

**Parents and Children Together (PACT): Evaluating a parent-delivered oral
language enrichment programme for pre-school children**

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Introduction

Recent policy recommendations emphasise the importance of engaging parents in their child's education (e.g. Tickell, 2011; Ofsted, 2014). However, we currently lack good evidence that increasing parental involvement leads to improvements in children's outcomes (Huat See & Gorard, 2013). In this report, we present the findings from an evaluation of a parent-delivered teaching programme designed to support pre-school children's oral language and emergent literacy skills. Our study demonstrated improvements in oral language and narrative skills immediately following the programme. Gains in oral language skills were maintained 6-months after teaching ended, at which point children also showed improvements in emergent literacy skills. In contrast, we found no effects on children's motor development from a contrasting programme targeting children's motor skills and self-care. The findings from our study demonstrate that increasing parental involvement by providing parents with highly structured teaching materials can have a positive effect on children's outcomes. Importantly, however, not all teaching programmes are effective: clearly, the form of teaching is critical to its success.

Background

Research shows that there is a positive relationship between parent involvement and children's educational outcomes (Wilder, 2013): in other words, the more involved parents are in their child's education, the better their child tends to perform in school. This suggests that one way to increase academic attainment is to increase parental involvement. A recent review of interventions designed to raise attainment by increasing parental involvement concluded, however, that we do not yet have reliable evidence that this strategy works (Huat See & Gorard, 2013).

The most promising phase for parental involvement is in the pre-school years in order to prepare children for formal education (Huat See & Gorard, 2013). One of the key areas of learning and development in this period is language and communication (DfE,

2012). Language development varies significantly across children and some children (including those from low-SES backgrounds) are at risk of language delays. Language skills provide the foundation for formal education and are critical for learning to read (Hulme et al., 2015). Children who have poor language skills are therefore at risk of poorer educational outcomes (Duff et al., 2015; Roulstone et al., 2011). Supporting language development in the early years is therefore critical.

Our research group has previously shown that improvements in young children's oral language skills can be brought about by structured teaching programmes delivered by trained staff in educational settings (e.g. Bowyer-Crane et al., 2008; Fricke et al., 2013, 2017). There is also some evidence that parents can support their children's preschool language and emergent literacy (Reece, Sparks, & Leyva, 2010). The most common approach to this is through shared book reading. Whilst all shared book reading activities have the potential to support language development, training parents to use dialogic reading strategies which encourage the child to be actively involved in the shared reading experience leads to greater gains in language (Mol et al., 2008). Such an approach, when coupled with additional activities that target early literacy skills (e.g. letter-sound knowledge) can also support emergent literacy (Bierman et al., 2015). The effects of dialogic reading tend to be smaller, however, for children from low-SES backgrounds (Mol et al., 2008) which suggests that additional strategies may be important when working with this group.

The current research project

We asked whether an oral language teaching programme, which combined shared book reading with vocabulary and narrative activities, delivered by parents at home, would be effective in improving children's oral language skills. To answer this question we used a randomised controlled trial (RCT). RCT's use random assignment to groups: one group receives the programme (in this case the oral language programme) and the other group receives no programme or a different kind of programme. Randomly assigning children to groups ensures that the two groups are equal – the only factor which differs between them is

the form of programme they receive. Any differences between the groups after the treatment must therefore be due to the programme(s) received rather than some other unknown difference.

We compared the effects of the oral language teaching programme with a control programme which targeted early movement and self-care skills. Physical development and independence are a key focus in early education (DfE, 2012). There is considerable variability in the rate at which children's motor skills develop and some children (including those from socially disadvantaged backgrounds) experience significant and persistent difficulties with motor skills relative to their peers (McPhilips & Jordan-Black, 2007). Motor skills are educationally relevant as they are important for independence in the classroom and for later educational outcomes (Grissmer et al., 2010). Motor skills are therefore an appropriate and potentially valuable target for parent-delivered teaching. By contrasting the two forms of teaching programme our study provided a robust (and arguably conservative) evaluation of the parent-delivered oral language intervention over and above any gains in language that may be a by-product of additional time and attention spent with their parent on joint activities.

Method

Participants

We worked with 22 children's centres in three local authorities in the UK (Blackpool: 10 centres, Bexley: 10 centres, and Lambeth: 2 centres) to recruit and support families taking part in the project. Blackpool and Lambeth rank highly (i.e. rankings of 4 and 22 respectively, where 1=most deprived and 326=least deprived) on national indices of multiple deprivation. The ranking is lower for Bexley (195) though there are significant concentrations of deprivation in this area.

