



Engaging parents effectively: Evaluation of the PEN Home Learning Project

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Parental Engagement Fund

The Sutton Trust working in partnership with Esmée Fairbairn Foundation established the Parental Engagement Fund building on the evidence that engaging parents in their children's learning can have a positive impact on their attainment. The aim of the fund is to increase attainment for disadvantaged children in the early years through the development of more effective parental engagement. In addition, the hope is to improve the sustainability of effective interventions and to identify features of good practice to share with the Early Years sector. The Parental Engagement Network (PEN) is one of five organisations that the fund is working with. An evaluation team (Jelley, Sylva, Eisenstadt) from the University of Oxford's Department of Education, has worked with PEN, acting as a critical friend, expert advisor and independent evaluator supporting them to develop delivery and demonstrate impact.

The Sutton Trust working closely with the University of Oxford (Department of Education) have found the PEN approach to engaging parents in their children's learning to have a positive impact on targeted families, in addition it is low cost and sustainable. PEN is a dynamic and committed organisation and one that we believe that funders, local authority commissioners and school leaders should actively consider.



Description of PEN and its programme

Parental Engagement Network (PEN; <http://penetwork.co.uk>) is a not-for-profit social enterprise specialising in supporting schools and settings to better engage parents, particularly those from disadvantaged

communities. It provides training for staff and parents, develops a range of creative projects and sustainable resources, and facilitates networks to share good practice.

As part of the Engaging Parents Effectively Programme, PEN has trained teachers and teaching

Table 1: Schools involved in the trial

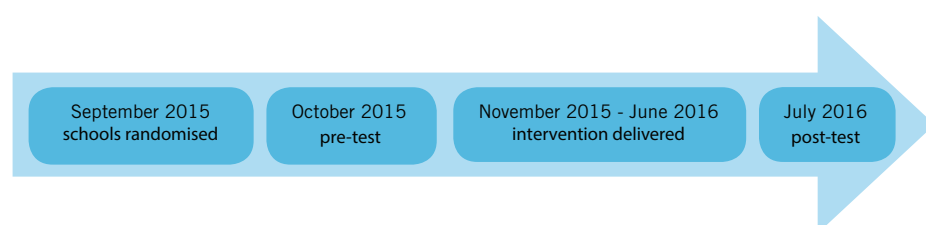
Intervention	Control Schools
Claremont Primary School	Armitage C of E Primary School
Oasis Academy Harpur Mount	Oasis Academy Aspinall
Hollingworth Primary and Nursery School	Baguley Hall Country Primary School
Irk Valley Primary School	Greenfield Primary School
Newall Green Primary School	Marlborough Road Academy
Rack House Primary School	Park View Community Primary School
Rolls Crescent Primary School	Poplar Street Primary School
Romiley Primary School	Ravensfield Primary School
Russell Scott Primary School	St Mary's C of E Primary School

assistants in 51 schools to work with parents, with a focus on disadvantaged families, to help them support their children's learning and build positive relationships with other parents and school staff.

Schools have been trained in three different projects. In the Transition Project (Mouse Club) practitioners begin working with parents in the summer term before the child starts nursery or reception. Activities are centred on a toy mouse which is given to children as a transitional object and which needs their help to get ready for school, encouraging them to develop their physical and independence skills, language, and good routines, with support for parents through accessible tip sheets. The Home Learning Project then begins once the child is in nursery or reception, and includes workshops and activities for families such as 'FUN' (Families Understanding Numeracy) maths, and Playclub bags which help support early literacy and phonics through imaginative resources and instructions with links to videoclips showing parents how to do the activities.

The University of Oxford is running three trials each evaluating a different variation of PEN's programme. This trial is an evaluation of the Home

Figure 1: Trial timeline



Learning Project with parents of children in nursery classes.

