EasyPeasy

Evaluation in Newham: findings from the Sutton Trust Parental Engagement Fund (PEF) Project

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easy PEASY

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Brief overview of EasyPeasy

EasyPeasy is a programme that aims to improve child development by increasing positive parent-child interaction through play at home. It uses the mobile phone as a channel to reach parents and carers, giving them inspiration and ideas for real-world games and activities. It sends game ideas combined with information on child development, communicated through engaging videos. The games help parents to support the skills needed to make a strong start in school and life. It has also been built to integrate with children's centres, primary schools, and nurseries, functioning as a digital outreach service that extends the work of practitioners. Parents are connected in small groups, or 'Pods', providing a virtual support network. Each 'Pod' is coordinated by a Pod Leader, a practitioner from a local setting who can monitor parents' progress and offer remote support through their own EasyPeasy desktop dashboard. Pod Leaders also receive training on how to use digital outreach and support tools.

Evaluation of EasyPeasy

As part of the Sutton Trust/Esmée Fairbairn Parental Engagement Fund (PEF) project, EasyPeasy has been trialled in two authorities: Bournemouth and Newham. The two trials were designed differently: Bournemouth was an individual-level randomised controlled trial (RCT) and Newham involved whole children's centres being allocated to different trial groups. This report focuses on the Newham trial.

Methods

Evaluation design

A two-group randomised controlled trial was carried out in Newham to assess the efficacy of EasyPeasy as used by parents registered in children's centres over a 3-month period. Children's centres were allocated to either the intervention ('early starters') or comparison group ('later starters', who were a waiting list control). Because everyone who signed up to the trial in a given centre was assigned to the same group, this trial allowed the app developers to explore the feasibility of offering EasyPeasy to everyone in the intervention centres, and to support use of the app through a centre 'Pod' which was coordinated by a member of centre staff.

Participants

The sample consisted of families drawn from children's centres in the London borough of Newham. Eight children's centres were involved in the trial, each one representing one of Newham's eight community neighbourhoods. A total of 302 eligible families with children aged 3-4 years were recruited from across the eight centres. Table 1 shows the numbers of families participating from each centre.

Allocation to intervention and comparison groups

Randomisation was at the centre level, meaning that four children's centres were allocated to the intervention group, who received the app straight away, and four were allocated to the comparison group, which acted as a no-treatment control during the period of the trial but who received the app after the trial was completed. Randomisation was conducted using the 'minimisation' method, which ensured the two groups were balanced on certain factors thought to be important to the intervention: proportion of children in the setting with English as an Additional Language (EAL), proportion of children eligible for Free School Meals (FSM) and proportion of children with Special Educational Needs (SEN).

Table 1. Number of eligible families recruited from each centre

		Number of families	Percentage of group
Intervention centres	Beckton & Royal Docks	25	19.2
	East Ham	26	20.0
	Stratford & West Ham	29	22.3
	Manor Park	50	38.5
	Subtotal	*130*	*100*
Comparison centres	Plaistow	18	10.5
	Green Street	35	20.3
	Forest Gate	52	30.2
	Custom House & Canning Town	67	39.0
	Subtotal	*172*	*100*
Whole sample	**Total**	302	

Outcome measures

The assessment measures in Box 1 were all completed by the parent at pre-test (before randomisation of centres) and repeated at post-test, 4-6 weeks after the intervention had ended.

Box 1. Outcome measures used in the trial

Child Self-Regulation and Behaviour Questionnaire (CSBQ) (Howard & Melhuish, 2016)

- Parent-report scale concerning children's behaviour and self-regulation, rated 1-5
- Three subscales related to self-regulation used:
  - Behavioural self-regulation (8 items)
  - Cognitive self-regulation (6 items)
  - Emotional self-regulation (7 items)

Tool to Measure Parenting Self-Efficacy (TOPSE) (Kendall & Bloomfield, 2005)

- Parent-report rating scale measuring parental self-efficacy and confidence in certain domains of parenting, measured on a 0-5 scale.
- Two subscales used
  - Control (6 items)
  - Discipline and boundaries (6 items)

Parenting Stress Index (PSI) (Abidin, 1995)

- Parent-report scale concerning the stress related to being a parent, measured 1-5, where a high score signifies a problem
- One subscale used:
  - Parent-child dysfunctional interaction (12 items)

Procedure and intervention

Parents were invited to take part in the trial and completed the baseline measures (in paper questionnaire format) after giving informed consent. The eight children's centres were then randomised to either the intervention or comparison group. All families in the intervention centres received access to the app a few weeks after randomisation. Games were sent via the app once per week over the 3-month duration

of the intervention. Families were in virtual 'Pods' linked to the setting and coordinated by a children's centre practitioner. They also had access to in-app support from EasyPeasy to deal with queries or comments.

Post-test data was collected via an online survey with a unique link sent to each participant. Reminders were sent via text message, and follow-up phone calls were also made. Families in the comparison group were given access to the app once the final post-test data had been collected.

