

INDEPENDENT EVALUATION OF EASYPEASY: LONGITUDINAL FOLLOW-UP

Date agreed with the developer and EEF: 06 December 2019

Developer: EasyPeasy

Evaluator: Durham University and University of York

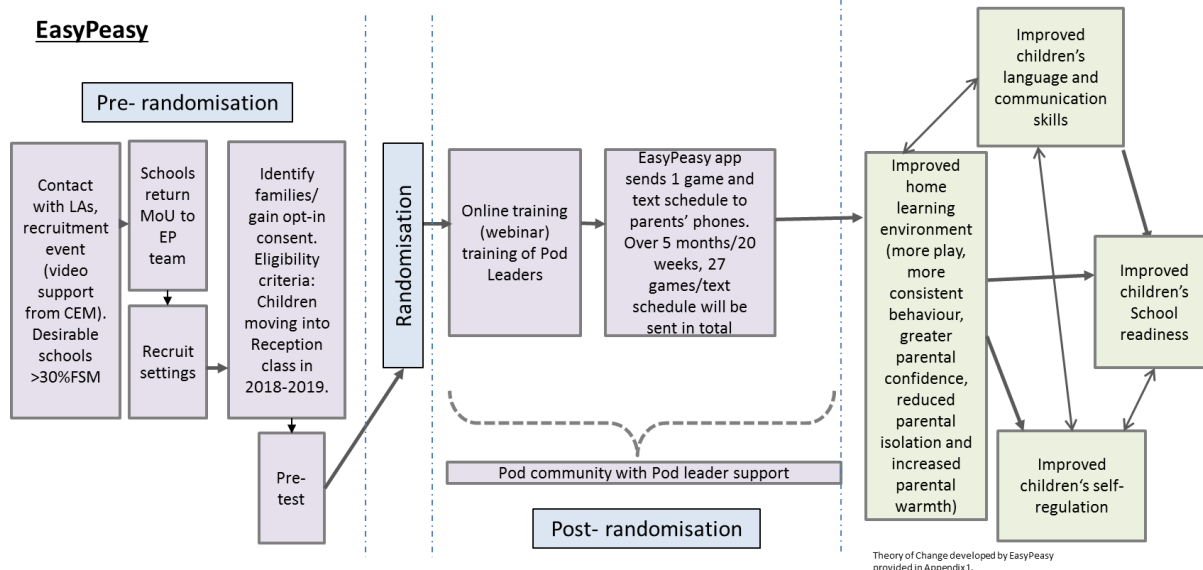
Principal Investigator: Dr Lyn Robinson-Smith

Statistician: Caroline Fairhurst

Aim

The aim of the longitudinal analysis is to access participating pupils' Early Years Foundation Stage Profile (EYFSP) via the National Pupil Database (NPD). This will enable us to determine if the EasyPeasy intervention, administered to pre-school children (aged 3-4 years old), had any longer-term effects at the end of Reception (4-5 years old). To do so, this longitudinal analysis will focus on relevant EYFSP early learning goals which align to the outcomes of the main trial and the logic model (Robinson *et al.* 2019); see Figure 1. The analysis follows the published guidance of the [longitudinal analysis of EEF trials](#). The analysis will consider language and communication skills, self-regulation, and readiness for school.

Figure 1. *EasyPeasy Logic Model*



Key Research Questions

1. What is the impact of the EasyPeasy intervention on the language and communication development of children at the end of reception, as measured by the Communication and Language learning area of the EYFSP?
2. What is the impact of the EasyPeasy intervention on the PSED of children at the end of Reception, as measured by the Personal, Social and Emotional development learning area of the EYFSP?

3. What is the impact of the EasyPeasy intervention on children's overall development and school readiness, as measured by whether the child achieved a good level of development (GLD) in the EYFSP?

Outcome measures

The EYFSP is teacher reported and assessed at the end of a child's first year at primary school. Communication and language is a specific area of learning measured in the EYFSP. Within this area, there are three Early Learning Goals (ELG): Listening and attention; Understanding; and Speaking. Each ELG has three separate achievement levels: 1=Emerging; 2 = Expected; and 3 = Exceeding. The sum of the three ELGs will be taken to produce a summary score for 'Communication and language'. This will be analysed as a continuous outcome.

