that consenting to take part in the trial means that you will not be able to choose which approach you take part in.

How does my setting benefit from taking part?

- You will be taking part in research with immediate, practical relevance for others in your position. This will help us understand how storybook reading practices in preschool influence children's progress.
- At the end of the project, your setting will receive an Amazon voucher of £200 as a thank you for your support. We will also give you access to LanguageScreen, an app to assess children's language in your setting (normally costing £245).
- We won't be comparing a 'control' and 'intervention' – we will be comparing two approaches which we think will both have positive effects for the children. We believe all children will benefit in this project.
- You will not be required to attend training or have to take time away from your day-to-day teaching.
- This project can work flexibly with a variety of weekly routines in different contexts. As long as you have regular group storybook reading sessions, you can do this project.
- You will be asked to make relatively small changes to your everyday practice, keeping the other elements of your work the same.
- This project will give you a chance to reflect on the best ways to implement storybook reading. We will ask about other aspects of your storybook reading routine, but we don't want you to change them.

What will we be asked to do, and when?

The table below shows the key activities of the project and how much time they should take

Date	Activity	Time required
January 2025	Settings will send an information sheet to parents	None
January 2025	Assessment of vocabulary of individual children, administered by a researcher	We will visit the setting for one or two days, working individually with children for 15 minutes each
February 2025	Individual educators complete an online survey about their background and knowledge of how to support language	20 minutes
February 2025	Settings provide background information about individual children in their setting using an online form	20 minutes
February 2025	We will inform settings which approach they should follow and provide guidance on the approach	None
24 th February 2025-30 th May 2025	Settings carry out the storybook reading approach 3 times a week for 12 weeks. Monitoring sheet to be completed after each session	Approx. 20 minutes storybook reading and 5 minutes completing the form per session
May 2025	We will ask eight settings to act as 'case study settings' and provide more detailed information on how the approaches were implemented in their classes. This would involve researchers visiting the setting, observing some storybook reading sessions, and interviewing the staff members about their experiences.	3 hours
June 2025	Individual vocabulary, language and attitudes to books testing, administered by a researcher	We will visit the setting for two or three days, working individually with children for two sessions of 15 minutes each
June 2025	Individual educators complete an online survey about their views of the approach	15 minutes

Roles and responsibilities

The Research Team (University of Birmingham) will:

- Be the first point of contact for any questions about the Story Choices intervention.
- Provide information sheets and opt out letters for parents
- Collate background information about the pupils taking part in the project (name, date of birth, whether they have English as an additional language (EAL), eligibility for early years pupil premium, any special educational needs and disabilities (SEND), normal hours of attendance) and store it securely
- Administer the pre-testing and the post-testing, including direct assessments with children and surveys with staff
- Ensure all research staff working with children are appropriately trained and have Disclosure and Barring Service certificates.
- Ensure that settings are independently and randomly allocated to approach in December 2024
- Provide guidance to settings to allow them to complete the Story Choices trial
- Provide support to educators delivering the Story Choices trial via e-mail and telephone
- Conduct observations of some of the Story Choices sessions to understand delivery.
- Communicate with the schools about all aspects of Story Choices delivery and assessment.
- Support publication and dissemination of evaluation findings at the end of the study.
- Provide settings with a thank you Amazon voucher of £200 per participating setting.

Settings taking part in the project will:

- Read the Setting Information Sheet and Privacy Notice before signing the MOU.
- Name a Key Contact for the project who has sufficient capacity to liaise with the University of Birmingham about the project. The setting will inform the University of Birmingham if this needs to change, for example if they leave the setting.
- Be a point of contact for parents/carers, including providing them with information about the project and informing the University of Birmingham about any pupil withdrawal requests from parents. The University of Birmingham will provide information sheets and withdrawal forms for settings to distribute to parents.
- Agree to randomized allocation to one of the two approaches
- Provide researchers with background demographic data on the children (name, date of birth, whether they have EAL, eligibility for early years pupil premium, any SEND, normal hours of attendance).
- Facilitate researchers to work with the children to assess their vocabulary level and interest in books before and after the intervention.
- Agree that each participating educator will:
 - Follow the guidelines for storybook reading according to the approach you have been allocated to, at least three times a week for twelve weeks.
 - Plan and keep records of sessions according to the guidance.
 - Participate in short online surveys in February 2025 and May 2025
 - Interviews – a selection of educators will be invited for semi-structured in-depth telephone interviews to discuss their experience of the evaluation. Participation will be voluntary.
- If a setting would like to withdraw from the trial, they should inform the University of Birmingham immediately

Use of data

All data, including children's test responses and any other pupil data, will be treated with total confidentiality. Data will be collected and analysed by the Research Team. For the purpose of research, the data will be shared, with Education Endowment Foundation and potentially other research teams and the UK Data Archive. More detail on this process is provided in the Privacy Notice. No individual setting, parent or child will be identified in any report arising from the research. The study has received full ethical approval from the University of Birmingham. Please see the Privacy Notice for Staff, the Privacy Notice for parents and the EEF's privacy statement for further detail on how personal data will be collected and used (these documents are available [here](#)).

Head of Setting agreement

I agree for my setting _____ to take part in the **Story Choices Trial** and I accept the terms and approaches outlined in the Memorandum of Understanding and Privacy Notice.

Setting Name: _____

Head of Setting Name: _____

Head of Setting Signature: _____

Date: ____/____/____

Email Address: _____

Telephone: _____

Key Contact Agreement (if different from above)

Key Contact Name: _____

Key Contact Job Role: _____

Email Address: _____

Telephone _____

Signature: _____

Date: ____/____/____

Thank you for agreeing to take part in this research project.

Please return this form to: storychoices@contacts.bham.ac.uk

D3: Parent Information Sheet

Story Choices Information for Parents/Carers

Your child's nursery or childcare setting has agreed to take part in the Story Choices Trial. We would like to include your child in the project. First, we would like to give you some information about the trial and what it will involve.

The Story Choices Project

All Early Years settings know about the value of storybooks to their day-to-day practice, and most already use some of the principles of **interactive book reading**. This project will investigate how much **planning** these storybook activities makes a difference to outcomes.

We will compare two approaches, as follows:

a) **Spontaneous or Child-led Approach:** Educators ask children to select the book for the daily group reading session or actively involve them in the book selection process. While reading, the questions and discussion points occur spontaneously.

b) **Planned Storybook and Discussion Points Approach:** Educators not only select the storybook ahead of time, but they also plan the specific discussion points they will use while engaging children in conversations about the story.

We are recruiting approximately 100 preschool and nursery settings to take part in this project. This project is important because it will help us understand the best way to plan storybook reading in preschool settings. It will help to improve preschool support in the future.

The Story Choices project is a partnership between researchers at University of Birmingham and the Education Endowment Foundation (EEF), which is funding the project.

How will the trial work?

We will randomly allocate your child's setting to deliver one of the approaches and ask them to stick to that approach for their main storybook sessions for fifteen weeks. Other aspects of the storybook reading routine can remain the same (for example, whether they read in key worker groups or with the whole class).

We will collect some details about the children taking part before the trial starts. This information will be provided by the setting. This includes:

- the child's name,
- date of birth,
- gender,
- home postcode,
- nursery/preschool attendance patterns,
- whether they are eligible for the Early Years Pupil Premium,
- whether they have English as an Additional Language,

- whether they have any special educational needs or speech, language and communication needs.

We will then visit the childcare setting before the trial starts and work individually with each child for around 15 minutes to assess their vocabulary and attitude to books.

The assessments will be administered one-to-one with your child by a research assistant from the evaluation team at your child's nursery or childcare setting.

- If your child does not want to do the assessments on the day, they do not have to.
- All research assistants have Disclosure and Barring Service (DBS) clearance, have completed safeguarding training, and are used to working with young children.
- Your child's key person or a familiar staff member will be available during the assessment to ensure your child feels comfortable.

We will come back in June/ July 2025 to carry out these assessments again, alongside a measure of general language development. This allows us to see whether the two different approaches have led to differences in language skills and attitudes to books.

We will also carry out some observations of the staff in the setting conducting the storybook reading sessions. We will not identify individual children during these observations.

What will happen to the findings from the trial?

We will publish a report on the results of the trial on the Education Endowment Foundation website. This will be used to inform guidance for early years educators. We may also publish the results in an academic journal and discuss them at conferences for people interested in early years education. Your child's data will be treated with the strictest confidence and we will not use any identifiable staff, pupil, or school information in any report or output that we publish about the Story Choices project.

What are the risks and benefits of my child taking part?

There are no significant risks associated with your child taking part in this work.

The benefit to taking part are that you will be enabling your children's childcare setting to take part in research with immediate, practical relevance for other childcare settings. This will help us understand how storybook reading practices in preschool influence children's progress.

- At the end of the project, your child's childcare setting will receive an Amazon voucher of £200 as a thank you, which they can spend on equipment for the childcare setting. They will also receive access to LanguageScreen, a digital tool to allow them to assess the language skills of all the children in your setting (worth £245).

Withdrawing pupil participation

At any point until **June 30 2025**, you can withdraw your child's participation from the trial. If you withdraw your child from the trial before any of their personal data is shared with the University of Birmingham, then settings will not share your child's personal data and they will not take the baseline and endline tests. They will continue to take part in group storybook reading sessions as normal. Should we be informed that you would like to withdraw your child from the trial after some

personal data has been collected, we will not collect any additional data for your child. Wherever possible, we will delete all of your child's personal data collected up to that point.

What will we do with the data?

Most personal data will be collected directly from participating schools. Data will be shared and stored securely, in accordance with the Data Protection Act (2018) and UK GDPR (General Data Protection Regulation). Full details of the data we will collect and how we will keep it secure is available in our privacy notice [link].

Why will we collect this data?

We collect this information for the following reasons:

- To take account of the children's age and background characteristics in our statistical analysis
- To allow us to link the children's data collected before and after the trial
- To allow the information to be linked to other data sources and enable potential future research

As part of their work, the EEF hold a data archive. At the end of the project we will securely transfer children's information from this project to the EEF data archive. Before the data goes into the archive, EEF's archive manager, FFT Education (FFT) will take out names and personal details like addresses. For the purposes of research and archiving, children's data will be linked with information held by the Department for Education's National Pupil Database (NPD) and shared with the Department for Education, the EEF, the EEF's archive manager, the Office for National Statistics and potentially other research teams.

How will the data be stored and deleted?

All electronic data will be stored on a password protected OneDrive folder. All paper records will be stored in a locked filing cabinet at the University of Birmingham.

All research team members working with your data will have received appropriate training in data handling and GDPR requirements.

For further information about how the University of Birmingham will handle your personal data, please visit: <https://www.birmingham.ac.uk/privacy>

We will only retain pupil 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 child's personal data, it will be securely deleted. The approximate date of deletion for pupil personal data is 31st March 2026 (within three months of the final report for the Story Choices project being published).

What do parents/carers need to do?

If you are happy for your child to take part in this trial, you do not need to do anything. If you would prefer that we do not collect data about your child, please complete the attached form and return it via email or on paper to your child's childcare setting.

If you withdraw your child from the trial before any of their personal data is shared with University of Birmingham, then settings will not share your child's personal data and they will not take the baseline and endline tests. They will continue to take part in group storybook reading sessions as normal. Should we be informed that you would like to withdraw your child from the trial after some personal data has been collected, we will not collect any additional data for your child. Wherever possible, we will delete all of your child's personal data collected up to that point.

How can I get more information?

If you would like more information about the Story Choices project, please contact:

Name: Professor Julia Carroll

Address: School of Education, University of Birmingham, Edgbaston, Birmingham B15 2TT

E-mail: **storychoices@contacts.bham.ac.uk**

Who should I contact if I have a complaint?

If you are unhappy for any reason, in the first instance you can contact us directly using the contact details above. You can also contact the University of Birmingham Data Protection Officer at:

The Data Protection Officer
Legal Services
The University of Birmingham
Edgbaston
Birmingham
B15 2TT

Email: **dataprotection@contacts.bham.ac.uk** | Telephone: +44 (0)121 414 3916

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.

Information Commissioner's Office
Wycliffe House
Water Lane
Wilmslow
Cheshire
SK9 5AF

Helpline number: 0303 123 1113

ICO website: **<https://www.ico.org.uk>**

We would, however, appreciate the chance to deal with your concerns before you approach the ICO so please contact us in the first instance.

Parent/Carer Permission

I have read the parent information sheet and **I would like to withdraw** consent to University of Birmingham to collect data about my child for the purposes of the Story Choices trial

Name of Child: _____

Name of Childcare Setting: _____

Name of Parent/Carer: _____

Signature: _____ Date: _____

Please return this form to your childcare provider.

D4: Privacy Notice

Story Choices Privacy Policy

Your setting or your child's setting is participating in a research project called Story Choices. This privacy notice sets out how the University of Birmingham, as a data controller, will collect and use the personal data of the children and school staff that participate in this research.

The Story Choices Project

All Early Years settings know about the value of storybooks to their day-to-day practice, and most already use some of the principles of **interactive book reading**. This project will investigate how much **planning** these storybook activities makes a difference to outcomes.

We will compare two approaches, as follows:

- a) **Spontaneous or Child-led Approach:** Educators ask children to select the book for the daily group reading session or actively involve them in the book selection process. While reading, the questions and discussion points occur spontaneously.
- b) **Planned Storybook and Discussion Points Approach:** Educators not only select the storybook ahead of time, but they also plan the specific discussion points they will use while engaging children in conversations about the story.