Evaluation

A small-scale randomised controlled trial was carried out in the Manchester area to evaluate the effects of the PEN Home Learning Project on children's development during their time in nursery. The trial was conducted at school (cluster) level, with whole schools allocated to either the intervention or waiting list control group. The control schools received the intervention in the following academic year. A cluster design was adopted because the intervention is designed to operate across the school, rather than with individual families.

A total of 20 schools from 4 local authorities in the northwest (Manchester, Salford, Tameside and Stockport) were randomised using the minimisation method with 5 factors: proportion of free school meals,

proportion of children with English as an additional language, the 'level' of parental engagement experience in the school, size of school, and local authority. Two schools dropped out of the trial post-randomisation, but before data collection. The final sample was thus made up of 18 schools, between them recruiting 167 families. Table 1 shows the schools involved in the trial.



Box 1. Measures collected at pre-and post-test

Measures

Early Years Home Learning Environment Index (HLE) (Sylva et al., 2010) – parent-completed questionnaire on how often a child is engaged in specific learning and play activities at home. 7 items rated on a 0–7 scale:

- reading together
- library visits
- playing with letters/numbers
- playing with/teaching letters in the alphabet
- helping to learn numbers/shapes/counting
- singing songs/poems/nursery rhymes
- painting/drawing at home

Brief Early Skills and Support Index (BESSI) (Hughes & White, 2015) – teacher-completed rating scale providing a broad perspective on school readiness. Each item is scored 1–4, with higher scores indicating a problem. The BESSI has four subscales:

- Behavioural Adjustment, e.g., being easily distracted
- Language and Cognition, e.g., ability to use one-to-one correspondence
- Daily Living Skills, e.g., needing help to look after belongings
- Family Support, e.g., being read to regularly at home

Staff from intervention schools were trained in the Home Learning Project and briefed on what was involved in the trial, while those from control schools were briefed on the study and data collection procedures only. Schools were responsible for recruiting eligible families according to the criteria set by the project, that is, focusing on Early Years Pupil Premium children where possible, and those families the school felt would benefit most from the programme. Each school aimed to recruit 10 families.

Following the training, the intervention was delivered to families by staff in schools over the course of an academic year. Parents were invited to attend 2 – 4 workshops per term and took home activities and Playclub bags to use with their

Table 2: Adjusted post-test means¹, estimates of the effect (with confidence intervals) and statistical significance of difference for all measures

Outcomes	Mean (95% CI)		Estimate of the intervention effect (95% CI)	Significance
	Intervention Group	Control group		
Home Learning Environment ² No. of families Score	58 31.07 (27.75 to 34.38)	51 26.35 (23.05 to 29.66)	4.71 (.00 to 9.43)	p<0.5
BESSI ³ Behavioural Adjustment No. of families Score	63 1.85 (1.69 to 2.01)	65 1.995 (1.84 to 2.15)	-0.15 (0.37 to 0.08)	ns
BESSI ³ Language and Cognition No. of families Score	63 1.68 (1.48 to 1.87)	65 (1.74 (1.55 to 1.92)	-0.06 (-0.33 to 0.21)	ns
BESSI ³ Daily Living Skills No. of families Score	63 1.72 (1.54 to 1.91)	65 1.84 (1.66 to 2.01)	-0.11(-0.37 to 0.15)	ns
BESSI ³ Family Support No. of families Score	67 1.73 (1.52 to 1.95)	66 2.03 (1.82 to 2.24)	-0.29 (-0.59 to 0.01)	ns (p=.056) [#]

¹post-test means adjusted for covariates in final model; ²HLE score range: 0 to 49, higher score indicates better outcome; ³BESSI (all subscales) score range: 1 to 4, lower score indicates better outcome; [#]just failed to reach statistical significance at 0.05 level

children at home related to maths, phonics and other aspects of the Foundation Stage curriculum.

Child measures were completed by the parent and teacher at pre-test in autumn term before the intervention began, and repeated at post-test in the summer term, after the programme had finished. Figure 1 shows the timeline of the randomisation, data collection and intervention, and Box 1 provides detail of the measures. Qualitative data were also collected and are reported elsewhere.