Children's centres were asked to recruit families with a child aged approximately 3 years whose parents could read and understand basic English. A total of 208 children (102

boys) and their parents agreed to take part. The families varied widely on indicators of social economic status (SES) though we had a larger proportion of families from low-SES backgrounds than would be expected based on national averages. The children taking part also varied widely in their language and motor abilities at pre-test but on average scored slightly lower than would be expected for their age. Approximately 16% of children were growing up with more than one language in the home.

Design

Within each centre, the families were randomly allocated to either the oral language teaching programme (103 children) or to the motor skills and self-care programme (105 children). The families were asked to work on the programmes for 30-weeks. To evaluate the effects of the programmes we assessed children’s language and motor skills three times during the project (see Figure 1).

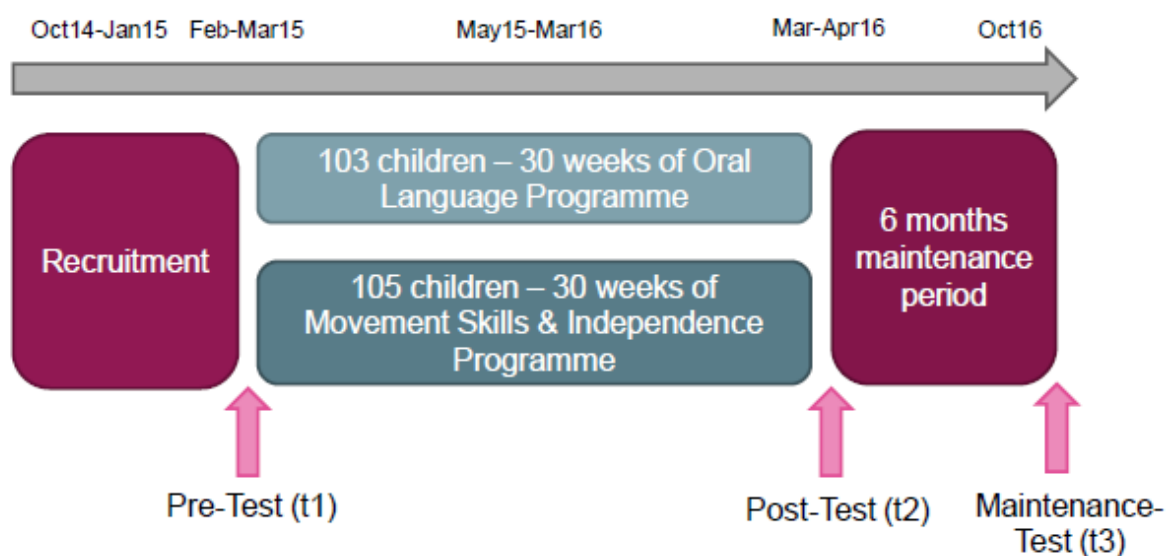


Figure 1 Timeline of teaching and assessments

A number of families were lost to the project over the course of the study. There were various reasons for this including ill health, families moving out of the area, and centres losing contact with families. The flow of participants through the study is reported below in

Figure 2. Importantly, we were able to follow most children throughout the project and the rate of drop-out was equal between the two groups; which means that drop-outs should not bias the evaluation of the effectiveness of the programmes.