We will randomly allocate settings to deliver one of the approaches and ask settings to stick to that approach for your main storybook sessions for fifteen weeks. Other aspects of the storybook reading routine can remain the same (for example, whether they read in key worker groups or with the whole class).

The Story Choices project is a partnership between researchers at the University of Birmingham and the Education Endowment Foundation (EEF), which is funding the project.

Our contact details

Name: Julia Carroll

Address: School of Education, University of Birmingham, Edgbaston, Birmingham B15 2TT

E-mail: storychoices@contacts.bham.ac.uk

What personal data we will collect and what we will do with it:

Most personal data will be collected directly from participating settings. Data will be shared and stored securely, in accordance with the Data Protection Act (2018) and UK GDPR (General Data Protection Regulation).

We will collect and process the following information about preschool pupils taking part in Story Choices:

- First and last name
- Date of birth
- Home postcode
- Gender
- Children's Unique Pupil Number (a code number to allow us to link to the child's record in the Department for Education's national pupil database)
- Whether the child is eligible for Early Years Pupil Premium
- Whether the child has English as an additional language
- Whether the child has any registered special educational needs or Speech, Language and Communication Needs
- Attendance pattern at the setting in general, and at the storybook reading sessions
- Which primary school the child is likely to attend
- Results from a short vocabulary assessment at the start and end of the trial
- Results from a short questionnaire about attitudes towards books and reading at the start and end of the trial
- Results from a brief language measure (**LanguageScreen**) at the end of the trial
- Preschool setting name and unique registration number

The University of Birmingham will use this data to conduct an evaluation of the Story Choices trial. As part of this evaluation, we are running a trial in approximately 100 preschool settings in England. This trial will involve staff in the settings following one of two different storybook reading routines in their classrooms. The University of Birmingham will randomly allocate settings to one of two approaches, one where the books read are preplanned by the staff and one where they are chosen by the children. We will assess whether these conditions make any difference to the children's vocabulary and attitudes towards books.

For setting staff (including the key contact person and all staff members leading storybook reading sessions) the following data will be collected:

- Name
- Email address
- Job title
- Number of years of experience in preschool settings
- Any teaching or childcare qualifications
- Knowledge of oral language teaching approaches
- Attitudes and views on the guidance materials for the trial

This data will be used to deliver the trial efficiently and to evaluate the effectiveness of the storybook reading approaches.

We will not use any identifiable staff, pupil, or school data and information in any report that we publish about the Story Choices project.

Withdrawing pupil participation

At any point until **May 31st 2025**, you can withdraw your child's participation from the trial. If you withdraw your child from the trial before any of their personal data is shared with the University of Birmingham, then settings will not share your child's personal data and they will not take the baseline and endline tests. They will continue to take part in group storybook reading sessions as normal. Should we be informed that you would like to withdraw your child from the trial after some personal data has been collected, we will not collect any additional data for your child. Wherever possible, we will delete all of your child's personal data collected up to that point.

What will happen to the data?

Most of the personal information we process is provided to us by the child's nursery or preschool setting. We collect this information for the following reasons:

- To take account of the children's age and background characteristics in our statistical analysis
- To allow us to link the children's data collected before and after the trial
- To allow the data to be linked in the future to information held on them on the Department for Education's National Pupil Database (NPD). This is a database containing information about the educational progress of all children within the English state school system.

We will assess your child's language using the LanguageScreen assessment which is administered to your child by a researcher in your child's setting using the LanguageScreen app. The data from this app is uploaded to OxEd, the external company which manages the app, and they will provide your data to the research team via their secure LanguageScreen webpage. OxEd will use the data collected using the LanguageScreen app to improve their assessment and for further research into language development; you can opt out of OxEd processing data for this purpose by contacting the research team. Further information about Language Screen can be found on their website:

<https://oxedandassessment.com/uk/languagescreen/> and their privacy notice is available here: <https://media.oxedandassessment.com/assets/OxEdPrivStatement.pdf>

At the end of the project we will share this information with FFT Education (FFT). FFT will hold the data until participating children would be expected to appear in the NPD, then match with the NPD and replace these identifiers with the Pupil Matching Reference (PMR). The anonymised dataset containing the PMR (but no direct identifiers) will then be archived in the Education Endowment Foundation Data Archive. The Education Endowment Foundation are data controllers for this archive.

This anonymised dataset will be shared with the Department for Education, FFT, Education Endowment Foundation and the Office for National Statistics. Data may also be shared with other research teams for purposes of managing the archive and future research.

For more information about how the EEF handles data in its data archive, please see the **Privacy Notice for the EEF Archive**.

How will the data be stored?

All electronic data will be stored on a password protected OneDrive folder. All paper records will be stored in a locked filing cabinet at the University of Birmingham.

All research team members working with your data will have received appropriate training in data handling and GDPR requirements.

For further information about how the University of Birmingham will handle your personal data, please visit: <https://www.birmingham.ac.uk/privacy>

What is the lawful basis for this data collection and processing?

Under the UK General Data Protection Regulation (UK GDPR), the lawful basis we rely on for processing this information is:

Legitimate Interest. Our lawful basis for processing the personal data listed above is legitimate interests (as per Article 6 (1) (f) of the GDPR) and we have considered that staff and pupil interests and fundamental rights do not override those legitimate interests. It is necessary in the University of Birmingham's 'legitimate interests' to process the personal and special category data identified above in order to learn more about the most effective way to plan storybook reading in preschool classrooms. The research project fulfils the University of Birmingham's core business aims including undertaking research, evaluation and information activities in sectors that will deliver social impact.

Who should I contact if I have a complaint?

If you are unhappy for any reason, in the first instance you can contact us directly using the contact details above. You can also contact the University of Birmingham Data Protection Officer at:

The Data Protection Officer
Legal Services
The University of Birmingham
Edgbaston
Birmingham
B15 2TT

Email: dataprotection@contacts.bham.ac.uk

Telephone: +44 (0)121 414 3916

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.

Information Commissioner's Office
Wycliffe House
Water Lane
Wilmslow
Cheshire
SK9 5AF

Helpline number: 0303 123 1113

ICO website: <https://www.ico.org.uk>

We would, however, appreciate the chance to deal with your concerns before you approach the ICO so please contact us in the first instance.

International transfers

Staff and pupil personal information will not be transferred outside of the European Economic Area (“EEA”). References in this notice to the EEA include the UK, even where the UK is no longer a member of the European Union / European Economic Area.

Data retention

We will only retain staff and pupil 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 the staff and pupil 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 the personal data, the purposes for which we process the personal data and whether we can achieve those purposes through other means, and the applicable legal requirements.

Taking the above factors into consideration, the approximate date of deletion for staff and pupil personal data is 31st March 2026 (within three months of the final report for the Story Choices project being published).

Your data protection rights

Under data protection law, you have rights including:

Your right of access - You have the right to ask us for copies of your personal information, or information about your child.

Your right to rectification - You have the right to ask us to rectify personal information you think is inaccurate. You also have the right to ask us to complete information you think is incomplete.

Your right to erasure - You have the right to ask us to erase personal information in certain circumstances.

Your right to restriction of processing - You have the right to ask us to restrict the processing of your personal information in certain circumstances.

Your right to object to processing - You have the right to object to the processing of personal information in certain circumstances.

Your right to data portability - You have the right to ask that we transfer the personal information you gave us to another organisation, or to you, in certain circumstances.

You are not required to pay any charge for exercising your rights. If you make a request, we have one month to respond to you.

Please contact us at dataprotection@contacts.bham.ac.uk if you wish to make a request.

If we have only collected pseudonymised information (e.g. where we have not collected any names or contact details) or personal data has been irreversibly anonymised and has become part of the research data set, it will not be possible for us to comply. Please note that this does preclude you exercising your right to complaint via the Information Commissioner's Office (www.ico.org.uk).

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 staff and pupil personal information we will make this clear by updating the notice on the project website or by contacting staff and parents directly.

Appendix E: Storybook Vocabulary Measure

E1: Development of the Expressive vocabulary measure

The task is a modified version of the New Word Definition Test (Blewitt et al, 2009; Hadley et al., 2015). This is an ‘informal definitions task’ in which children are given points for the amount of semantic and contextual information given through words or gestures.

Reviews generally indicate larger effect sizes for expressive rather than receptive vocabulary measures. In particular, Hadley et al report an effect size of >1 using this task with their storybook reading intervention, compared to an effect size of 0.4 using a parallel receptive vocabulary task. We do not anticipate similar effect sizes because they are using a tightly controlled, short term experiment using only two stories, but we still anticipate that this measure will be more sensitive than a receptive vocabulary measure.

Other options we considered:

Receptive Vocabulary measures with a choice of pictures to match a spoken word typically measure vocabulary breadth rather than depth. They can typically be answered with partial knowledge of a word meaning – for example, knowing that a ‘predator’ is some kind of animal might be enough to discount alternative pictures. Hence, they are relatively insensitive to gains in knowledge around a given word or concept. Effect sizes on receptive vocabulary measures in storybook interventions tend to be smaller than those for expressive vocabulary.

Formal Definition tasks require some metalinguistic understanding and can be difficult for preschool children, as they have generally not been introduced to the concept of a word definition.

Picture Naming tasks are the most widely used measure for preschool children but they depend on having a picture that is an unambiguous representation of a word. Many of the words we may be testing may be ‘tier 2’ vocabulary words, and perhaps have simpler, more common synonyms. This limits the words suitable for use in a picture naming measure, typically to concrete nouns.

Hence, we chose to use the:

Informal Definition Task

The general frame is:

What is (a).....? Can you tell me or show me any more about?

Answers are scored on a two point scale for each item, according to how much relevant information about the word is provided.

For example:

Researcher: “What is an *explosion*?”

Child [gestures something blowing up], says “it goes bang” – 2 points

Child says ‘crash’ – 1 point

E2: Administration and Scoresheet for the Storybook Vocabulary Measure

Each phase has a practice section and a test section. Feedback should be given in the practice section but not in the test section. In the 'show me' phases no further help is given. In the 'tell me' phases the single prompt is used if the child does not score 2 point for their first answer.

The toy based phase is administered with two small dolls named Ben and Sue. Introduce the dolls as explained in the scoresheet.

Name of setting:						Tester:					
Name of child:								Boy		Girl	
Pupil premium:		Y		N		Attendance Pattern (hours/week):					
DoB:						SEN:		Y		N	
						Type:					
EAL:		Y		N		Home Postcode:				Date:	

Write responses in appropriate spaces. Incorrect response = 0, No response = blank.

Toy based phase		
Practice		
Action	Say	Response
Set the two figures	This is BEN and this is SUE, they are going to help us. - Can you point to BEN? - Can you point to SUE? - Can you pick up BEN? - Can you pick up SUE	
Test Phase (for correct action write <demo> in the response box)		
1. Down	Move BEN down	
2. Carry	Show me SUE carry something	
3. Behind	Put BEN behind SUE	
4. Climb	Make BEN/SUE climb something	
5. Under	Show me BEN under something	

Show me phase
Practice

Action	Say	Response
	Show me your nose	Guidance and demonstrate to child if they are unsure
	Show me your hand	Guidance and demonstrate to child if they are unsure
Test Phase (for correct action write <demo> in the response box)		
6. Smile	Show me your smile?	
7. Angry	What do you do when you are angry?	
8. Count	Show me how you count?	
9. Whisper	Can you whisper your name?	

Tell me phase - Adjective			
Practice			
Tell me what cuddly means	Can you tell me something that is cuddly?	A teddy is cuddly (with action)	
Test phase			
Tell me what X means:	Response (2 points)	Prompt if not 2 points	Response (1 point)
10. Scary	<scary face>	Tell me something that is scary	
11. Soft		Tell me something that is soft	
12. Tiny		Tell me something that is tiny	
13. Lonely		When is someone lonely?	
14. Clever		What does a clever person do?	
Tell me phase - Noun			
Practice			
Tell me what a cat is	A cat is an animal. Anything else about it?	A cat is furry and lives in people’s houses	
Tell me what a chair is	What do you use a chair for?	A chair is somewhere you sit	
Test phase			

Tell me what X is	Response (2 points)	Prompt if not 2 points	Response (1 point)
15. Bedtime		What do you do when it is bedtime?	
16. Dog		What does a dog do?	
17. Rainbow		Where do you see a rainbow?	
18. Ocean		What do you see in the ocean?	
19. Home		What do you do at home?	
20. Bucket		What do you use a bucket for?	
21. Zoo		What do you see in the zoo?	
22. Friend		What does a friend do?	
23. Secret		What do you do if you have secret?	

Appendix F: Attitudes to Literacy Activities (ALTA) Measure

Instructions

Say to the child: Some children like this and they would pick a smiley face. Some children don't like this and they would pick a sad face. How about you? Do you like it or not like it?

If they say like – do you like it a little bit or a lot?

If they say don't like – do you not like it all or just a little bit?

Point to the corresponding face in each case.

Example Stimulus

1. Choosing books to read



Answer Sheet

Item	Items	Likes a lot (4)	Likes a little (3)	Doesn't much like (2)	Dislikes (1)
A.	Broccoli				
B.	Ice cream				
1.	Choosing books to read	1			
2.	Hearing stories		1		
3.	Learning about letters		1		
4.	Playing football				
5.	Looking at books yourself			1	
6.	Listening to stories in a group				

7.	Learning about sounds in words				
8.	Splashing in puddles				
9.	Listening to a story at bedtime				
	Total				
		x4 = 4	2x3 = 6	1x2 = 2	x1 =
					12

To calculate the total:

Do not include the answers for the greyed-out rows (A, B, 4 or 8).