Key Findings

Differences between the intervention and control group were compared on all outcomes. (See 'additional notes' for further information on the analytic strategy, which used multilevel regression to take account of clustering.)

The analysis showed a difference in Home Learning Environment (HLE) scores between the intervention and control groups, with a significant increase of 4.71 points for the intervention group compared to the control group (p<0.05, 95% CI: 0.00 to 9.43). There were no statistically significant effects on any of the BESSI subscales. However, one subscale, Family Support, had an almost significant effect, with the intervention group showing a decrease of -0.29 points (on a scale of 1 to 4, with a lower score indicating a better outcome), compared with the control group (p=0.056, 95% CI: -0.59 to 0.01).

Table 2 shows the outcomes for the two groups, with the significant differences between intervention and control groups in bold.

To summarise, there was a statistically significant difference between intervention and control groups on one of the five outcome measures, and a second outcome measure that was approaching significance. After controlling for appropriate covariates and the clustered nature of the data, the analyses showed a significant effect of the intervention on the child's Home Learning Environment score. There was also a trend (p=.056) towards a difference between intervention and control groups on the Family Support subscale from the BESSI.

School and family engagement with the programme

Eight of the nine intervention schools were very enthusiastic about the intervention and pleased with how many targeted families engaged. Almost all the staff (94%) said they had gained confidence and skills in working with parents through the training and implementing the project, and most schools reported that they thought the intervention had impacted on children's progress in terms of the Early Years Foundation



Stage (EYFS) profile outcomes. At Claremont Primary School 70% of the targeted children involved in the project made accelerated progress (3+ levels) in teacher-assessed reading compared with 45% of the whole nursery year group, and 70% of the children involved in the project made accelerated progress in

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speaking compared with 48% of the year group as a whole.

Vicki Lord, head teacher at Irk Valley Community School said, "it's been very successful and had a massive impact on the progress of the children involved. It's just right for targeted children in receipt of Pupil Premium funding. It's been one of the best interventions we've done." The vast majority of parents (90%) said they had found the project useful or very useful: a parent from Newall Green Primary School commented, "It has helped my son's confidence

and helped him to concentrate (he can't sit down for more than a few minutes). They were all great activities. Our best had to be 'Get Active' (counting star jumps) and 'Shape Hunt'. It helped me to understand how to help my son."

Parents from Hollingworth Primary School said, "The teacher made me see that play and singing songs is the best tool I can use...we can't wait to fish ducks out of the bath, buy a currant bun or go on a bear hunt through the local park. Thank you for introducing us to Playclub and all the new adventures we will share" "It was great to get him away from the screen and do things together – the workshops showed us ways to make learning fun."

Vicky, a Teaching Assistant from Oasis Academy Harpur Mount described how "I have enjoyed spending time with the parents and children watching their confidence grow. I have loved seeing how some parents in particular have been so proud of their work and have rushed in in the mornings to show me what they have done with their children."

Staff found that their relaxed, informal, hands-on workshops helped to build good relationships amongst parents, as well as between parents and staff, leading to some parents supporting each other to do the activities. As Anne, a teacher from Rolls Crescent Primary School said, "I've learnt to make workshops with parents fun, easy and engaging and that's made all the difference."

Discussion

The results from this small-scale evaluation indicate promising effects of the PEN Home Learning Project specifically on the supportive home environment. Primarily, scores on the parent-reported Home Learning Environment Index significantly increased in the intervention group compared with the control group. In addition, the teacher-rated Family Support subscale from the BESSI also showed an improvement (approaching statistical significance) in the intervention group.