Personal, Social and Emotional development (PSED) is another learning area measured by the EYFSP, consisting of three ELGs: Self-confidence and self-awareness; Managing feelings and behaviour; and Making relationships. Again, all three are assessed on a three-point achievement scale detailed above and a summary score will be produced by adding together the three scores. This will be analysed as a continuous outcome.

For any of the ELGs, a score of A may be reported to indicate that a child has not been assessed. Any child that has an A score for any ELG within a scale will be excluded from the analysis of that scale.

Additionally, the EYFSP provides a general measure of good development. This is defined in the EYFSP 2019 handbook

(https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/790580/EYFSP_Handbook_2019.pdf) as: "Children are defined as having reached a good level of development at the end of the EYFS in the reception year if they have achieved at least the expected level for the ELGs in:

- The prime areas of learning – personal, social and emotional development, physical development, and communication and language; and
- The specific areas of mathematics and literacy"

This is a dichotomous variable (Yes/No) pre-calculated and provided as a single variable in the NPD.

Table 1: Longitudinal analysis: Relevant links between trial outcomes and relevant EYFSP areas of learning.

| | | |
|--------------------------------------|-----------------------------|--|
| Trial type and number of arms | | Two-armed cluster randomised controlled trial (random allocation at school level) |
| Unit of randomisation | | School |
| Minimisation factor | | Number of children with parental consent per school (2 levels; <14; ≥14) |
| Primary outcome | variable | Language and communication |
| | measure (instrument, scale) | Summary score of: 1) FSP_COM_G01 (Communication and Language - Listening and attention) |

| | | |
|---------------------------|--------------------------------|---|
| | | 2) FSP_COM_G02 (Communication and Language - Understanding) 3) FSP_COM_G03 (Communication and Language – Speaking) |
| Secondary outcomes | variable | Self-regulation/personal, social and emotional development |
| | measure (instrument, scale) | Summary score of: FSP_PSE_G06 (Personal, Social and Emotional Development - Self-confidence and self-awareness); FSP_PSE_G07 (Personal, Social and Emotional Development - Managing feelings and behaviour); FSP_PSE_G08 (Personal, Social and Emotional Development - Making relationships) |
| | variable | School readiness |
| | measure (instrument, scale) | Achieving a good level of development as measured by NPD variable, FSP_GLD. |

Participants

We shall request NPD data for randomised pupils only, provided their parents gave consent for their child's data to be accessed. A total of 1205 pupils were randomised, but of these, 2 do not have the appropriate consent, so we shall request data on 1203 pupils.

Access to NPD

By the end of November 2019, we aim to have submitted an application to the NPD for individual-level EYFSP data. We shall provide pupil details (pupil forename, surname, date of birth, home postcode, school destination name, school post code and school EduBase URN (children are only assigned a UPN when they reach primary school so this is not available to match on)) for the DfE to match to the requested NPD data. We shall also include the random trial id for the child. The export of NPD data will be transferred to the Office of National Statistics (ONS) for the Evaluation Team to analyse and will not contain personal data. The only (meaningless) identifier transferred will be the PMR (pupil matching reference) and the random trial id. Access to NPD data is via the ONS Secure Research Service. The trial statistician, Caroline Fairhurst, is an ONS accredited researcher who will submit the application, and access and analyse the data. This will likely be through a Physical ONS datalab. Access is free but the application process can take several months. We hope to have access to this data in early Spring 2020 with a view to submitting the addendum to the EEF report by the end of April 2020.

Analysis plan

Analyses will be conducted on an intention-to-treat basis, using two-sided significance at the 5% level.

Outcome data will be summarised descriptively for the two groups (Example Table 1). The primary outcome for this longitudinal analysis is the summary Communication and language EYFSP score (Research Question 1). This will be analysed via a multilevel mixed-effect linear regression model at the pupil level. Group allocation, baseline Core Language

Standard Score and the minimisation factor of number of children with parental agreement to participate within the nursery (in its continuous form as included in the analyses performed for the main trial) will be included as fixed effects in the model. Nursery will be included as a random effect. The secondary outcome of summary score for PSED will be similarly analysed (Research Question 2). Effect sizes based on the difference between the groups at the post-test will be presented as Hedges' g with 95% confidence intervals (CI) (Example Table 2). The intra-cluster correlation coefficient (ICC) at the post-test will be presented. The Pearson correlation coefficient between baseline Core Language Standard Score and these two EYFSP summary scores will be reported.