Total the number of answers in each column and multiply it as stated (e.g. total number of 'likes a lot' answers are multiplied by 4). Add the columns to get the total score.

Appendix G: Educator Guidance

G1: Educator Guidance for the child-led condition



Story Choices

[DOCUMENT TITLE] CHILD LED CONDITION

[Document subtitle]



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Storybook Reading

Introduction

Welcome to the **Educator's Guide** for the trial on improving language development in preschool children through storybook reading and interactive discussions. Previous research has shown the value of group storybook reading in improving language skills among young learners. **Dialogic reading** or **interactive reading**, where educators engage children in discussions while reading, has proven to be even more effective in boosting language abilities. It involves **active interactions** between the educator and the children while reading a storybook. Instead of just reading aloud to the child, educators encourage discussions, ask questions, and provide opportunities for children to express their thoughts and ideas related to the story. For more information about interactive reading, see Appendix 1 at the end of this guidance.

We know that most early years settings use interactive reading in their day-to-day practice, but they choose different ways to plan the activity. We are interested in which **approach to planning** leads to the most improvement in children's language.

Benefits of Participating in this Trial

By participating in this trial, educators will have the opportunity to contribute to valuable research that can potentially shape future practice. Your participation in this study will allow us to gather crucial data that will help us analyse the impact of each approach on children's language development. This research has the potential to inform educational policy and curriculum development, fostering improved language outcomes for future generations.

The Two Approaches

In both approaches, we would like you to read with the children in a group situation at least three times a week. We know that different settings might read with the whole group, or divide children by age or key worker, and we don't want you to change that – we just want to know which approach you use. We want to compare two different approaches to **planning** interactive storybook reading:

- a) **Spontaneous or Child-led Approach:** Educators ask children to select the book for the daily group reading session or actively involve them in the book selection process. While reading, the questions and discussion points occur spontaneously.
- b) **Planned Storybook and Discussion Points Approach:** Educators not only select the storybook ahead of time, but they also plan the specific discussion points they will use while engaging children in conversations about the story.

The purpose of this trial is to explore the benefits and effectiveness of each approach in improving language skills among preschool children.

We are asking you to use Approach A – Child-Led Storytime

Understanding the Different Approaches

We expect that approach "a" will encourage child-led learning, promoting active engagement and interest. However, this approach means that the educator can't select books that address particular topics or introduce particular relevant language. It also means that the educator can't pre-plan particular questions or discussion points.

On the other hand, approach "b" enables educators to tailor story selections to the group's needs and experiences, and to highlight important vocabulary or discussion points. However, maybe the pre-planned questions won't follow the children's interest and engagement.

Throughout the trial, we ask settings **to stick to your assigned approach**, enabling us to accurately assess the impact of each method.

Approach, Dos and Don'ts, FAQs, and Useful Links

The following sections of this guide will provide a comprehensive summary of the approach being tested. Additionally, we will offer Dos and Don'ts to ensure consistent implementation and reliable data collection. Frequently Asked Questions will address any concerns you may have, and useful links will provide further resources and references for your convenience.

Approach A: Spontaneous or Child-led Approach

In this approach, educators allow children to select the storybooks or actively involve them in the book selection process. The primary focus is on giving children autonomy in choosing the books they are interested in reading that day, fostering their engagement and enjoyment of the reading experience.

Do:

- Provide a selection of at least 5 different books that you think are appropriate for the children to choose from for the reading session.
- Familiarise yourself with the different types of prompts that can be useful in interactive reading (see Appendix 1). This will help you form useful prompts as you are reading.
- Respond to the children's interest and engagement in the prompts you use.
- Respect children's choices and encourage them to share why they picked a particular book.
- As you read try to identify aspects of the story they may not have accessed or understood and discuss these
- Record the book reading session in the recording sheet afterwards.

Don't:

- Steer children towards specific books; let their interests guide the selection process.
- Rush the children through the story or limit their time for book exploration.
- Plan prompts or discussion points before reading.
- Let a few children dominate the book choice: make sure you provide opportunities for children to take turns in selecting books for the group.

Frequently Asked Questions

Q: Where can we find the books to use?

Use the books that you would normally select from for whole group storybook reading.

Q: Can we reread the same books again?

Yes. Rereading books helps to consolidate the information in the book. Just make sure you record which book you read and on what date.

Q: Can we use props or visuals to accompany the stories?

So long as you keep to the other aspects of the planning, feel free to add props or activities as you would normally. Please mention these in the recording sheet so that we can keep track of what different settings are doing.

Q: Can we keep the other aspects of our daily routine the same?

Yes, please just change the approach to choosing books and discussion points. Keep the other aspects of your routine the same as you normally would.

Q: Can I include stories from different cultures or languages?

You are very welcome to read books from different cultures, but please only read storybooks in English for this trial as we'll be looking at the impact of the approaches on children's development of English.

Q: Do all the books I read for the trial need to be stories?

Yes. For the purpose of this trial, we are primarily looking at the effectiveness of different planning approaches in interactive storybook reading, so we would like you to use storybooks rather than information books.

Q: Who can read the stories to the children?

For the purpose of this trial, we recommend that you try keep the same educator leading as many of the interactive reading sessions as possible. Please make a note of who delivered the session on the record sheet.

Q: Should I share what I am doing with the staff, children or parents?

Definitely. Feel free to pass on our contact details to staff or parents who have questions.

Q: Is there a set amount of time allocated for the storybook reading session?

No, there is no specific time limit for the storybook reading session. We encourage you to continue reading until the end of the book. However, if the book is too lengthy for a single session, please use your judgment to determine an appropriate stopping point based on the children's engagement and attention span. As part of your recording, please also make note of the length of the reading session, whether it's the full book or a partial reading, to provide additional context for our analysis.

Q: What time of day would be best to do the Story Time Reading Trial session?

We would like you to stick as closely to your normal routine as possible, so please just pick a time that works for you.

Q: Can I give a recap from the previous time we read together before starting a reading session?

Absolutely! A brief recap can help reinforce previous learning and make connections between sessions.

Q: Can I use the texts I read during the Storybook Reading Trial session across other lessons during the day?

Yes, that's fine. Please try and remember to record on the planning sheet if you do this though.

Q: What happens if we miss a Story Time Trial session?

The session times are flexible so that you can postpone a session and carry it out on another day if necessary, but please try to complete at least three sessions per week. If a session is missed, please record this on the planning sheet.

Q: Do I have to record if there are any absences?

Yes, please keep a register to record who attends each session.

Q: Can children with SEND or English as an Additional Language be involved?

Absolutely! We encourage the inclusion of all children in the trial, including those with SEND or learning English as an Additional Language.

Q: What happens if a child in my class says they are familiar with the story?

Acknowledge their familiarity, and during the reading, focus on eliciting their prior knowledge and extending their understanding.

What if I have more questions: Please send any additional questions to
StoryChoices@contacts.bham.ac.uk

Appendix 1: Advice on interactive reading techniques

Videos and advice for the Interactive Reading

The Education Endowment Foundation have useful information about interactive storybook reading:

- <https://educationendowmentfoundation.org.uk/early-years-evidence-store/early-literacy?approach=interactive-reading-in-early-literacy>
- Eyes on the Early Years: Interactive Reading <https://www.youtube.com/watch?v=v5dz3i9T64E>

Dialogic Reading strategies: PEER and CROWD

PEER and **CROWD** are convenient acronyms designed to assist you in thinking about prompts during storybook reading. These prompts are effective with children of various age groups. Details on these acronyms are shown below (taken from <https://d2tic4wvo1iusb.cloudfront.net/eef-guidance-reports/literacy-ks2/EEF-Improving-literacy-in-key-stage-2-report-Second-edition.pdf?v=1677673559>)

Appendix 2: Child-led reading recording sheet

The PEER Framework is a simple sequence that can be used to promote dialogue during shared reading activities.¹⁶ When reading with a child, adults can:

- **P**rompt the child to say something about the book;
- **E**valuate their response;
- **E**xpand their response by rephrasing or adding information to it; and
- **R**epeat the prompt to help them learn from the expansion.

The PEER Framework was developed for use with younger children,¹⁸ but approaches included within it, such as prompting and questioning to scaffold engagement with texts, can also be effective for older pupils and may support purposeful dialogue when reading with Key Stage 2 pupils.¹⁹

There are five main types of prompt that can be used as part of the PEER sequence. The prompts can be remembered using the acronym CROWD:

- **C**ompletion—leave a blank at the end of a sentence for children to complete (this works particularly well with books with rhymes or repetitive phrases);
- **R**ecall—ask children about something they have already read (these prompts support children to understand the story's plot);
- **O**pen-ended—ask children questions that cannot be answered with a short response such as 'yes' or 'no', prompting them to express their ideas;
- **W**h—prompts that begin with 'who', 'what', 'where', 'when', 'why', and 'how' ('why' and 'how' questions tend to prompt the most linguistically complex responses from children);¹⁷ and
- **D**istancing—connects the book to children's own life experiences and provides an opportunity for high quality discussion.

Week	Session number	Date	Book selected	Which child selected it?	How did the session go?
1	1				
	2				
	3				
2	1				
	2				
	3				
3	1				
	2				
	3				

4	1				
	2				
	3				
5	1				
	2				
	3				
6	1				
	2				
	3				
7	1				

	2				
	3				
8	1				
	2				
	3				
9	1				
	2				
	3				
10	1				
	2				

	3				
11	1				
	2				
	3				
12	1				
	2				
	3				

Appendix 3: Child Attendance Register

Child Name	Week 1			Week 2			Week 3			Week 4			Week 5			Week 6		
Session	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3

[illegible]

[illegible]



Story Choices

[DOCUMENT TITLE] PLANNED CONDITION

[Document subtitle]

Coventry
University



UNIVERSITY OF
BIRMINGHAM



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- b) **Planned Storybook and Discussion Points Approach:** Educators not only select the storybook ahead of time, but they also plan the specific discussion points they will use while engaging children in conversations about the story.

The purpose of this trial is to explore the benefits and effectiveness of each approach in improving language skills among preschool children.

We are asking you to use Approach B – Planned Storytime

Understanding the Different Approaches

We expect that approach "a" will encourage child-led learning, promoting active engagement and interest. However, this approach means that the educator can't select books that address particular

topics or introduce particular relevant language. It also means that the educator can't pre-plan particular questions or discussion points.

On the other hand, approach "b" enables educators to tailor story selections to the group's needs and experiences, and to highlight important vocabulary or discussion points. However, maybe the pre-planned questions won't follow the children's interest and engagement.

Throughout the trial, we ask settings **to stick to your assigned approach**, enabling us to accurately assess the impact of each method.

Approach, Dos and Don'ts, FAQs, and Useful Links

The following sections of this guide will provide a comprehensive summary of each of the two approaches being tested. Additionally, we will offer Dos and Don'ts to ensure consistent implementation and reliable data collection. Frequently Asked Questions will address any concerns you may have, and useful links will provide further resources and references for your convenience.

Approach B: Planned Storybook and Discussion Points Approach

In this approach, educators not only plan the storybooks but also prepare discussion points and questions to guide interactive reading sessions. This intentional emphasis on vocabulary, concepts, and language skills could enrich the learning experience.

Do:

- Complete the planning sheet ahead of time. Come back to the sheet to add reflections after the book reading session.
- Think carefully about which books you select, and your reasons for choosing them.
- Use the different types of prompts (see Appendix 1) to plan queries and discussion points.
- Plan discussion points that fit in with your reasons for choosing a book – for example, highlighting vocabulary that is relevant for a current topic.
- Use discussion points to get children talking about aspects of the story you think they may not access or understand.
- Use open-ended questions where appropriate to encourage children to use language and promote critical thinking and expression.
- Highlight key vocabulary and engage children in conversations about their meanings.
- Do respond to children's questions or interest, but try to guide conversation back to your pre-planned points

Don't:

- Be disheartened if a discussion point doesn't work in the way you have planned.
- Feel you have to use every point you have planned.

- Allow children to pick the storybook – in order to compare the conditions fairly, the books you read should be planned in advance.

Frequently Asked Questions

Q: Where can we find the books to use?

Use the books that you would normally select from for whole group storybook reading.

Q: Can we reread the same books again?

Yes. Rereading books helps to consolidate the information in the book. Just make sure you record which book you read and on what date.

Q: Can we use props or visuals to accompany the stories?

So long as you keep to the other aspects of the planning, feel free to add props or activities as you would normally. Please mention these in the recording sheet so that we can keep track of them.

Q: Can we keep the other aspects of our daily routine the same?

Yes, please just change the approach to choosing books and discussion points. Keep the other aspects of your routine the same as you normally would.

Q: Can I include stories from different cultures or languages?

You are very welcome to read books from different cultures, but please only read storybooks in English for this trial as we'll be looking at the impact of the approaches on children's development of English.

Q: Do all the books I read for the trial need to be stories?

Yes. For the purpose of this trial, we are primarily looking at the effectiveness of different planning approaches in interactive storybook reading, so we would like you to use storybooks rather than information books.

Q: We have whole class story time in our setting, should we keep doing this?

Yes. We would like you to carry out this storytime with selected group in addition to any whole class activities you plan.

Q: Who can read the stories to the children?

For the purpose of this trial, we recommend that you try keep the same educator leading as many of the interactive reading sessions as possible. Please make a note of who delivered the session on the record sheet.