Taken together, the significant impact on Home Learning Environment scores and the near significant trend on the Family Support subscale suggest that the PEN programme positively influenced parental behaviours at home. The two findings are closely linked, with the HLE focusing on parent report on the type and frequency of cognitive learning activities they support their child with at home (e.g., reading, counting, and nursery rhymes), and the Family Support subscale tapping into the more general support offered at home, according to the child's teacher. Items on the Family Support subscale include: 'this child rarely misses a day at school', and 'this child talks about fun, shared activities at home'.

This study had many important limitations and these must be squarely addressed. The nature of the intervention necessitated randomising schools rather than individual families (which in turn required multilevel analysis), but the trial was constrained in size by practicalities such as the capacity of the training team and the number of consenting schools. When planning a cluster RCT under ideal conditions, the optimal sample would consist of a substantially larger number of schools, which would have increased the power of the study and permitted more robust analyses.

A second limitation was that it was not possible to collect baseline data before randomising schools. Time was limited and, because teachers in the intervention schools had to schedule training days before families could be recruited, the randomisation had to take



place early. This may have led to bias in the sample, with intervention and control schools potentially recruiting families that were different in ways that may have affected the intervention. We tried to mitigate against this by giving the same, very clear instructions to both intervention and control schools about recruitment criteria.

Another limitation was missing data. Only families with complete pre- and post-test data could be included in analyses, and not every school had complete data on every outcome measure, meaning that some families /schools were excluded from some analyses. (See additional notes for more detail on participant flow through the trial.)

It is also important to be cautious about the subjective nature of self-report questionnaire measures. The families and teachers knew they were in the intervention group and may have wished to portray themselves in the best light.

Next steps

The effects of the PEN Home Learning Project on the Home

Learning Environment and BESSI Family Support scores are encouraging, especially given the early stage nature of this trial (some might call it 'feasibility' or 'pilot') and the limitations of the design. The results from this trial show some promise of an affordable and easy-to-embed training programme for teachers and school staff to boost the supportive home environment of disadvantaged families.

The study also collected Early Years Foundation Stage Profile (EYFSP) data, and future analyses will explore the impact of the intervention on child outcomes in the national assessments.

Commentary

A strong evidence base in the research literature shows that engaged parents and a vibrant home learning environment have a major positive influence on children's early development, yet relatively little is known about how to effectively support families who struggle to provide this. Further, the evidence in the EEF's Teaching and Learning Toolkit suggests

that changing parents' behaviour is particularly challenging. This evaluation of PEN found a moderate, positive impact on the home learning environment, indicating improved parental support for learning. The PEN model involves training setting staff to deliver directly to parents, which enables the programme to become incorporated into the setting's practice by the staff rather than relying on external professionals. On a practical level, this makes the intervention cost effective (see costs below), easily embedded within schools, and highly scalable.

The sustainable nature of the intervention has already been demonstrated by the settings who have been involved in the trial deciding to continue with the project in subsequent years. Seven out of the nine intervention schools have continued to use some or all of the resources and strategies in the year following the project. Five of the schools, following the success of the project, have bought the training and resources for the Transition Project (Mouse Club) and are continuing to use most of the resources for the Home Learning Project. Some schools are also planning to use other resources such as the Key Stage 1 Playclub Bags or the Key Stage 2 Family Detective Project engaging families in reading comprehension, to develop parental engagement in later year groups.

Experience from previous trials has shown that recruiting and retaining parents can be challenging, and this intervention has been notably successful in recruiting 84 families in the intervention schools and retaining 72 throughout the project (85% families). The trial prioritised disadvantaged, mostly pupil premium eligible families that the settings had not previously been successful in engaging. Schools have also reported that this initial engagement has led to continued involvement by these families in the school – one school reported that engagement in reception workshops had increased by 70%.

The cost effectiveness and positive impact of this approach means that it is well worth considering. For more information about the project and the training and resources



available please go to the website:
www.penetnetwork.co.uk.