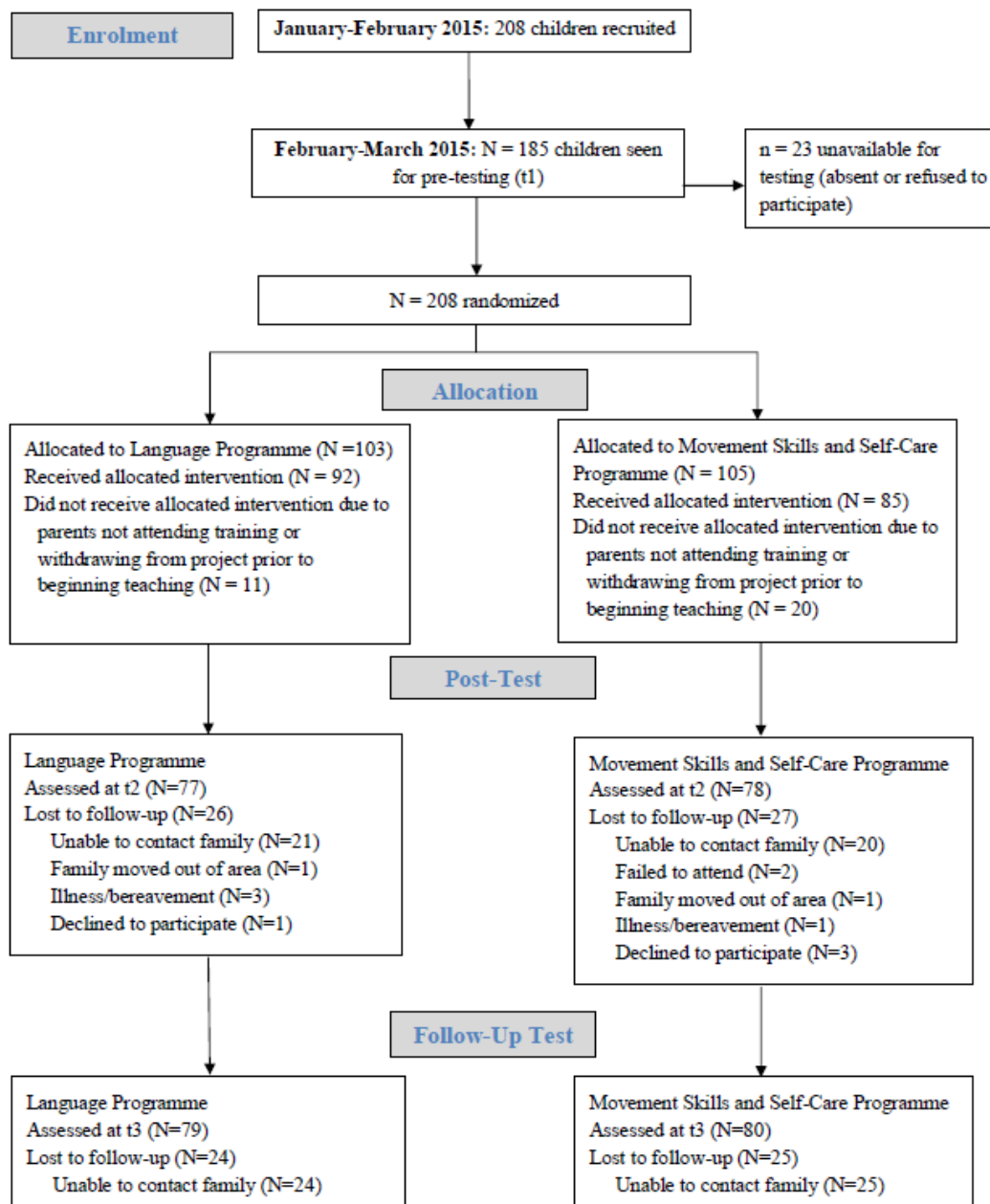


Figure 2 Flow of participants throughout the study

Measures

Children’s language and motor skills were assessed at each time point. At time 3 (when the children were in reception class) we also tested their emergent literacy skills. Below we

briefly describe the tests used; full details are provided in the scientific report of this study (Burgoyne, Gardner, Whiteley, Snowling & Hulme, 2017).

Language skills

Vocabulary knowledge, or knowledge of word meanings, was tested using a picture naming task (expressive vocabulary) and a task which asked children to point to the picture showing a spoken word (receptive vocabulary). We also asked children to answer questions about pictures (Action Picture Test, Information score).

To measure children's *grammatical knowledge* we asked them to choose a picture that matched a spoken sentence. We also scored their answers on the Action Picture Test for grammatical complexity.

Children's *listening comprehension* was tested by asking them to answer questions about a story they had just heard.

Narrative skills were assessed using a story retell task. In this task children were shown 3 pictures and were told a short story about them. They were then asked to retell the story using the pictures as prompts. We scored the children's stories for 1) the amount of relevant information they included; 2) the total number of words they used; 3) the number of different words they used; and 4) the average number of words used in a sentence (mean length of utterance).

Motor skills

Fine motor skills were measured by timing how long it took children to thread beads onto a lace, and to move pegs on a board. We also measured children's pencil control skills by asking them to trace a line in a shape without crossing the boundary.

To measure children's *gross motor skills* we timed how long children could balance on one leg, and asked them to throw beanbags on to target mats (counting how many times they hit the mat).