Q: Should I share what I am doing with the staff, children or parents?

Definitely. Feel free to pass on our contact details to staff or parents who have questions.

Q: Is there a set amount of time allocated for the storybook reading session?

No, there is no specific time limit for the storybook reading session. We encourage you to continue reading until the end of the book. However, if the book is too lengthy for a single session, please use your judgment to determine an appropriate stopping point based on the children's engagement and attention span. As part of your recording, please also make note of the length of the reading session, whether it's the full book or a partial reading, to provide additional context for our analysis.

Q: What time of day would be best to do the Story Time Reading Trial session?

We would like you to stick as closely to your normal routine as possible, so please just pick a time that works for you.

Q: Can I give a recap from the previous time we read together before starting a reading session?

Absolutely! A brief recap can help reinforce previous learning and make connections between sessions.

Q: Can I use the texts I read during the Storybook Reading Trial session across other lessons during the day?

Yes, that's fine. Please try and remember to record on the planning sheet if you do this though.

Q: What happens if we miss a Story Time Trial session?

The session times are flexible so that you can postpone a session and carry it out on another day if necessary, but please try to complete at least four sessions per week. If a session is missed, please record this on the planning sheet.

Q: Do I have to record if there are any absences?

Yes, please keep a register to record any absences or changes in the group.

Q: Can children with SEND or English as an Additional Language be involved?

Absolutely! We encourage the inclusion of all children in the trial, including those with SEND or learning English as an Additional Language.

Q: What happens if a child in my class says they are familiar with the story?

Acknowledge their familiarity, and during the reading, focus on eliciting their prior knowledge and extending their understanding.

What if I have more questions: Please send any additional questions to
StoryChoices@contacts.bham.ac.uk

Appendix 1: Advice on interactive reading techniques

Videos and advice for the Interactive Reading

The Education Endowment Foundation have useful information about interactive storybook reading:

- <https://educationendowmentfoundation.org.uk/early-years-evidence-store/early-literacy?approach=interactive-reading-in-early-literacy>
- Eyes on the Early Years: Interactive Reading
<https://www.youtube.com/watch?v=v5dz3i9T64E>

Dialogic Reading strategies: PEER and CROWD

PEER and **CROWD** are convenient acronyms designed to assist you in thinking about prompts during storybook reading. These prompts are effective with children of various age groups. Details on these acronyms are shown below (taken from <https://d2tic4wvo1iusb.cloudfront.net/eef-guidance-reports/literacy-ks2/EEF-Improving-literacy-in-key-stage-2-report-Second-edition.pdf?v=1677673559>)

The PEER Framework is a simple sequence that can be used to promote dialogue during shared reading activities.¹⁶ When reading with a child, adults can:

- **P**rompt the child to say something about the book;
- **E**valuate their response;
- **E**xpand their response by rephrasing or adding information to it; and
- **R**epeat the prompt to help them learn from the expansion.

The PEER Framework was developed for use with younger children,¹⁸ but approaches included within it, such as prompting and questioning to scaffold engagement with texts, can also be effective for older pupils and may support purposeful dialogue when reading with Key Stage 2 pupils.¹⁹

There are five main types of prompt that can be used as part of the PEER sequence. The prompts can be remembered using the acronym CROWD:

- **C**ompletion—leave a blank at the end of a sentence for children to complete (this works particularly well with books with rhymes or repetitive phrases);
- **R**ecall—ask children about something they have already read (these prompts support children to understand the story's plot);
- **O**pen-ended—ask children questions that cannot be answered with a short response such as 'yes' or 'no', prompting them to express their ideas;
- **Wh**—prompts that begin with 'who', 'what', 'where', 'when', 'why', and 'how' ('why' and 'how' questions tend to prompt the most linguistically complex responses from children);¹⁷ and
- **D**istancing—connects the book to children's own life experiences and provides an opportunity for high quality discussion.

Appendix 2: Planning and Recording Sheet

Please complete this sheet ahead of time, while planning the storybook sessions, then come back to complete the ‘reflecting’ section afterwards

			Planning		Reflecting	
Week	Session number	Date	Planned book	Key discussion points and vocabulary	Did you read it as planned? (Yes/No)	Did you ask the questions as planned?
1	1					
	2					
	3					
2	1					
	2					
	3					
3	1					
	2					

	3					
4	1					
	2					
	3					
5	1					
	2					
	3					
6	1					
	2					
	3					

7	1					
	2					
	3					
8	1					
	2					
	3					
9	1					
	2					
	3					
10	1					

	2					
	3					
11	1					
	2					
	3					
12	1					
	2					
	3					

Appendix 3: Child Attendance Register

Child Name	Week 1			Week 2			Week 3			Week 4			Week 5			Week 6		
Session	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3

Child Name	Week 7			Week 8			Week 9			Week 10			Week 11			Week 12		
Session	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3

Appendix H: R Script for Randomisation

```
library(blockrand)

library(tidyverse)

## DO NOT rerun!

## stratified by setting_type, 150 in stratum, 2 treatments

# smallPVI <- blockrand(n=150, id.prefix='smallPVI', block.prefix='P',stratum='smallPVI')

# smallState <- blockrand(n=150, id.prefix='smallState', block.prefix='S',stratum='smallState')

#

# largePVI <- blockrand(n=150, id.prefix='largePVI', block.prefix='P',stratum='largePVI')

# largeState <- blockrand(n=150, id.prefix='largeState', block.prefix='S',stratum='largeState')

# my.study <- rbind(smallPVI,largePVI,smallState,largeState)

#

# my.study <- my.study %>% mutate(stratum_size=str_sub(stratum, 1, 5))

# my.study <- my.study %>% mutate(stratum_type=str_split(stratum, "(?<=[a-z]{5})")%>% map_chr(.,
2))

# my.study <- my.study %>% select(!c(stratum,block.id))

#

#

# write.csv(my.study,"storychoicesRandomlist_incSchools.csv")

allocated_schools <- read.csv("storychoicesRandomlist_incSchools.csv",na.strings="")

allocated_schools2<-allocated_schools %>% filter(is.na(id)==FALSE)

allocated_schools2$treatment<-as.factor(allocated_schools2$treatment)

filter1 <- allocated_schools2 %>% filter(allocated_schools2$stratum_type=="PVI")

filter2 <- allocated_schools2 %>% filter(allocated_schools2$stratum_type=="State")

filter1 %>% group_by(treatment) %>%
summarise(n=length(unique(id)),Sum=sum(`Number_of_children`, na.rm = T))

filter2 %>% group_by(treatment) %>%
summarise(n=length(unique(id)),Sum=sum(`Number_of_children`, na.rm = T))

allocated_schools2 %>% group_by(treatment) %>%
summarise(n=length(unique(id)),Sum=sum(`Number_of_children`, na.rm = T))
```

Appendix I: R Script for analyses

```
#=====#  
# StoryChoices study analysis script  
#=====#  
# Paul Thompson - 15-09-2025  
  
# Load required R packages  
library(lme4)  
library(lmerTest)  
library(glmmTMB)  
library(tidyverse)  
library(mediation)  
library(sjstats)  
library(naniar)  
library(haven)  
library(stringr)  
library(dplyr)  
library(sjPlot)  
library(performance)  
library(mice)  
library(miceadds)  
library(mitml)  
library(countimp)  
library(broom.mixed)  
library(eefAnalytics)  
library(readxl)
```

```
#library(ivpack)

library(ivreg)

library(robustlmm)

library(robustlm)

library(r2glmm)

#library(devtools)

#devtools::install_git(url = "https://github.com/kkleinke/countimp", branch = "master")

#=====#

# Load StoryChoices study data

StoryChoices_data<-read_sav("C:/Users/thompspa/University of Birmingham/Story Choices -
  Research - Data - Post-test Sample data/Updated data/Story Choices
  data_V3_20.10.2025.sav")

#remove SPSS label formatting (unnecessary for analysis purposes)

StoryChoices_data<-zap_formats(zap_labels(StoryChoices_data))

#=====#

# check missing data

#=====#

vis_miss(StoryChoices_data)

#=====#

#model setups

#=====#

#### Story Choices primary outcome total score at 12 months ####

#unInterventionAllocational model
```

```
StoryChoices_primary_unc<-
  lmer(Posttesttotalscore~Pretesttotalscore+InterventionAllocation+(1|SettingID),data=Story
  Choices_data[StoryChoices_data$AgeThresholdmet==1,])
```

#SAP analysis

```
StoryChoices_primary_cond<-
  lmer(Posttesttotalscore~Pretesttotalscore+InterventionAllocation+Typeofsetting+(1|Settin
  gID),data=StoryChoices_data[StoryChoices_data$AgeThresholdmet==1,])
```

#output to table (publication ready)

```
sjPlot::tab_model(StoryChoices_primary_cond,StoryChoices_primary_cond_r,pred.labels
  = c("Intercept", "Baseline", "Intervention", "Setting Type"),
  dv.labels = c("Primary analysis(two-level)","Robust primary analysis"),
  string.pred = "Coefficient",
  string.se = "S.E",
  string.p = "P-Value", p.style = "stars",show.se=TRUE,show.ci=TRUE)
```

#EEF requested format

```
sjPlot::tab_model(StoryChoices_primary_unc,StoryChoices_primary_cond,pred.labels = c("Int
  ercept", "Baseline", "Intervention", "Setting Type"),
  dv.labels = c("unconditional Primary analysis(two-level)","Conditional primary
  analysis"))
```

#ICC

```
performance::icc(StoryChoices_primary_unc,ci = 0.95,iterations = 100)
```

```
performance::icc(StoryChoices_primary_cond,ci = 0.95,iterations = 100)
```

#r^2

```
r2beta(StoryChoices_primary_cond)
```

```
#=====
  =====#
```

```
# To get Hedges' g for primary analysis
```

```
library(eefAnalytics)
```

```
# TO obtain Effect size - hedge's g (R package eefAnalytics) -2 level model
```

```
StoryChoices_data2<-as.data.frame(StoryChoices_data)
```

```
StoryChoices_data2$SettingID <- as.numeric(as.factor(StoryChoices_data2$SettingID))
```

```
output1
```

```
<- crtFREQ(Posttesttotalscore~Pretesttotalscore+InterventionAllocation+Typeofsetting,ran  
dom="SettingID",intervention="InterventionAllocation",data=StoryChoices_data2[StoryCho  
ices_data$AgeThresholdmet==1,])summary(output1)
```

```
output1$ES #extract hedges g.
```

```
#obtain the R2 values.
```

```
library(r2mlm)
```

```
StoryChoices_test<-StoryChoices_data
```

```
StoryChoices_test$InterventionAllocation<-  
as.numeric(StoryChoices_test$InterventionAllocation)
```

```
StoryChoices_test$Typeofsetting<-as.numeric(StoryChoices_test$Typeofsetting)
```

```
#StoryChoices_test$Typeofsetting<-as.factor(StoryChoices_test$Typeofsetting)
```

```
StoryChoices_test$Pretesttotalscore.cwc <- misty::center(StoryChoices_test$Pretesttotalscor  
e, type = "CWC", cluster = StoryChoices_test$SettingID)
```

```

test.unc<-
  lmer(Posttesttotalscore~1+(1|SettingID),data=StoryChoices_test[StoryChoices_data$AgeThresholdmet==1,])

test<-
  lmer(Posttesttotalscore~Pretesttotalscore.cwc+Typeofsetting+InterventionAllocation+(1|SettingID),data=StoryChoices_test[StoryChoices_data$AgeThresholdmet==1,])

r2mlm(test)

#=====#

# FSM subgroup analysis

##Check that EYPP has been recoded from 2=No to 0=no.

#Subgroup model - FSM pupils only

StoryChoices_primary_FSM_subset<-
  lmer(Posttesttotalscore~Pretesttotalscore+Typeofsetting+InterventionAllocation+(1|SettingID),data=StoryChoices_data[StoryChoices_data$EligibilityforPupilPremiumYN=="1"&StoryChoices_data$AgeThresholdmet==1,])

#Subgroup model 2 - all pupils but FSM as moderator.

StoryChoices_primary_FSM_int<-
  lmer(Posttesttotalscore~Pretesttotalscore+Typeofsetting+InterventionAllocation*EligibilityforPupilPremiumYN+(1|SettingID),data=StoryChoices_data[StoryChoices_data$AgeThresholdmet==1,])

performance::icc(StoryChoices_primary_FSM_int,ci = 0.95,iterations = 100)

sjPlot::tab_model(StoryChoices_primary_cond,StoryChoices_primary_FSM_subset,StoryChoices_primary_FSM_subset_int,pred.labels = c("Intercept", "Baseline", "Setting Type", "Intervention", "EYPP", "Intervention x EYPP"),

  dv.labels = c("Primary analysis","EYPP individuals only","EYPP interaction"),

```

```

string.pred = "Coefficient",

string.se = "S.E",

string.p = "P-Value", p.style = "stars", show.se=TRUE, show.ci=FALSE)

sjPlot::tab_model(StoryChoices_primary_cond, StoryChoices_primary_FSM_subset, StoryChoices_primary_FSM_int, pred.labels = c("Intercept", "Baseline", "Intervention", "Setting Type", "EYPP", "Intervention x EYPP"),

  dv.labels = c("Primary analysis", "EYPP individuals only", "EYPP interaction"))

#obtain the R2 values.

r2beta(lmer(Posttesttotalscore~Pretesttotalscore+Typeofsetting+InterventionAllocation+(1|SettingID), data=StoryChoices_data[StoryChoices_data$EligibilityforPupilPremiumYN=="1"& StoryChoices_data$AgeThresholdmet==1,]))

#=====#

library(parameters)

library(effectsize)

model_paeffectsize_model_parameters(StoryChoices_primary_FSM_subset)

t_to_d(-1.41, df_error = 88)

# d | 95% CI
# -----
# -0.30 | [-0.72, 0.12]

df<- 88

#intervention

g<- -0.30*(1-(3/(4*df)-1))