References

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Additional notes:

Costs

The cost of the programme is very reasonable; schools or settings can purchase a short training course, templates and all the resources used in the Home Learning Project (including 8 Playclub Bags and PDFs of all the FUN maths and other activities) from £450, or a training course and all the Transition Project "Mouse Club" resources (including activities, reward charts, tip sheets for

parents and mice) starting at £250. Options are also available for more thorough training or to access training more cheaply through webinars. For the Home Learning Project reported in this trial, the cost per child is between £20 and £50, depending on how many targeted families the school works with. The resources can also be reused year on year at no extra cost.

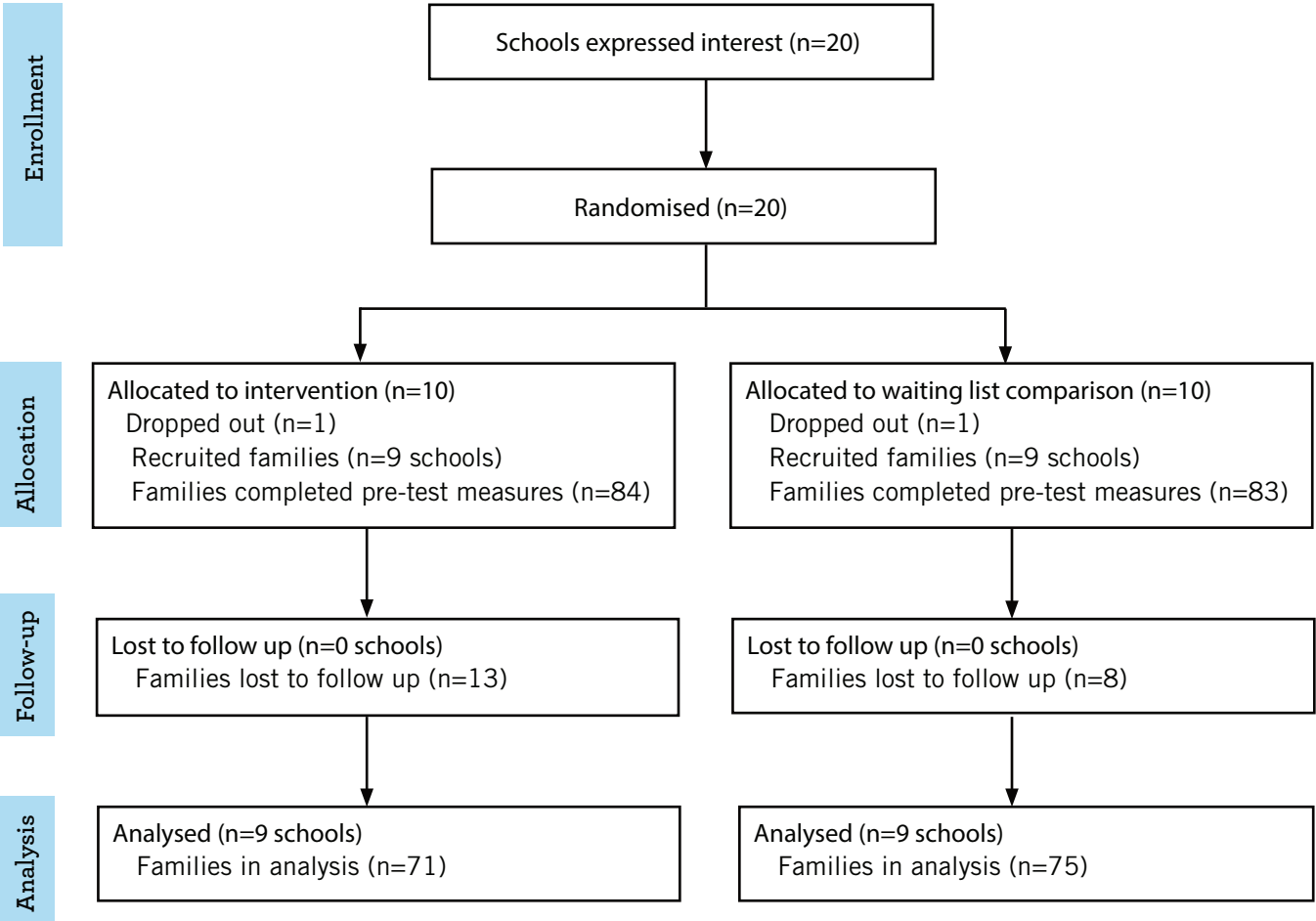
Research ethics

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

Analytic strategy

Individual level data in a school or cluster-randomised trial are said to be 'nested', that is, in this trial families are 'nested' within schools. It is important to take account of nesting in the analysis because in a cluster trial such as this, families and children drawn from the same school are likely to be more similar to one another than they are to those in other schools (Killip et al., 2004).

Figure 2: Participant flow through the trial (schools and families)



The extent of family similarity within clusters can be quantified by the intra-cluster correlation coefficient (ICC), which is the proportion of variability in an outcome that can be attributed to differences between schools. When it is 0, it can be said that there is statistical independence between families in a cluster, while when it is 1, all observations within a cluster are identical. Therefore, if the ICC is high it is vital to take account of the nested nature of the data in the analysis. One of the common methods used to do this is multilevel regression modelling.

Data from the quantitative outcome measures were analysed to estimate the impact of the PEN Home Learning Environment (HLE) and children's school readiness as measured by the BESSI. The analyses were based on an 'intention to treat' design, meaning that even if families didn't attend or stopped attending workshops, their associated outcomes would be retained in the main analysis.