The secondary, dichotomous outcome of GLD will be analysed via a mixed-effect logistic regression model, adjusted as for the primary model specified above (Research Question 3). The treatment effect expressed as an odds ratio will be reported with a 95% CI and p-value (Example Table 2).

Subgroup analysis

In line with the main trial analyses (Fairhurst, 2018), subgroup analyses will consider children that are eligible for the Early Years Pupil Premium, where English is an Additional Language (EAL) and gender via the inclusion of the variable and an interaction term between the variable and group allocation in the analysis model. This will only be undertaken for the 'primary' outcome of communication and language.

Descriptive analysis by Local Authority

The percentage of pupils achieving GLD will be presented by randomised group and Local Authority (LA) (Example Table 3). This output will be purely descriptive and has been added at the request of the developer. This table will be included in the report subject to clearing of the output by the ONS if they are satisfied the table is not disclosive. Strategies to suppress disclosive cells may be employed if necessary, e.g., by merging two or more LAs together.

Example tables

Table 1. *Summary of outcomes by randomised group*

| Variable | Intervention group | Control group | Overall |
|---|--------------------|---------------|---------|
| Language and communication | | | |
| Listening and attention, n (%) | | | |
| 1 = Emerging 2 = Expected 3 = Exceeding A = Absent/missing | | | |
| Understanding, n (%) | | | |
| 1 = Emerging 2 = Expected 3 = Exceeding A = Absent/missing | | | |
| Speaking, n (%) | | | |
| 1 = Emerging 2 = Expected 3 = Exceeding | | | |

| | | | |
|---|--|--|--|
| A = Absent/missing | | | |
| Summary score N, Mean (SD) | | | |
| Self-regulation/personal, social and emotional development | | | |
| Self-confidence and self- awareness, n (%) | | | |
| 1 = Emerging 2 = Expected 3 = Exceeding A = Absent/missing | | | |
| Managing feelings and behaviour, n (%) | | | |
| 1 = Emerging 2 = Expected 3 = Exceeding A = Absent/missing | | | |
| Making relationships, n (%) | | | |
| 1 = Emerging 2 = Expected 3 = Exceeding A = Absent/missing | | | |
| Summary score N, Mean (SD) | | | |
| Achieving a good level of development, n (%) | | | |

Table 2. *Summary of results*

| Continuous outcomes | Intervention group | | Control group | | Effect size | | |
|--|---------------------------|--------------------------|------------------------|--------------------------|---|------------------------------------|---------------------|
| | n (missing) | Mean (95% CI) | n (missing) | Mean (95% CI) | n in model (intervention; control) | Hedges g (95% CI) | p- value |
| Language and communication | | | | | | | |
| Self- regulation/personal, social and emotional development | | | | | | | |
| Dichotomous outcome | n (missing) | N (%) | n (missing) | N (%) | n in model (intervention; control) | Odds ratio (95% CI) | p- value |
| Good level of development | | | | | | | |

Table 3. *Percentage of pupils achieving GLD by LA and randomised group*

| LA | % of children achieving GLD (intervention) | % of children achieving GLD (control) |
|-----------|---|--|
|-----------|---|--|

| | | |
|-----------|-----------|-----------|
| Bedford | e.g., 50% | e.g., 30% |
| Camden | | |
| Coventry | | |
| Doncaster | | |
| Durham | | |
| Islington | | |
| Knowsley | | |
| Luton | | |
| Oldham | | |

References

Fairhurst, C. 2018. Independent Evaluation of the EasyPeasy programme, Statistical analysis plan v1.1. London: Education Endowment Foundation. Available at: https://educationendowmentfoundation.org.uk/public/files/Projects/EasyPeasy_SAP_v1.1_amended.pdf

Robinson-Smith, L., Menzies, V., Cramman, H., Wang, Y. (Linda), Fairhurst, C., Hallett, S., Beckmann, N., Merrell, C., Torgerson, C., Stothard, S. and Siddiqui, N., 2019. EasyPeasy: Learning through play: Evaluation report. [online] London: Education Endowment Foundation. Available at: <https://educationendowmentfoundation.org.uk/public/files/Projects/Evaluation_Reports/EasyPeasy.pdf> [Accessed 8 Oct. 2019].