Research ethics

This study had ethical approval from the University of Oxford's Central University Research Ethics Committee (CUREC).

Participant characteristics

Table 2 presents the basic demographic characteristics of the participants in the study. Of the total recruited and randomised, 200 families had data at both time points and were able to be included in the analyses.

Table 2. Demographic characteristics of participants by intervention and comparison group

Baseline variable	Intervention group (n=81)	Comparison group (n=119)
Parent characteristics		
Parent age in years	34.09 years (5.25)	33.54 years (6.17)
Parent gender: female	78 (96.3%)	110 (92.4%)
Parent ethnicity:		
White British/Irish/other	20 (24.7%)	46 (39.3%)
Asian/Asian British	47 (58.0%)	45 (38.5%)
Black/Black British	10 (12.3%)	20 (17.1%)
Mixed/multiple/other ethnic group	4 (4.9%)	6 (5.1%)
Marital status: married/civil partnership/cohabiting	68 (87.2%)	88 (75.9%)
Highest qualification:		
GCSE or below	16 (20.0%)	30 (26.3%)
Vocational 16-18	6 (7.5%)	15 (13.2%)
Academic 16-18	5 (6.3%)	15 (13.2%)
Degree or higher	48 (60.0%)	54 (47.4%)
Other	5 (6.3%)	0 (0%)
Employed: yes	30 (38.0%)	54 (45.4%)
Partner employed (if applicable): yes	60 (88.2%)	81 (90.0%)
Housing: rented	49 (60.5%)	71 (60.7%)
Child characteristics		
Child age in months	48.69 months (11.47)	48.74 months (9.05)
Child's gender: girls	42 (51.9%)	51 (42.9%)
Language spoken at home:		
English only	17 (21.3%)	35 (29.7%)
English + additional language	63 (78.8%)	83 (70.3%)

Note: values are numbers (and % valid responses) for categorical variables and mean (sd) for numerical variables

Statistical analysis and results

Scores on the outcome measures were analysed statistically to assess the effects of EasyPeasy on children and parents. Analysis of covariance (ANCOVA) procedures were used to compare the post-test scores of families in the intervention and comparison groups, while controlling for their pre-test scores and the factors on which the two groups had been balanced at outset. (See '**Technical notes**' for further information on the analysis, which first investigated the potential effect of the 'clustering', i.e., the grouping of families within centres, and controlled for this in the main analysis.)

The analyses showed a statistically significant difference between the scores of the intervention and comparison groups on **parent-reported child cognitive self-regulation** (CSBQ 'cognitive' subscale). There was also a statistically significant difference in the scores between the two groups on **parents' self-efficacy regarding their sense of control** (TOPSE 'control' subscale). Both showed positive effect sizes in favour of the intervention group (Hedges' g for CSBQ cognitive self-regulation: **0.35** [CI 0.11-0.59]; and TOPSE control: **0.26** [CI 0.01-0.51]). None of the other outcome measures showed statistically significant differences between the groups.

Table 3 summarises the findings. It shows the pre- and post-test scores on the outcome measures for intervention and comparison groups, the effect sizes, and statistical significance. The analyses which showed a significant difference between the two groups appear in bold.

Table 3. Unadjusted (raw) pre- and post-test scores by intervention and comparison group, effect sizes and statistical significance for all measures

Outcome measure	Intervention group			Comparison group			Effect size (Hedges' g) (95% CI)	Sig.
	N	Pre-test (sd)	Post-test (sd)	N	Pre-test (sd)	Post-test (sd)		
CSBQ[1] behavioural self-regulation	77	3.58 (.51)	3.66 (.58)	119	3.45 (.69)	3.48 (.69)	0.14 (-0.07-0.35)	ns
CSBQ[1] cognitive self-regulation	**77**	**3.65 (.65)**	**3.88 (.55)**	**119**	**3.62 (.65)**	**3.65 (.62)**	**0.35 (0.11-0.59)**	***p*<.05**
CSBQ[1] emotional self-regulation	77	3.72 (.62)	3.77 (.57)	119	3.61 (.67)	3.61 (.67)	0.12 (-0.08-0.33)	ns
TOPSE[2] control	**80**	**3.56 (.65)**	**3.84 (.68)**	**117**	**3.65 (.74)**	**3.65 (.78)**	**0.26 (0.01-0.51)**	***p*<.05**
TOPSE[2] discipline & boundaries	80	3.72 (.92)	3.96 (.80)	118	3.84 (.82)	3.87 (.72)	0.18 (-0.05-0.41)	ns

[1]CSBQ score range: 1-5; [2]TOPSE score range: 0-6; both measures: higher score indicates better outcome

Discussion of findings

This study found that families in the intervention group (those with access to EasyPeasy) had significantly higher scores than the comparison group on two parent-reported outcomes: children's cognitive self-regulation and parents' sense of control.