Multilevel regression models were used for comparing the groups in order to account for the clustered nature of the data. First, an 'empty'

or 'null' model was run in order to estimate the intra-class correlation coefficient (ICC), that is, the proportion of variance in the outcome measure that was attributed to differences between schools. Next, the model was built up by testing certain pre-specified covariates in turn to establish their predictive value in the model (pre-test score, age of child, gender of child, and the school factors used in the minimisation: % free school meals, % children with English as an additional language, the 'level' of parental engagement experience in the school, size of school, local authority). Predictors were dropped from the model if they did not improve model fit or significantly predict the outcome; otherwise they were retained in the final model.

Outcomes

1) Home learning Environment (HLE)

HLE data were available for 109 families who also had full covariate data. The intra-class correlation coefficient was 0.11, indicating that 11% of the variability in HLE scores could be explained by differences between schools and that it was important to take account of the clustered nature of the data. The pre-

specified covariates were tested in turn as described above. Pre-test HLE score and child age were retained in the final multilevel model; gender did not significantly predict the outcome or significantly improve model fit, nor did any of the minimisation factors. The model therefore included group allocation (i.e., intervention or control), HLE pre-test score and child age. The final model demonstrated that there was a statistically significant effect of the intervention on the Home Learning Environment measure after controlling for the multilevel nature of the data, the HLE at pre-test and the child's age (difference of 4.71 points in favour of the intervention group [95% CI, -9.43 to -0.00]; $p < .05$).

2) BESSI: Behavioural Adjustment subscale

Data on the Behavioural Adjustment subscale of the BESSI was available for 128 children who also had the necessary covariates. The ICC was again fairly high (0.18) and therefore the clustering needed to be accounted for using a multilevel model. The potential covariates were tested as before, and only pre-test was retained in the model. The final multilevel model indicated

Table 3: Baseline child and parent characteristics of all participants in the trial (as randomised) and those with post-test data (as analysed)