```

```

g_up<- -0.72*(1-(3/(4*df)-1))
g_low<- 0.12*(1-(3/(4*df)-1))

model_parameters(StoryChoices_primary_FSM_int)

t_to_d(-0.71, df_error = 606)

# d | 95% CI
# -----
# -0.06 | [-0.22, 0.10]

df<- 606

#intervention

g<- -0.06*(1-(3/(4*df)-1))

g_up<- -0.22*(1-(3/(4*df)-1))
g_low<- 0.10*(1-(3/(4*df)-1))

#=====#

#hedges g (robust model) - FSM subset

# values from model inputted into formula: g = estimate for fixed effect / (sqrt of sum of variances
  of random effects)

round(0.67266/sqrt(6.178+51.797),2)
round((0.67266+1.96*1.50646)/sqrt(6.178+51.797),2)
round((0.67266-1.96*1.50646)/sqrt(6.178+51.797),2)

```

```
#hedges g (robust model) - FSM interaction
```

```
# values from model inputted into formula: g = estimate for fixed effect / (sqrt of sum of variances  
of random effects)
```

```
round(-0.39816/sqrt(66.07),2)
```

```
round((-0.39816+1.96*2.06816)/sqrt(66.07),2)
```

```
round((-0.39816-1.96*2.06816)/sqrt(66.07),2)
```

```
#=====
```

```
###SECONDARY OUTCOMES###
```

```
#PLEASE NOTE, as per SAP, all subsequent analyses are based on 2-level model following  
primary outcome sensitivity analysis.
```

```
#LanguageScreen Expressive Vocabulary
```

```
StoryChoices_LangScn_EV <- lmer(StandardLSExpressive ~ Pretesttotalscore+Typeofsetting  
+InterventionAllocation+(1|SettingID),data=StoryChoices_data[StoryChoices_data$AgeThr  
esholdmet==1,])
```

```
check_model(StoryChoices_LangScn_EV)
```

```
summary(StoryChoices_LangScn_EV)
```

```
#results table for all models compared.
```

```
sjPlot::tab_model(StoryChoices_LangScn_EV,  
  dv.labels = c("LS Expressive Vocabulary analysis"))
```

```
#=====
```

```
# ICC
```

```
# null model
```

```
performance::icc(lmer(StandardLSExpressive~1+(1|SettingID),data=StoryChoices_data[StoryChoices_data$AgeThresholdmet==1,]),ci=0.95)
```

```
# InterventionAllocational
```

```
performance::icc(lmer(StandardLSExpressive~Pretesttotalscore+Typeofsetting+InterventionAllocation+(1|SettingID),data=StoryChoices_data[StoryChoices_data$AgeThresholdmet==1,]),ci=0.95)
```

```
#=====
```

```
library(eefAnalytics)
```

```
# TO obtain Effect size - hedge's g (R package eefAnalytics) -2 level model
```

```
output2  
<- crtFREQ(StandardLSExpressive~Pretesttotalscore+InterventionAllocation+Typeofsetting,  
  random="SettingID",intervention="InterventionAllocation",data=StoryChoices_data2[StoryChoices_data$AgeThresholdmet==1,])
```

```
summary(output2)
```

```
output2$ES
```

```
#=====
```

```
#LanguageScreen listening
```

```
#two-level lmm
```

```
StoryChoices_LangScn_Lis<-
```

```
lmer(StandardLSListening~Pretesttotalscore+Typeofsetting+InterventionAllocation+(1|SettingID),data=StoryChoices_data[StoryChoices_data$AgeThresholdmet==1,])
```

```
summary(StoryChoices_LangScn_Lis)
```

```
check_model(StoryChoices_LangScn_Lis)
```

```
#=====
```

```
library(eefAnalytics)
```

```
# TO obtain Effect size - hedge's g (R package eefAnalytics) -2 level model
```

```
output3
```

```
<- crtFREQ(StandardLSListening~Pretesttotalscore+InterventionAllocation+Typeofsetting,random="SettingID",intervention="InterventionAllocation",data=StoryChoices_data2[StoryChoices_data$AgeThresholdmet==1,])
```

```
summary(output3)
```

```
output3$ES
```

```
#
```

```
sjPlot::tab_model(StoryChoices_LangScn_Lis,  
                  dv.labels = c("LS Listening analysis"))
```

```
#
```

```
#=====
```

```
# ICC
```

```
#lmer - null model
```

```
performance::icc(lmer(StandardLSListening~1+(1|SettingID),data=StoryChoices_data[Story  
Choices_data$AgeThresholdmet==1,]),ci=0.95)
```

```
#lmer - InterventionAllocational
```

```
performance::icc(lmer(StandardLSListening~Pretesttotalscore+Typeofsetting+InterventionA  
llocation+(1|SettingID),data=StoryChoices_data[StoryChoices_data$AgeThresholdmet==1,  
]),ci=0.95)
```

```
#=====
```

```
##LanguageScreen receptive
```

```
#two-level glmm
```

```
StoryChoices_LangScn_Rec<-  
lmer(StandardLSReceptive~Pretesttotalscore+Typeofsetting+InterventionAllocation+(1|Set  
tingID),data=StoryChoices_data[StoryChoices_data$AgeThresholdmet==1,])
```

```
summary(StoryChoices_LangScn_Rec)
```

```
check_model(StoryChoices_LangScn_Rec)
```

```
#=====
```

```
library(eefAnalytics)
```

```
# TO obtain Effect size - hedge's g (R package eefAnalytics) -2 level model
```

output4

```
<- crtFREQ(StandardLSReceptive~Pretesttotalscore+InterventionAllocation+Typeofsetting,
random="SettingID",intervention="InterventionAllocation",data=StoryChoices_data2[Story
Choices_data$AgeThresholdmet==1,])
```

```
summary(output4)
```

```
output4$ES
```

```
sjPlot::tab_model(StoryChoices_LangScn_Rec,
  dv.labels = c("Primary LS receptive analysis"))
```

```
#=====
```

```
# ICC
```

```
# null model
```

```
performance::icc(lmer(StandardLSReceptive~1+(1|SettingID),data=StoryChoices_data[Story
Choices_data$AgeThresholdmet==1,]),ci=0.95)
```

```
# InterventionAllocational
```

```
performance::icc(lmer(StandardLSReceptive~Pretesttotalscore+Typeofsetting+Intervention
Allocation+(1|SettingID),data=StoryChoices_data[StoryChoices_data$AgeThresholdmet==
1,]),ci=0.95)
```

```
#=====
```

```
#LanguageScreen Standard total score
```

```
#two-level lmm
```

```
StoryChoices_LangScn_TS<-
lmer(StandardLStotal~Pretesttotalscore+Typeofsetting+InterventionAllocation+(1|SettingID
),data=StoryChoices_data[StoryChoices_data$AgeThresholdmet==1,])
```

```
check_model(StoryChoices_LangScn_TS)
```

```
summary(StoryChoices_LangScn_TS)
```

```
#=====
```

```
library(eefAnalytics)
```

```
# TO obtain Effect size - hedge's g (R package eefAnalytics) -2 level model
```

output6

```
<- crtFREQ(StandardLStotal~Pretesttotalscore+InterventionAllocation+Typeofsetting,rando
m="SettingID",intervention="InterventionAllocation",data=StoryChoices_data2[StoryChoic
es_data$AgeThresholdmet==1,])
```

```
summary(output6)
```

```
output6$ES
```

```
sjPlot::tab_model(StoryChoices_LangScn_TS,  
  dv.labels = c("LS total score analysis"))
```

```
#=====
```

```
# ICC
```

```
#Lmm - null model
```

```
performance::icc(lmer(StandardLStotal~1+(1|SettingID),data=StoryChoices_data[StoryChoices_data$AgeThresholdmet==1,]),ci=0.95)
```

```
#lmm - InterventionAllocational
```

```
performance::icc(lmer(StandardLStotal~Pretesttotalscore+Typeofsetting+InterventionAllocation+(1|SettingID),data=StoryChoices_data[StoryChoices_data$AgeThresholdmet==1,]),ci=0.95)
```

```
#=====
```

```
#LanguageScreen Sentence Completion
```

```
#two-level lmm
```

```
StoryChoices_LangScn_comp<-  
lmer(StandardLSSentencecompletion~Pretesttotalscore+Typeofsetting+InterventionAllocation+(1|SettingID),data=StoryChoices_data[StoryChoices_data$AgeThresholdmet==1,])
```

```
check_model(StoryChoices_LangScn_comp)
```

```
summary(StoryChoices_LangScn_comp)
```

```
#=====
```

```
library(eefAnalytics)
```

```
# TO obtain Effect size - hedge's g (R package eefAnalytics) -2 level model
```

```
output5
<- crtFREQ(StandardLSSentencecompletion~Pretesttotalscore+InterventionAllocation+Type
eofsetting,random="SettingID",intervention="InterventionAllocation",data=StoryChoices_d
ata2[StoryChoices_data$AgeThresholdmet==1,])
```

```
summary(output5)
```

```
output5$ES
```

```
sjPlot::tab_model(StoryChoices_LangScn_comp,
  dv.labels = c("LS Sentence Completion analysis"))
```

```
#=====
```

```
# ICC
```

```
#Lmm - null model
```

```
performance::icc(lmer(StandardLSSentencecompletion~1+(1|SettingID),data=StoryChoices
_data[StoryChoices_data$AgeThresholdmet==1,]),ci=0.95)
```

```
#lmm - InterventionAllocational
```

```
performance::icc(lmer(StandardLSSentencecompletion~Pretesttotalscore+Typeofsetting+I
nterventionAllocation+(1|SettingID),data=StoryChoices_data[StoryChoices_data$AgeThres
holdmet==1,]),ci=0.95)
```

```
#=====
```

```
#=====
```

```
#Literacy Interest Measure (pupil attitudes towards books)
```

```
#recode to reverse direction and -1. scale goes from 0-22[dislikes=high], not 7-28  
[dislikes=low].
```

```
StoryChoices_data$PretestLiteracyInterestMeasureR <- (28-  
StoryChoices_data$PretestLiteracyInterestMeasure)
```

```
StoryChoices_data$PosttestLiteracyInterestMeasureR <- (28-  
StoryChoices_data$PosttestLiteracyInterestMeasure)
```

```
StoryChoices_literacyInterest3<-  
lmer(PosttestLiteracyInterestMeasureR~PretestLiteracyInterestMeasureR+Typeofsetting+I  
nterventionAllocation+(1|SettingID),data=StoryChoices_data[StoryChoices_data$AgeThres  
holdmet==1,])
```

```
#two-level glmm (poisson)
```

```
StoryChoices_literacyInterest<-  
glmmTMB(PosttestLiteracyInterestMeasureR~PretestLiteracyInterestMeasureR+Typeofsett  
ing+InterventionAllocation+(1|SettingID),data=StoryChoices_data[StoryChoices_data$AgeT  
hresholdmet==1,],family="poisson")#,ziformula=~1)
```

```
check_overdispersion(StoryChoices_literacyInterest)
```

```
check_zeroinflation(StoryChoices_literacyInterest)
```

```
StoryChoices_literacyInterest2<-  
glmmTMB(PosttestLiteracyInterestMeasureR~PretestLiteracyInterestMeasureR+Typeofsett
```

```
ing+InterventionAllocation+(1|SettingID),data=StoryChoices_data[StoryChoices_data$AgeThresholmet==1,],family="nbinom2",ziformula=~1)
```

```
check_model(StoryChoices_literacyInterest2)
```

```
summary(StoryChoices_literacyInterest2)
```

```
sjPlot::tab_model(StoryChoices_literacyInterest2,
```

```
  dv.labels = c("Literacy Interest analysis"),
```

```
  string.pred = "Coefficient",
```

```
  string.se = "S.E",
```

```
  string.p = "P-Value", p.style = "stars",show.se=TRUE,show.ci=FALSE)
```

```
sjPlot::tab_model(StoryChoices_literacyInterest,StoryChoices_literacyInterest2,
```

```
  dv.labels = c("Literacy Interest analysis"))
```

```
#=====
```

```
# ICC
```

```
#poisson - null
```

```
performance::icc(glmer(PosttestLiteracyInterestMeasureR~1+(1|SettingID),data=StoryChoices_data[StoryChoices_data$AgeThresholdmet==1,],family="poisson"),ci=0.95)
```

```
#poisson - InterventionAllocational
```

```
performance::icc(glmer(PosttestLiteracyInterestMeasureR~PretestLiteracyInterestMeasureR+Typeofsetting+InterventionAllocation+(1|SettingID),data=StoryChoices_data[StoryChoices_data$AgeThresholdmet==1,],family="poisson"),ci=0.95)
```

```
#=====
```

#zinb - null

```
performance::icc(glmmTMB(PosttestLiteracyInterestMeasureR~1+(1|SettingID),data=StoryC
hoices_data[StoryChoices_data$AgeThresholdmet==1,],family="nbinom2",ziformula=~1),c
i_method = "simple")
```

#zinb - InterventionAllocational

```
performance::icc(glmmTMB(PosttestLiteracyInterestMeasureR~PretestLiteracyInterestMea
sureR+Typeofsetting+InterventionAllocation+(1|SettingID),data=StoryChoices_data[StoryC
hoices_data$AgeThresholdmet==1,],family="nbinom2",ziformula=~1),ci_method =
"simple")
```

#=====

#=====

#=====

#Instrumental variables approach

#=====

StoryChoices_data\$compliance2<-StoryChoices_data\$InterventionAllocation

StoryChoices_data\$compliance2[is.na(StoryChoices_data\$Compliance)==TRUE]<-NA

StoryChoices_data\$compliance2[StoryChoices_data\$Compliance==0]<-1

#In this approach, we do not use linear mixed effects models, instead reporting cluster robust SEs.