First, these results suggest a positive effect of EasyPeasy on **children's cognitive self-regulation**, as reported by their parents. This measure includes the ability to 'work things out for oneself', 'persist in completing difficult tasks' and 'making decisions independently'. Cognitive self-regulation, including persistence and concentration, is agreed to be an important pre-requisite of children's 'school readiness'.

Second, a promising effect of the EasyPeasy app was observed for **parental sense of control**. Parents, for example, reported feeling more 'in control' as a parent and had a greater sense of being able to 'get their child to behave well' and 'respond to boundaries'. They also reported being able to 'stay calm when facing difficulties'.

These results must be interpreted with caution. The analyses have not accounted in a sophisticated way for the clustered nature of the data, i.e., children and parents were not randomly assigned within each centre; instead, centres were randomly assigned to intervention or comparison group. Although analysis after completion of the trial showed negligible centre effects, analysis at individual level means that important information about the nesting in the data has not been taken into account. For this reason, the positive findings for the intervention group could be said to be *promising* at this stage.

As well as the limitation related to clustered data, this study had other limitations, including the lack of objective, independently-rated measures of child self-regulation. In the self-report measures used in this evaluation (completed by the parent and not a teacher, for example) there is the risk of 'social desirability', that is, a desire on the part of the parent to present themselves or their child in the best light due to their use of the app, which may have skewed the ratings obtained from parents in the intervention group.

The findings from the Newham evaluation suggest that EasyPeasy was associated with moderate positive effects on outcomes related to parenting self-efficacy and children's cognitive self-regulation. These positive findings are buttressed by an earlier evaluation of EasyPeasy carried out in Bournemouth (Jelley, Sylva, & Karemaker, 2016) which also showed significant positive benefits for the intervention group compared with the control group on children's cognitive self-regulation, as well as parenting self-efficacy. The samples in the two trials represented two very different populations, one a large coastal town with a mainly white British population, and the other a densely-populated urban area in inner-city London with a multi-ethnic population. Although trialled in two very different authorities using slightly different research designs, the fact that the two studies had similar results reinforces the implication that EasyPeasy can boost children's cognitive development through supporting play at home with their parents.

References

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Technical notes

Analytical strategy to account for clustered data

Individual data in this centre-randomised trial are 'nested', that is, all families in any one centre were invited to *either* the intervention *or* the comparison group. It is important to take account of nesting in the analysis because families drawn from the same children's centre (i.e., living in the same neighbourhood and interacting with the same centre staff) are likely to be more similar to one another than those from other centres.

Prior to the main analysis, we examined the total variance in the outcome measures that stems from the clustering of children within centres (intra-cluster correlation coefficient; ICC). For the child cognitive self-regulation measure, the ICC was less than 1%, indicating that the children's centre from which families were drawn had very little effect on the scores of children and parents in the study. We therefore proceeded with standard statistical techniques at child level which do not account for clustering.

For technical reasons, it was not possible to calculate the ICC for other outcomes, and so centre effects were explored by testing centre as a fixed effect in an ANCOVA. For each of the other outcome measures, we investigated the potential effect of children's centre on progress made by participants between pre- and post-test. For just one outcome (TOPSE control), membership of one centre seemed to be related to progress made between the two time points: families in one of the centres appeared to make statistically less progress than those in other centres. To take this into account, membership of this relatively weakly performing centre was controlled for as a fixed effect in the model.

Note that some caution must be exercised when interpreting the results from this study because some researchers have argued that even when clustering effects seem minimal, the nesting may still have a large impact on the Type I error rate, that is, the chance of a false positive result. A larger scale, clustered study is needed to make these early, positive results more secure.

Main analysis at child level

Analyses of covariance (ANCOVAs) were conducted on five out of the six outcome measures, but not on the Parental Stress Index (PSI) as the statistical assumptions necessary to conduct an ANCOVA were not met for this measure. The models all controlled for pre-test score, along with age of child and child's gender as potential covariates (included in the model only if they significantly predicted the outcome or improved the model fit). The variables on which the children's centres had been allocated to group (minimisation factors) were also tested and included if appropriate.

After controlling for appropriate covariates, the ANCOVAs showed a significant effect of the intervention on two of the five analysed outcome measures. First, there was a significant difference in parent-reported child cognitive self-regulation ($F(1,192)=8.23$, $p=.01$; controlling for pre-test and child gender). There were also significant differences in parents' self-efficacy regarding their sense of control ($F(1,193)=4.29$, $p=.04$; controlling for pre-test as well as one centre whose families appeared to make less progress than in other centres). Both showed moderate positive effect sizes in favour of the intervention group (Hedges' g = **0.35** [CI: 0.11-0.59] and **0.26** [CI: 0.01-0.51] respectively).

There was no significant effect of the intervention on any other measure: TOPSE discipline and boundaries ($F(3,194)=2.39$, $p=.12$; controlling for pre-test & child gender); CSBQ behavioural self-regulation ($F(1,193)=1.69$, $p=.20$; controlling for pre-test); CSBQ emotional self-regulation ($F(1,192)=1.36$, $p=.25$; controlling for pre-test & child gender).

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