Early literacy skills

At time 3 we tested children's knowledge of letter-sounds, reading of regular and irregular words, and their phonological awareness (sound deletion).

Teaching programmes

The teaching programmes were developed specifically for this project. Each consists of 30 weeks of teaching materials organized into six 5-week blocks. In each block Week 1-4 consists of new teaching and Week 5 consolidates learning over the previous 4 weeks. Teaching sessions are delivered by parents 5 times a week for 20-minutes each session. The sessions are scripted and all teaching resources needed to deliver the programmes were provided to parents.

Oral language teaching programme

The 30-week programme consists of six 5-week teaching 'blocks' that align with common early-years themes such as 'Animals', 'The World Around Us' and 'Places and People'.

The language programme is designed to promote oral language skills through parent-child shared reading, targeted vocabulary teaching, and activities based around storytelling (narrative). The daily 20-minute sessions for the parent and child follow a consistent structure and routine (see Figure 3).

PACT Language Teaching Session (20 minutes)		
Introduction	Settling the child into the session	2 minutes
Interactive reading	Sharing books together – exploring, talking and having conversations linked to books and stories	5 minutes
Vocabulary	Exploring new words and talking about what they mean	5 minutes
Narrative	Activities designed to support narrative and extended language skills including sequencing, summarising, and retelling stories.	5 minutes
Plenary	Review of session and sticker reward	3 minutes

Figure 3 Overview of language programme teaching session

The teaching and learning activities in the programme are based around a series of storybooks including traditional stories (e.g. The Gingerbread Man), well-known modern stories (such as The Gruffalo), fact-based storybooks (e.g. The Pond) and books that might be new to families (e.g. 5 Minutes Peace). Families receive one new book a week and these provide the springboard for the language teaching activities.

Teaching sessions start with a brief introduction to give parents time to settle the child and get them ready to focus on the activities. Parents and children then read the book together. Following the principles of dialogic reading, parents were asked to support their child to play an active role in shared reading by following their child's interests, asking questions, and linking the story to their child's experiences. Activities then focus on learning a new word from the book or theme. New words included a range of word types and were selected to be useful across different contexts. Parents then support children's story knowledge and storytelling skills by helping them to order pictures from the story, describe what is happening in pictures from the story, and retell stories. The teaching sessions end with a recap of the session content, praise for the child and a sticker reward.

Movement Skills and Self-Care Programme

As with the language programme, the movement skills teaching sessions follow a consistent structure and routine which starts with an introduction to settle the child (see Figure 4). Daily teaching and learning activities target four key areas of development. In each component, a core skill was introduced and developed across the week through progressively more challenging activities.

Gross motor development ('Big Body Moves') is supported by activities which work on developing balance and co-ordination (e.g. standing on one leg), visual tracking (e.g. keeping a balloon in the air), ball skills (e.g. throwing, catching and kicking) and crossing the midline (i.e. using both sides of the body at the same time). Fingers and Hands activities work on developing dexterity and co-ordination of fine movements in the fingers, hands and wrists. Activities to support this included using scissors, object control activities (e.g. using tweezers to manipulate objects) and finger differentiation activities. To support developing pencil control skills, children were provided with a range of 'writing' materials and resources to work on mark making, colouring, and drawing. The final component worked on a range of self-care activities including dressing, washing and feeding (e.g. opening containers and pouring liquid) skills. The session ends by praising the child and giving them a sticker reward.

Movement Skills and Independence programme session (20 minutes)		
Introduction	Settling the child into the session; warm up activities	2 minutes
Big Body Moves	Physical activities designed to support the child's gross motor development and co-ordination of large physical movements	5 minutes
Fingers and Hands	Work on fine motor skills to support co-ordination and manual dexterity through finger training and object manipulation activities	5 minutes
Pencil Skills	Building finger/hand strength and control through activities using pencils and crayons to colour, mark make and draw	5 minutes
Independence Activity and Reward	Activities to support personal development and independence; sticker reward	3 minutes

Figure 4 Overview of movement skills and self-care programme

Parent training, monitoring and support

Parents were invited to a small-group training session at their local children's centre. These sessions were delivered by the research team and lasted approximately 1 to 1.5 hours. The training covered the background to the project and the design (e.g. reasons for random allocation), an overview and rationale behind their teaching programme, and the timetable for the project. The main focus of the training however was to provide parents with a detailed look at the programme materials and to explain and model how to deliver the programme to their child.