#Full compliance

```
m_iv1 <- ivreg(Posttesttotalscore~Pretesttotalscore + Typeofsetting | compliance2
| InterventionAllocation, data
= StoryChoices_data[StoryChoices_data$AgeThresholdmet==1,], x = TRUE)
```

```
summary(m_iv1,diagnostics = TRUE)
```

```
m_iv2 <- iv_robust(Posttesttotalscore ~ Pretesttotalscore + Typeofsetting + compliance2
| Pretesttotalscore + Typeofsetting + InterventionAllocation,
StoryChoices_data[StoryChoices_data$AgeThresholdmet==1,], clusters
= SettingID)
```

```
summary(m_iv2)
```

```
#results table.
```

```
sjPlot::tab_model(StoryChoices_primary_cond, m_iv1,
dv.labels = c("Primary", "IV full"))
```

```
#hedges g (robust model) - partial B compliance
```

```
# values from model inputed into formula: d = estimate for effect / SE*SQRT(N)
```

```
dim(model.frame(m_iv1))# first number gives the N in the model
```

```
#use simple hedges g adjustment (Borenstein, Hedges, Higgins, & Rothstein, 2011,p27)
```

```
StoryChoices_data %>% filter(is.na(Pretesttotalscore)==FALSE) %>%
filter(is.na(Posttesttotalscore)==FALSE) %>%
filter(is.na(compliance2)==FALSE)%>%count(InterventionAllocation)
```

```
library(parameters)

model_parameters(m_iv1)

t_to_d(-2.07, df_error = 539)

# d | 95% CI
# -----
# -0.18 | [-0.35, -0.01]

df<- 539

#intervention

g<- -0.18*(1-(3/(4*df)-1))

g_up<- -0.35*(1-(3/(4*df)-1))
g_low<- -0.01*(1-(3/(4*df)-1))

#setting

t_to_d(2.06, df_error = 539)

# d | 95% CI
# -----
# 0.18 | [0.01, 0.35]

gset<- 0.18*(1-(3/(4*df)-1))

gset_low<- 0.01*(1-(3/(4*df)-1))
gset_up<- 0.35*(1-(3/(4*df)-1))
```

```
#=====
=====#

# Impute missing data

#=====
=====#

# PT = 22/10/2025

# modelling the binary response of missingness in the primary outcome

StoryChoices_data_bin<-StoryChoices_data

#create a binary outcome variable (missing or not on the primary outcome)

StoryChoices_data_bin$Posttesttotalscore_miss <- ifelse(is.na(StoryChoices_data_bin$Posttesttotalscore)==TRUE,1,0)

#Fit a logistic regression with covariates (as per SAP)

StoryChoices_miss_mod<-glm(Posttesttotalscore_miss ~
  Pretesttotalscore+Typeofsetting+EligibilityforPupilPremiumYN+Gender+EALStatus+Special
  EducationalNeedsYN,data=StoryChoices_data_bin, family = "binomial")

StoryChoices_miss_mod<-glm(Posttesttotalscore_miss ~
  Pretesttotalscore+Typeofsetting+EligibilityforPupilPremiumYN+Gender+EALStatus+Special
  EducationalNeedsYN,data=StoryChoices_data_bin, family = "binomial")

summary(StoryChoices_miss_mod)

sjPlot::tab_model(StoryChoices_miss_mod)
```

```
#=====
```

```
set.seed(2025) # for reproducibility
```

```
#select variables for imputation data
```

```
StoryChoices_imp_sub <- StoryChoices_data %>% filter(AgeThresholdmet==1)
%>% dplyr::select(SettingID, Child_ID, Typeofsetting, Ageinyears, EligibilityforPupilPremium
YN, EALStatus, InterventionAllocation,
                Pretesttotalscore, PretestLiteracyInterestMeasureR, StandardLSEx
pressive, StandardLSListening, StandardLSReceptive, StandardLSSentencecompletion, Sta
ndardLStotal, Posttesttotalscore, PosttestLiteracyInterestMeasureR)
```

```
#rename to comply with imputation functions
```

```
StoryChoices_imp_sub <- StoryChoices_imp_sub %>% rename(., "ChildID"="Child_ID")
```

```
# predictor matrix and imputation method (defaults)
```

```
predMatrix <- make.predictorMatrix(data = StoryChoices_imp_sub)
```

```
impMethod <- make.method(data = StoryChoices_imp_sub)
```

```
#=====
```

```
#Set up the imputation method for each variable.
```

```
# method for lower-level variables (x, y, and z)
```

```
impMethod[c("PretestLiteracyInterestMeasureR", "PosttestLiteracyInterestMeasureR")] <-
"zinb" #"gamlssPO"
```

```
# method for variables at top level (w)
```

```

impMethod[c("InterventionAllocation","EligibilityforPupilPremiumYN", "EALStatus")] <-
  "pmm"

impMethod[c("Pretesttotalscore","Typeofsetting")] <- ""

impMethod[c("Ageinyears")] <- "pmm"

# remove indicator variables from predictor matrix
predMatrix[, "SettingID"] <- 0
predMatrix[, "ChildID"] <- 0
predMatrix[, "InterventionAllocation"] <- 0
predMatrix[, "Typeofsetting"] <- 0

#=====#

#set which variables are used in the imputation.

#Setting_ID, Child_ID, Typeofsetting, Ageinyears, EligibilityforPupilPremiumYN, EALStatus, In
  terventionAllocation,

#Pretesttotalscore, PretestLiteracyInterestMeasureR, StandardLSExpressive, StandardLSLis
  tening,

#StandardLSReceptive, StandardLSSentencecompletion, StandardLStotal, Posttesttotalsco
  re,

#PosttestLiteracyInterestMeasureR

# ===== #

#RUN THE IMPUTATION MODELS (20 imputed datasets generated and pooled)

imp_new <- countimp(StoryChoices_imp_sub,                                method
  = impMethod, predictorMatrix = predMatrix, maxit = 50, m = 20,print=FALSE)

plot(imp_new) # add as a appendix to satisfy reviewer comment regarding convergence.

# ===== #

```

Density plot to check the approximate imputations follow the same distribution as the original data.

```
imp2new <- complete(imp_new,"long", include=TRUE)
```

```
library(patchwork)
```

Add a variable for the plot legend

```
imp2new$Imputed<-ifelse(imp2new$.imp"==0,"Observed","Imputed")
```

Plot. Be sure to use stat_density instead of geom_density in order

to prevent what you call "unwanted horizontal and vertical lines"

```
p1 <- ggplot(imp2new, aes(x=Ageinyears, group=.imp, colour=Imputed)) +
```

```
  stat_density(geom = "path",position = "identity")+
```

```
  stat_density(data=imp2new[imp2new$.imp"==0,],geom = "path",position = "identity",colour="blue") + theme_bw() +ggtitle("Ageinyears")
```

```
p2 <- ggplot(imp2new, aes(x=EligibilityforPupilPremiumYN, group=.imp, colour=Imputed)) +
```

```
  stat_density(geom = "path",position = "identity")+
```

```
  stat_density(data=imp2new[imp2new$.imp"==0,],geom = "path",position = "identity",colour="blue") + theme_bw() +ggtitle("EligibilityforPupilPremiumYN")
```

```
p3 <- ggplot(imp2new, aes(x=EALStatus, group=.imp, colour=Imputed)) +
```

```
  stat_density(geom = "path",position = "identity")+
```

```
  stat_density(data=imp2new[imp2new$.imp"==0,],geom = "path",position = "identity",colour="blue") + theme_bw() +ggtitle("EALStatus")
```

```
p4 <- ggplot(imp2new, aes(x=Pretesttotalscore, group=.imp, colour=Imputed)) +
```

```
  stat_density(geom = "path",position = "identity")+
```

```
stat_density(data=imp2new[imp2new$.imp=="0"],geom = "path",position =
"identity",colour="blue") + theme_bw() +ggtitle("Pretesttotalscore")
```

```
p5      <- ggplot(imp2new, aes(x=PretestLiteracyInterestMeasureR,      group=.imp,
colour=Imputed)) +
```

```
stat_density(geom = "path",position = "identity")+
```

```
stat_density(data=imp2new[imp2new$.imp=="0"],geom = "path",position =
"identity",colour="blue") + theme_bw() +ggtitle("PretestLiteracyInterestMeasureR")
```

```
p6 <- ggplot(imp2new, aes(x=StandardLSExpressive, group=.imp, colour=Imputed)) +
```

```
stat_density(geom = "path",position = "identity")+
```

```
stat_density(data=imp2new[imp2new$.imp=="0"],geom = "path",position =
"identity",colour="blue") + theme_bw() +ggtitle("StandardLSExpressive")
```

```
p7 <- ggplot(imp2new, aes(x=StandardLSListening, group=.imp, colour=Imputed)) +
```

```
stat_density(geom = "path",position = "identity")+
```

```
stat_density(data=imp2new[imp2new$.imp=="0"],geom = "path",position =
"identity",colour="blue") + theme_bw() +ggtitle("StandardLSListening")
```

```
p8 <- ggplot(imp2new, aes(x=StandardLSReceptive, group=.imp, colour=Imputed)) +
```

```
stat_density(geom = "path",position = "identity")+
```

```
stat_density(data=imp2new[imp2new$.imp=="0"],geom = "path",position =
"identity",colour="blue") + theme_bw() +ggtitle("StandardLSReceptive")
```

```
p9      <- ggplot(imp2new, aes(x=StandardLSSentencecompletion,      group=.imp,
colour=Imputed)) +
```

```
stat_density(geom = "path",position = "identity")+
```

```
stat_density(data=imp2new[imp2new$.imp=="0"],geom = "path",position =
"identity",colour="blue") + theme_bw() +ggtitle("StandardLSSentencecompletion")
```

```
p10 <- ggplot(imp2new, aes(x=StandardLStotal, group=.imp, colour=Imputed)) +
```

```

stat_density(geom = "path",position = "identity")+

stat_density(data=imp2new[imp2new$.imp=="0"],geom = "path",position =
"identity",colour="blue") + theme_bw() +ggtitle("StandardLStotal")


p11 <- ggplot(imp2new, aes(x=Posttesttotalscore, group=.imp, colour=Imputed)) +

stat_density(geom = "path",position = "identity")+

stat_density(data=imp2new[imp2new$.imp=="0"],geom = "path",position =
"identity",colour="blue") + theme_bw() +ggtitle("Posttesttotalscore")


p12 <- ggplot(imp2new, aes(x=PosttestLiteracyInterestMeasureR, group=.imp,
colour=Imputed)) +

stat_density(geom = "path",position = "identity")+

stat_density(data=imp2new[imp2new$.imp=="0"],geom = "path",position =
"identity",colour="blue") + theme_bw() +ggtitle("PosttestLiteracyInterestMeasureR")


p1 + p2 + p3 + p4 + p5 + p6 + p7 + plot_layout(guides = 'collect')


p8 + p9 + p10 + p11 + p12 + plot_layout(guides = 'collect')


# ===== #


# create list of imputed data sets (wrangles data into a workable format)

implist2 <- mids2mitml.list(imp_new)


#####