Baseline variable	All families in the trial (as randomised)		Families with follow up data (as analysed)	
	Intervention (n=84)	Control (n=83)	Intervention (n=71)	Control (n=75)
Child gender (girls)	34 (40.5%)	43(53.1%)	30 (42.3%)	38 (50.7%)
Child age in months	43.2 (3.6)	44.2 (3.7)	43.15 (3.53)	44.18 (3.70)
Child ethnicity (White European)	40 (53.3%)	34 (47.2%)	38 (57.6%)	31 (47.0%)
Language spoken at home (only English)	45 (57.0%)	55 (70.5%)	43 (61.4%)	52 (70.3%)
Pupil premium funded	62 (84.9%)	48 (87.3%)	56 (83.6%)	44 (86.3%)
Has an older sibling	63 (78.8%)	62 (76.5%)	57 (80.3%)	56 (74.7%)
Has special educational needs	6 (7.7%)	7 (8.6%)	5 (7.1%)	6 (8.0%)

Note. Values are numbers (valid % in brackets) for categorical and mean (SD) for numerical variables

that there was no significant effect of intervention on the BESSI Behavioural Adjustment scores, after controlling for gender and pre-test (difference of 0.15 points in favour of the intervention group [95% CI, -0.37 to 0.08]; $p=.19$).

3) BESSI: Language and Cognition subscale

The ICC for the Language and Cognition subscale was 0.27. Data on this subscale was available for 128 children. Again, only the child's pre-test score significantly contributed to predicting the outcome and was therefore retained in the model. The final multilevel model indicated that there was no significant effect of intervention on the BESSI Language and Cognition scores, after controlling for pre-test (difference of 0.06 points in favour of the intervention group [95% CI, -0.33 to 0.21]; $p=.64$).

4) BESSI: Daily Living Skills subscale

Data on the Daily Living Skills subscale was available for 128 children, and the ICC was 0.16. Pre-test was retained in the model. The final multilevel model indicated that there was no significant effect of intervention on the BESSI Daily Living Skills scores, after controlling for pre-test (difference of 0.11 points in favour of the intervention group [95% CI, -0.37 to 0.15]; $p=.37$).

5) BESSI: Family Support subscale

Data on this subscale was available for 133 children. The ICC was 0.27. Only pre-test was retained in the model as a covariate. The final multilevel model indicated that there was an almost significant trend for the intervention to have an effect on the Family Support subscale, after controlling for pre-test (difference of 0.29 points in favour of the intervention group [95% CI, -0.59 to

0.01]; $p=.056$).

Participant flow through the trial

Figure 2 shows the participant flow through the trial, including the number of schools and total number of families randomised, with follow-up data, and included in the analysis.

The drop-out rate was fairly low in this trial, with approximately 87% of participants (146 of the original 167) completing at least one of the measures at post-test. However, 2 of the 20 schools dropped out before any data was collected. Tables 3 and 4 show the baseline characteristics of the sample, comparing the pre-test profiles of those randomised, and those retained in the analysed sample. There were no significant differences on child and parent characteristics between intervention and control groups in the analysed sample.

Table 4: Unadjusted (raw) pre and post-test scores for intervention and control group (analysed sample)

Outcome measure	Intervention Group			Control Group		
	N	Pre-test mean (SD)	Post-test mean (SD)	N	Pre-test mean (SD)	Post-test mean (SD)
Home Learning Environment ¹ total score	58	23.21 (10.36)	30.22 (9.12)	51	27.42 (9.38)	27.33 (9.96)
BESSI ² Behavioural Adjustment subscale mean	63	2.30 (.47)	1.89 (.49)	65	2.14 (.66)	1.94 (.58)
BESSI ² Language and Cognition subscale mean	63	2.54 (.53)	1.67 (.51)	65	2.31 (.52)	1.67 (.47)
BESSI ² Daily Living Skills subscale mean	63	2.25 (.41)	1.76 (.53)	65	2.01 (.51)	1.74 (.54)
BESSI ² Family Support mean	67	2.26 (.34)	1.81 (.46)	65	1.96 (.42)	1.92 (.60)

¹HLE score range: 0 to 49, higher score indicates better outcomes; ²BESSI (all subscales) score range: 1 to 4, lower score indicates better outcome