Parents were supported throughout the project by staff in their children's centre. Centre staff informally monitored their progress, distributed the teaching materials, and supported and encouraged families to remain engaged in the project. Centres also organised regular celebration sessions (at weeks 10, 20 and 30) to celebrate families achievements and success on the programmes. Parents were also given a £10 voucher on completing each 10-week block of the programme to thank them for their participation.

We asked parents to complete a simple form to record their progress each day on the 30-week programmes. There was considerable variability in the number of weeks parents and children completed with some completing all of the programme and others not completing any. On average, parents in the language group reported completing 17 weeks of the programme; those in the movement group completed an average of 15 weeks. The gains reported below should be interpreted in the light of this relatively low level of compliance; arguably if more sessions had been delivered larger gains in language skills might have been made. Conversely, it is important to realize that parents of young children have many demands on their time. It is important to note that the number of weeks completed did not differ statistically between the two groups.

Findings

Children were assessed before the teaching programmes (pre-test; time 1), immediately after teaching (post-test; time 2) and 6-months after the teaching programme ended (maintenance test; time 3 at which point children were in school). We did not provide parents with new teaching materials between time 2 and time 3 and we did not ask them to continue using the programme during this period. We evaluated the effects of the teaching programmes on children's outcomes in oral language, narrative skills, motor skills and emergent literacy skills at post-test and maintenance test (controlling for pre-test scores). To do this we created latent variables which captured the common variance in scores on our different tests.

Our results showed that children in the language group made significantly greater gains in oral language and narrative skills immediately following the teaching programmes. Effect sizes give an indication of the size of the effect; i.e. how much difference there is between the two groups. Here we use the Standardized Mean Difference (also known as Cohen's d) at post-test, allowing for any imbalance at pre-test, as our measure of effect size. According to rules of thumb proposed by Cohen a d of .20 is considered small, .50 is medium and .80 is large. In our study, the effect of the language teaching programme on

oral language skills at immediate post-test was .21; the effect on narrative skills was .36. When we assessed the children again 6 months later (maintenance test), the language group still showed an advantage in oral language skills (effect size = .34). At this point, the programme was shown to work best for those children with the weakest language skills at pre-test. There were no differences between the two groups at this point in narrative skills (effect size = .08).

We then looked at whether the motor skills programme had an effect on motor development. We found no differences between the two groups of children on the motor skills measures at immediate post-test (effect size = -.12) or maintenance test (effect size = -.016).

Lastly, we compared the two groups on our tests of emergent literacy at maintenance test. The children in the language group scored significantly higher than the children in the motor skills and self-care group on measures of letter sound knowledge (effect size = .42) and regular word reading (effect size = .35). There were no differences on tests of sound deletion or irregular word reading (effect sizes .06 and .04 respectively).

Discussion

Our study evaluated the effects of a parent-delivered oral language teaching programme relative to a comparison programme targeting motor skills and self-care. We found that the language programme led to significantly greater gains (with small to moderate effect sizes) in oral language and narrative skills immediately following the teaching programme.

Improvements in oral language skills were maintained 6-months after teaching, and at this point children in the language group were also doing better on tests of emerging literacy (letter sound knowledge and regular word reading). In comparison, we found no evidence that the motor skills and self-care programme led to gains in motor development.

The results from this study demonstrate that a highly-structured parent-delivered oral language teaching programme leads to improvements in pre-school children's oral language and emergent literacy skills. Effect sizes were small-moderate but importantly were within

the range considered to be educationally significant (i.e. above .25; Promising Practices Network, 2007; What Works Clearinghouse, 2007). These skills provide critical foundations for formal learning that takes place in school; teaching programmes which support children with these essential building blocks in the early years therefore has significant potential to support later educational outcomes. Further studies are needed to evaluate long-term outcomes from such programmes.

In contrast, there were no significant effects of the movement skills and self-care programme, even though this was designed in line with early years policy and practice, and was delivered with the same intensity and frequency as the language programme. The explanation for this is not obvious but we speculate that delivering the language programme potentially contributed to changes in everyday interactions between parents and children (and so learning continued outside of the teaching sessions) where the movement programme was less likely to do so.

It is clear that not all parent-delivered teaching programmes have a significant effect on children's outcomes. Further research is needed to identify the most effective forms of increasing parental involvement. Whilst this study provides initial evidence that the language programme evaluated here is one such programme, further work is needed to identify ways to engage and support families who may benefit the most from such programmes and to implement such programmes at larger scale.

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