```

```
#####

# fit model and pool results.

pooled <- implist2 %>%

  Map(f                                     = lmer, MoreArgs =
    list(f=Posttesttotalscore~Pretesttotalscore+InterventionAllocation+Typeofsetting+(1|Settin
          glD))) %>%

  testEstimates(.,extra.pars=TRUE)


confint(pooled)


#Manually combine results into table for report as pooled output is not compliant
with SJPlot package.


#=====
=====#


#Hedges g for pooled results


t_to_d(-1.602, df_error = 934)

# d |    95% CI
# -----
# -0.10 | [-0.23, 0.02]


df<- 934

#intervention

g<- -0.10*(1-(3/(4*df)-1))

g_up<- -0.23*(1-(3/(4*df)-1))
```

```
g_low<- 0.02*(1-(3/(4*df)-1))
```

```
#confidence intervals for pooled results.
```

```
confint(pooled)
```

```
#=====
=====#
```

```
#23/10/2025 - demographic summaries
```

```
StoryChoices_data %>% filter(AgeThresholdmet==1) %>% count(InterventionAllocation)
```

```
StoryChoices_data %>% filter(AgeThresholdmet==1)
%>% count(InterventionAllocation,Gender)
```

```
StoryChoices_data %>% filter(AgeThresholdmet==1)
%>% count(InterventionAllocation,EALStatus)
```

```
StoryChoices_data %>% filter(AgeThresholdmet==1)
%>% count(InterventionAllocation,EligibilityforPupilPremiumYN)
```

```
StoryChoices_data %>% filter(AgeThresholdmet==1)
%>% count(InterventionAllocation,SpecialEducationalNeedsYN)
```

```
StoryChoices_data %>% filter(AgeThresholdmet==1)
%>% count(InterventionAllocation,is.na(Pretesttotalscore))
```

```
StoryChoices_data %>% filter(AgeThresholdmet==1)
%>% count(InterventionAllocation,is.na(PretestLiteracyInterestMeasureR))
```

```
StoryChoices_data %>% filter(AgeThresholdmet==1)
%>% count(InterventionAllocation,is.na(Posttesttotalscore))
```

```
StoryChoices_data %>% filter(AgeThresholdmet==1)
%>% count(InterventionAllocation,is.na(PosttestLiteracyInterestMeasureR))
```

```
#baseline characteristics
```

```
StoryChoices_data %>% filter(AgeThresholdmet==1) %>% group_by(InterventionAllocation)
%>%
summarise(mean=mean(Pretesttotalscore,na.rm=T),sd=sd(Pretesttotalscore,na.rm=T))
```

```
#=====
=====#
```

```
# summaries
```

```
#baseline characteristics
```

```
StoryChoices_data %>% filter(AgeThresholdmet==1) %>% group_by(InterventionAllocation)
%>%
summarise(mean=mean(PretestLiteracyInterestMeasureR,na.rm=T),sd=sd(PretestLiteracyI
nterestMeasureR,na.rm=T))
```

```
#post test characteristics
```

```
library(emmeans)
```

```
emm_options(opt.digits = FALSE)
```

```
#
```

```
emmeans(StoryChoices_primary_cond, specs = pairwise ~ InterventionAllocation)
```

```
emmeans(StoryChoices_LangScn_EV, specs = pairwise ~ InterventionAllocation)
```

```
emmeans(StoryChoices_LangScn_Lis, specs = pairwise ~ InterventionAllocation)
```

```
emmeans(StoryChoices_LangScn_Rec, specs = pairwise ~ InterventionAllocation)
```

```
emmeans(StoryChoices_LangScn_comp, specs = pairwise ~ InterventionAllocation)
```

```
emmeans(StoryChoices_literacyInterest2, specs = pairwise ~ InterventionAllocation)
```

```
#table8

rosstab_dat<-StoryChoices_data %>% filter(AgeThresholdmet==1)

table(crosstab_dat$Gender,crosstab_dat$InterventionAllocation,exclude = F)


#=====
=====#


# histogram of outcome variables.

library(patchwork)

#DIBELS baseline

#ggplot(StoryChoices_data,aes(DIBELS_Comp_BL))+geom_histogram(colour='darkgreen',fill
="green",alpha=0.7)+theme_bw()+xlab("DIBELS composite")

StoryChoices_data_plot<-StoryChoices_data

levels(StoryChoices_data_plot$InterventionAllocation)<-c('Responsive condition', 'Planned
condition')


ggplot(StoryChoices_data_plot,aes(Posttesttotalscore))+geom_histogram(aes(colour=Interv
entionAllocation,fill=InterventionAllocation),alpha=0.7)+theme_bw()+xlab("Bespoke
Vocabulary measure - total score (12 mth)")+theme(legend.position = "top")


q1=ggplot(StoryChoices_data_plot,aes(StandardLStotal))+geom_histogram(aes(colour=Inte
rventionAllocation,fill=InterventionAllocation),alpha=0.7)+theme_bw()+xlab("Standardized
Language Screen - total score (12 mth)")+theme(legend.position = "top")


#Expressive

q2=ggplot(StoryChoices_data_plot,aes(StandardLSExpressive))+geom_histogram(aes(colou
r=InterventionAllocation,fill=InterventionAllocation),alpha=0.7)+theme_bw()+xlab("Standar
dized Language Screen - Expressive (12 mth)")+theme(legend.position = "top")
```

#Listening

```
q3=ggplot(StoryChoices_data_plot,aes(StandardLSListening))+geom_histogram(aes(colour=
InterventionAllocation,fill=InterventionAllocation),alpha=0.7)+theme_bw()+xlab("Standardi
zed Language Screen - Listening (12 mth)")+theme(legend.position = "top")
```

#Receptive

```
q4=ggplot(StoryChoices_data_plot,aes(StandardLSReceptive))+geom_histogram(aes(colour=
InterventionAllocation,fill=InterventionAllocation),alpha=0.7)+theme_bw()+xlab("Standard
ized Language Screen - Receptive (12 mth)")+theme(legend.position = "top")
```

#Completion

```
q5=ggplot(StoryChoices_data_plot,aes(StandardLSSentencecompletion))+geom_histogram(
aes(colour=InterventionAllocation,fill=InterventionAllocation),alpha=0.7)+theme_bw()+xlab
("Standardized Language Screen - Completion (12 mth)")+theme(legend.position = "top")
```

#Literacy Interest

```
q6=ggplot(StoryChoices_data_plot,aes(PosttestLiteracyInterestMeasureR))+geom_histogra
m(aes(colour=InterventionAllocation,fill=InterventionAllocation),alpha=0.7)+theme_bw()+x
lab("Attitude to Reading Measure (12 mth)")+theme(legend.position = "top")
```

```
q1+q2+q3+q4+q5+q6+guide_area()+ plot_layout(ncol = 3, guides =
'collect')& theme(legend.position = 'top')
```

#####

```
#####
```

```
#Attrition numbers (numbers analysed)
```

```
StoryChoices_data %>%      filter(is.na(Pretesttotalscore)==FALSE)      %>%  
  filter(is.na(Posttesttotalscore)==FALSE)  
  %>%count(InterventionAllocation,EligibilityforPupilPremiumYN)
```

```
      test<-StoryChoices_data %>%      filter(is.na(Pretesttotalscore)==FALSE)      %>%  
      filter(is.na(Posttesttotalscore)==FALSE)
```

```
length(unique(StoryChoices_data$SettingID))
```

```
#46
```

```
length(unique(StoryChoices_data$SettingID[StoryChoices_data$InterventionAllocation==1])  
)
```

```
#20
```

```
length(unique(test$SettingID))
```

```
#46
```

```
length(unique(test$SettingID[test$InterventionAllocation==1]))
```

```
#20
```

```
#therefore 26 control by default.
```

```
#####
```

```
#####
```

```

StoryChoices_data$FSM_num<-as.numeric(StoryChoices_data$FSM)

StoryChoices_data$EAL_num<-as.numeric(StoryChoices_data$EAL)


StoryChoices_data$EAL_num<-recode(StoryChoices_data$EAL_num,`1`=0L,`2`=1L)

StoryChoices_data$FSM_num<-recode(StoryChoices_data$FSM_num,`1`=0L,`2`=1L)


StoryChoices_data$needs <- rowSums(StoryChoices_data%>%dplyr::select(FSM_num,EAL_
num,SEND_ASD,SEND_MLD,SEND_SLD,SEND_PMLD,SEND_Other,SEND_SLCN,SEND_ML
D,SEND_SLD,SEND_SEMH), na.rm=TRUE)


StoryChoices_data$More_needs <- ifelse(StoryChoices_data$needs>1,1,0)

table(StoryChoices_data$More_needs)


#####

p<-c(0.014,0.04,0.015,0.053,0.278,0.930)

round(p.adjust(p, "holm"), 3)


#####

testab_EYPP<-StoryChoices_data %>% filter(EligibilityforPupilPremiumYN==1)
%>% count(SettingID)

mean(testab_EYPP$n)


testab<-StoryChoices_data %>% count(SettingID)

mean(testab$n)


#####

```

```
testcor <- StoryChoices_data %>% filter(EligibilityforPupilPremiumYN==1&StoryChoices_data$AgeThresholdmet==1,)
```

```
cor(testcor$Pretesttotalscore,testcor$Posttesttotalscore,use="na.or.complete")
```

```
cor(StoryChoices_data$Pretesttotalscore[StoryChoices_data$AgeThresholdmet==1],StoryChoices_data$Posttesttotalscore[StoryChoices_data$AgeThresholdmet==1],use="na.or.complete")
```

Note: R code is provided separately

Appendix J: Post-trial Educator Survey

Story Choices Post-Test Educator Survey

Dear Educator,

You are invited to take part in this questionnaire survey because you have participated in the StoryChoices Randomised Controlled Trial project. The project is being conducted by Professor Julia Carroll at the University of Birmingham. The purpose of this survey is to obtain feedback from educators which will help us understand what worked well and what did not work so well.

Your participation in the survey is entirely voluntary, and you can opt out at any stage by closing and exiting the browser. If you are happy to take part, please answer the following questions relating to your experiences of using Story Choices. Your answers will help us to improve our guidance for other educators in the future. The survey should take approximately 10 minutes to complete.

Your answers will be treated confidentially and the information you provide will be kept anonymous in any research outputs/publications. Your data will be processed in accordance with the UK General Data Protection Regulation 2016 (UK GDPR) and the Data Protection Act 2018. Your data will be held securely on the University of Birmingham OneDrive and will only be viewed by the researcher/research team. All data will be deleted by 31st December 2026.

You are free to withdraw your responses from the project dataset at any time until the data are fully anonymised in our records on 30/03/2026. You should note that your data may be used in the production of formal research outputs (e.g. journal articles, conference papers, theses and reports) prior to this date and so you are advised to contact the lead researcher at the earliest opportunity should you wish to withdraw from the study (contact details are provided below). You do not need to provide a reason for withdrawing. A decision to withdraw, or not to take part, will not affect you in anyway.

The University of Birmingham is a Data Controller for the information you provide. You have the right to access information held about you. Your right of access can be exercised in accordance with the UK General Data Protection Regulation and the Data Protection Act 2018. You also have other rights including rights of correction, erasure, objection, and data portability. For more details, including the right to lodge a complaint with the Information Commissioner's Office, please visit www.ico.org.uk. Questions, comments and requests about your personal data can also be sent to the University Data Protection Officer via dataprotection@contacts.bham.ac.uk.

The research was granted ethical approval by Coventry University's Research Ethics Committee P174998, ratified by the University of Birmingham ethics committee.

For further information, or if you have any queries, please contact the lead researcher Julia Carroll at atStoryChoices@contacts.bham.ac.uk. If you have any concerns that cannot be resolved through the lead researcher, please contact ethics-queries@contacts.bham.ac.uk.

1. Please tick the following boxes to confirm you are willing to take part.

*

I have read and understood the above information.

2. I confirm that I am aged 18 or over.

*

Yes

3. I agree to take part in this questionnaire survey.

*

Yes

4. What is the name of your setting?

*

0/32,000 characters

5. Which Story Book reading approach was used in your setting?

*

Approach A – Child-Led Storytime Approach B – Planned Storytime

6. Please write down the number of weeks and the number of sessions per week you used the approach in your setting.

*

0/32,000 characters

7. Did you consistently use the approach that was assigned to your setting?

*

Yes No

8. If you have selected 'No' in the previous question, please specify the reason/s for not being able to use the approach consistently.

0/32,000 characters

9. Did you make any changes to the approach to help it fit in with your routine? If so, what changes did you make?

*

0/32,000 characters

10. Did you have additional storybook reading sessions in addition to the sessions using the approach?

*

Yes/ No

11. If have selected 'Yes' in the previous question, what form did these sessions take (tick all that apply)?

*

Reading individually with one child or a few children who asked me to read to them

Reading individually with one child or a few children as part of a planned routine

Large group storybook sessions

Acting out a book or using story sacks

Other (please specify)

12. What did you like about the storybook reading approach you followed?

*

13. What were the limitations with the approach?

*

0/32,000 characters

14. Do you think you will continue to use the approach in the future?

*

Yes/No

15. Is there anything you would change with the approach if you were to use it in the future?

*

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Appendix K: Example completed observation sheet for case study visit

Observation schedule: Condition B – Planned Story time XXX Nursery, 23/5/25, JC observing

Area	Yes/ No/ Numbers	Notes
Timing	9:10am – 9:30am	
Storybook used appears to be pre-selected (not child-chosen)	Yes	Educator explained that she had chosen this book ahead of time
Name of book/s used		The Troll – Julia Donaldson
Educator refers to planned discussion points or vocabulary during reading	Yes	
Planned materials (book, prompts) are visible or referenced (e.g., planning sheet)	Yes	
Interaction		
Educator uses pre-planned prompts (PEER/CROWD-style or targeted vocabulary)	Not so much	The educator is able to work spontaneously to develop appropriate prompts

Educator uses open-ended questions to encourage critical thinking or language use	Yes	
Educator maintains flexibility — responds to children's questions or interest, but returns to plan	Yes	Followed the discussion of the troll and the three billy goats gruff though it was not planned.
Educator supports understanding of complex vocabulary or story elements		Yes, asking – 'why is he being sick' or 'what's the troll found' to support understanding of the more complex book elements.
Children's Engagement		
Multiple children participate in discussion	Yes	Almost all of the children contribute at some point. At one point the children work together retelling the story of Three Billy Goats Gruff (which this story implicitly refers to). The children appear to make the link spontaneously when asked about trolls and living under bridges.
Children appear engaged with the book and discussion	Yes	Most of the children are highly engaged despite this being a long and somewhat complex storyline. Even a child with SEN was engaged with the story.

Children respond to prompts and vocabulary use (verbally or non-verbally)	Yes	
Educator encourages quieter children or balances participation	Yes	All children took part in some form
Support		
Educator explicitly introduces or explains target vocabulary	Yes	Explains that a troll is a bit like a monster, but not quite the same
Misunderstandings or gaps are gently addressed	Yes	

Children are encouraged to use new words or build on ideas		
Educator provides feedback or builds on children's responses	yes	
Environment		
Physical setup supports group reading (e.g., everyone can see/hear)	Yes	Sitting in quiet area. Child with SEN has a TA supporting them as needed.
Opportunities for spoken communication within		

children (outside the storybook session?)		
Opportunities for reading and writing	no	
Size of space		
Conducted with key worker group? Number in group?	7	
Number of children in the session	12	
How objects are laid out in the physical setting (photos or diagrams – where possible)		Teacher is opposite children who are sitting on the floor

Props/visuals are used appropriately (optional)		
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Reminder:

1. Record names of the books used
2. Get a copy or photo of the record form, planning sheet and any other materials used.

Appendix L: Characteristics of the settings

Setting Context

This section describes the characteristics of participating settings, and their existing storybook reading practices at baseline, prior to intervention implementation. The findings are based on the setting pre-trial survey completed by 67 settings and educator pre-trial survey responded by educators in 64 settings.

The trial recruited 79 settings, of which 56 were maintained and 23 were private voluntary and independently (PVI) operated provisions. Settings varied considerably in size. The maximum number of children per session ranged from 8 (the lowest threshold to participate in the trial) to 132 children. It suggests that the settings responding to the survey encompassed both small, targeted provisions and large institutional settings catering children of different age groups. For the pre-trial setting survey, we received pre-trial survey responses from 67 of the 79 settings. Within this sample, we received responses from 22 of the 23 PVIs and 45 of the 56 maintained settings, and from 36 settings completing the planned approach and 31 completing the child-led approach.

All settings catered for 3 and 4 year old children, as was expected given the inclusion criteria. A smaller number of settings also catered for younger children ($n = 26$). Overall, the settings are similar across the two conditions, as would be expected given the random assignment. There are no significant differences in IMD decile, average number of children or average number of educators. The settings are also extremely varied in these factors, with numbers of children varying from 8 to 132, and numbers of educators varying from 2 to 39.

Usual practice

Daily Session Structure

According to the settings pre-trial survey, the daily session structure allowed considerable flexibility in attendance patterns. Nearly three-quarters of settings (72%) operated a flexible model where children could attend morning sessions, afternoon sessions, or all day. A smaller proportion required children to attend all-day sessions (10%), while very few offered only morning sessions (6%) or both morning and afternoon sessions where children could attend only one. A small number ($n = 7$) of settings reported other arrangements, many of which were the option to attend for the first half or second half of the week, rather than for five half days.

Settings used various approaches to grouping children for daily sessions. The most common arrangement was having all children together in one class without separate groups (44%). About a quarter of settings (28%) organised children primarily by age, typically grouping together those who would transition to reception the following year. Mixed-age classes were used in 18% of settings. Seven settings did not respond to this question.

Existing Storybook Reading Practices

Settings reported in the pre-trial survey that storybook reading was already an established practice, with considerable variation in frequency. The most common pattern was reading once during each session (44%), followed by more than once per session (35%). A smaller proportion organised storybook reading sessions at least twice a week (16%), and no settings used storybook reading less than twice a week. With regards to organising the storybook sessions, the majority of settings (59%) conducted these with the whole class together. A quarter of settings (25%) used multiple keyworker groups for storybook reading, while 16% made other arrangements.

Settings commonly integrated other activities with storybook reading. The most prevalent practices were linking books to a topic or theme (reported by 62 settings, representing 21% of total responses to this multiple-response question), using songs linked to stories (19%), employing puppets or dolls for story enactment (19%), and using toys or pictures linked to stories (19%). Costumes for acting out stories and videos linked to stories were less common (11% each).

Book Selection Processes

Diverse approaches were used by settings in selecting books for storybook reading sessions. The most common approach was centralized planning, where the EYFS lead decided which books would be read and when (22%). In 18% of the settings, individual educators planned ahead, and in 21% of the settings, educators selected books for reading on the day based on their own judgement and a variety of other methods. Child-directed book selection was less common, with 12% of settings allowing children to choose from a wide range of books and 7% offering children a few pre-selected options. It is relevant to state that majority of settings (57%) encouraged children to borrow books for home reading once a week or more and 24% did so occasionally. However, 18% of the settings did not encourage borrowing books.

Comparisons across conditions

Table L1 compares the contexts of the settings across the conditions. There were very similar patterns across both.

Table L1: Setting contexts of the planned and child-led conditions

	Planned Condition	Child-led Condition	Maximum	Minimum
PVI: Maintained	12:24	10:19	-	-
Average IMD decile (standard deviation)	3.89 (2.88)	4.45 (2.49)	1	10
Attendance pattern (flexible: half days: full days)	25:3:6	23:2:1	-	-
Average number of children in the setting	35.26 (20.07)	36.97 (24.67)	8	132
Average number of staff in the setting	8.09 (7.16)	7.84 (7.59)	2	39

We also compared the routine for storybook reading prior to the trial. There were no significant χ^2 square associations between condition and prior storybook reading approach.

Table L2: Storybook reading routines across provisions

	Planned Condition	Child-led Condition
How often do you have storybook reading sessions? (weekly: biweekly: daily: more than once a day)	0:5:18:11:	0:6:13:11
How are storybook sessions arranged? (whole class: keyworker groups: both approaches)	23:10:3	17:7:7
How are storybooks planned? (leader planned: educator planned: unplanned:	7:7:9:10:3	8:4:4:4:11

child selects: mixed approaches)

Educator Experience

The two approaches had broadly similar educator characteristics with some notable differences in qualification profiles. Both approaches involved comparable levels of experience, with Planned educators averaging 15.23 years and Child-Led educators 16.30 years in early years. A higher percentage of educators in the planned approach had QTS (51.3% versus 36.1%). Both approaches had similar proportions of educators qualified at Early Years Practitioner level as their highest qualification (Planned: 35.9%, n=14; Child-Led: 36.1%, n=22).

Table L3: Educator experience and qualifications

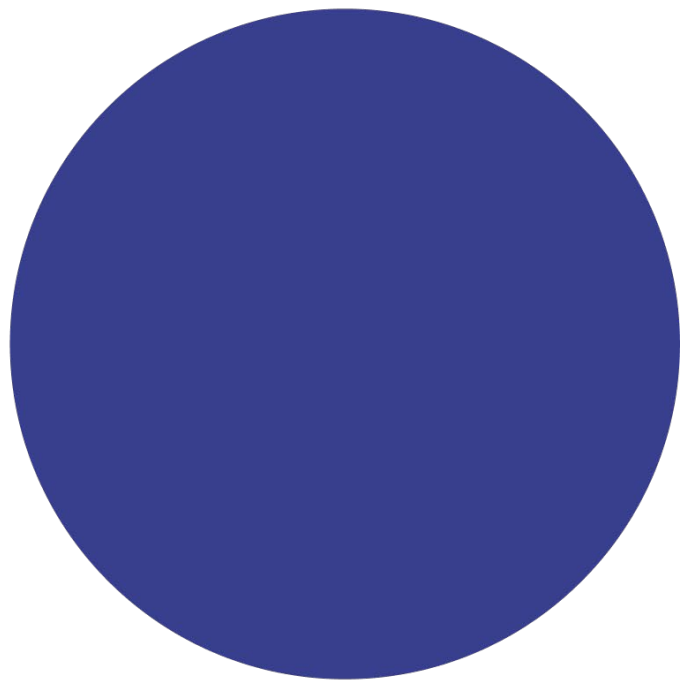
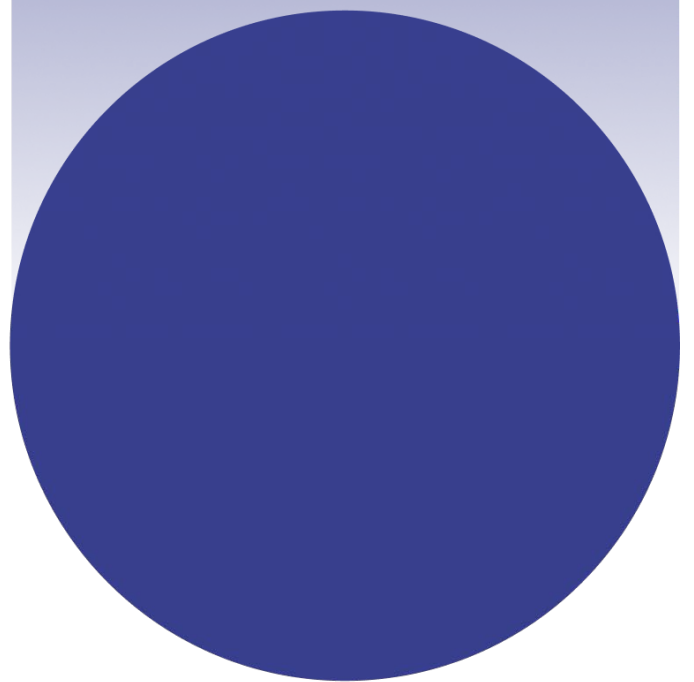
Approach	Number of educators	QTS	Undergraduate	EY Practitioner	Level 1	Average years of experience	Min experience	Max experience
Child-led	61	22	9	22		16.3	2	38
Planned	39	20	3	14	1	15.23	2	30

Appendix M: Example completed session records

Week	Session number	Date	Book selected	Which child selected it?	How did the session go?
1	1	24.2.25	Each Peach Pear Plum	LT	Enjoyed finding the characters even when it was tricky!
	2	25.2.25	How Big is a Million	PT	Enjoyed discussing more/less. Good recall and discussion.
	3	26.2.25	Ten twinkly stars	VF	Listened well, could subitise up to 3 during the story.
2	1	4.3.25	Mamun Wanted more.	LH	Enjoyed comparing to zones of regulation - identifying feelings. Could repeat key things back to me.
	2	6.3.25	Adventures of Paddington	ES.	Word book day. The children loved this and could anticipate what was going to happen next.
	3	7.3.25	Peace at last	AJ.	Enjoyed thinking about what animals we might hear in the garden/sounds in the house. If could answer 'Who' was tired, when it happened.
3	1	12.3.25	Jeremiah Jellyfish flies high	J Si	Understood the humour in the story and could explain why it was funny. Recognised emotions throughout - "nervous" - FT.
	2	13.3.25	A goat on the road	FT	Discussed emotions, could retell the story at the end and discuss the sequence of the story (first, middle, end).
	3	14.3.25	The Tiger who came to tea.	J St.	Children could re-tell the story and join in with repeated refrains throughout. Answered open ended questions well.

LOU7R2

	3	28.3.25	shh we have a plan	Open-ended - I wonder what is going to happen Distancing - have you ever tried to catch an animal Wh question - when did they spot the squirrel?		try catch bird, they need bigger net. Ladybird, grass hopper at the end.
4	1	31.03.25	There was an old lady who swallowed a fly	Completion - There was once a old lady that swallowed a fly open-ended - I wonder what she will swallow next? Recall - what did she eat first to get the fly?	yes	children were able to complete rhyme children guessed what was bigger than the mouse before At end of story children could tell me all animal they had seen.
	2	02.04.25	Poo at the Zoo	Completion - Who had to push the cart around and shovel up the... Poo! Wh question - what can you tell me about the words 'dizzy' and 'bushy'? Distancing - Can you tell me about your own trip to the zoo? Recall - What grows on your hands if you don't wash them? Distancing - when do you need to wash your hands Wh question - what happens if you don't wash your hands?	yes	Children could complete the sentence. could identify rhyming words. Reflected on their own trips and animal they had seen.
	3	14.4.25	Now wash your hands	Recall - What grows on your hands if you don't wash them? Distancing - when do you need to wash your hands Wh question - what happens if you don't wash your hands?	yes	- Germs - After toilet, before food, after garden play - Germ make you poorly - Pupa - Egg, Caterpillar, cocoon/pupa/butterfly - Butterfly fly very far to be warm
5	1	25.7.4	Caterpillar to Butterfly	Wh question - what is the new name for cocoon we learnt in the story? Recall - can you tell me how butterflies grow? Wh question - what is migration?	yes	- Yes they could tell me that they are bright colour. - could tell that the bee collect nectar, I told me about their experiences
	2	10/4/25	Dandelion	Recall - Recall facts about Dandelions What - what do you think the bees hairy legs are for/do Distancing - Talk about their experiences of finding Dandelions	yes	The children could offer ideas about what the children would do with the tiger
	3	14/4/25	The tiger who came to tea	What - what do you think the tiger might eat next night if the tiger knocked on your door? Completion - door - what would you do with him	yes	could talk about what he might eat next children told me all animals coming to tea he snored a lot and it caused a fire able to answer yes the soldier was bad donkey children counted 12 in book.
6	1	11.04	The scarecrow wedding	Completion - Lets have a wedding the best... Wh question - who gave what on the list... Recall - what happened to the farmer's second scarecrow? Regional Rate what did he do?	yes	get, A wedding that no one will forget children told me all animals coming to tea he snored a lot and it caused a fire able to answer yes the soldier was bad donkey children counted 12 in book.
	2	16.04	Easter story	Recall - what was Jesus good or bad? What did Jesus ride into Jerusalem? Recall - How many friends did Jesus have on the table?	yes	- fall in pond, bees chase fox - fox Chase children, fox always got stuck chicken went home for dinner - floor went on fox.
	3	17-04	Rosie's Walk	- I wonder what was going to happen? (open ended) - What happened in story. (recall) - What happened when Rosie's foot got stuck around wire? (Wh question).	yes	



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