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Effects of extending disadvantaged families' teaching of emergent literacy

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ABSTRACT

Intervention to raise the literacy achievement of disadvantaged groups in society has focused on preschool literacy development because it is predictive of later educational achievement and because research has shown that key strands of literacy emerge very early in childhood. Intervention programmes to promote emergent literacy are likely to be more effective if they involve families rather than children alone but meta-analyses reveal effect sizes for family-based programmes are variable and generally lower for disadvantaged families. This article suggests reasons for limited effectiveness and reports a study of a preschool intervention programme that used a particular conceptual framework, and approach, in working with families to extend their facilitative (rather than instructional) teaching of several strands of emergent literacy. Disadvantaged families with three-year-olds were invited to join a long-duration, low-intensity programme before school entry. Home visiting was a core component of the programme, alongside community based and centre-based activities, supplemented by other means of communication. A randomised controlled trial, involving 176 families, was used to investigate effects on children's literacy at the end of the programme and two years later. The intervention was found to be effective; effects persisted at follow up for children of mothers with low educational levels. Practice, policy and future research implications are discussed.

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Family literacy; early intervention; randomised controlled trial; effects; parents; disadvantage

Introduction

A key challenge for early literacy education is to find ways to facilitate access to school literacy for children from disadvantaged families whilst also valuing their preschool family literacy experiences and their families' informal teaching of emergent literacy. In this paper we report a study of an intervention programme designed to enable early childhood educators to work with disadvantaged families to raise children's literacy achievement at school entry. We introduce key terms and concepts relating to the programme, review meta-analyses of evaluations of family-based literacy intervention programmes, identify four problems in the field, explain the conceptual basis for our

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programme and its key features. We report an evaluation of the programme involving 176 families in an RCT (randomised controlled trial).

The term 'disadvantaged' does not have a single exact definition. We, in common with others, use it to refer to families in lower socio-economic levels in society who are likely to experience disadvantaging circumstances such as low incomes, poor or temporary housing, and more ill health and lower parental educational levels than other families in a society. Children in such families typically achieve less well in school. We do not suggest that children's lower achievement in school literacy is caused by their socio-economic, educational or cultural backgrounds. It could be a result of schools' failure to enable children and families to access school literacy (perhaps by treating all children as if they were from advantaged backgrounds or undervaluing the cultural strengths of some). Disadvantage does not inhere in individuals; it is about the relationship between individuals, society and, particularly in the context of this paper, the institution of schooling. Literacy in disadvantaged families can be complex, rich and varied. It is not reasonable to assume it to be deficient or inferior (Moll et al. 1992; Taylor and Dorsey-Gaines 1988) but it is possible that disadvantaged families' literacy does not match school literacy as closely as does advantaged families' literacy.

An important focus for intervention to raise the literacy achievement of disadvantaged children has been the preschool period. This is partly due to recognition of emergent literacy but also to the influence of studies that have shown preschool measures of literacy achievement to be predictive of later school attainment (Edwards 2014; National Early Literacy Panel 2008; Scarborough 2001). Literacy interventions have taken place in the wider context of early childhood intervention for children considered likely to experience educational inequality. Such programmes have been reported to have positive effects, at least for as long as they are maintained (Shonkoff and Meisels 2000). Programmes appear to have greater and longer lasting gains if they involve parents or families rather than just individual children (Brooks-Gunn, Berlin, and Fuligni 2000; Lazar et al. 1982) although the limitations of such evidence in terms of the variable quality of evaluations and the scarcity of randomised controlled trials may be a problem (Van Voorhis et al. 2013).

The emergent literacy perspective has, over three decades, revealed the previously under-appreciated extent of literacy development in children's early years (Fletcher and Holmes Finch 2015; Pantaleo 2009; Teale and Sulzby 1986). Further, such development can be understood in terms of children's increasingly competent engagement with various, interrelated *strands* of literacy. It is possible to discern four main strands: (1) environmental print (Goodman 1986; Neumann et al. 2011); (2) books (Fletcher and Finch 2015; Meek 1988); (3) early mark making and writing (Haas Dyson 2010; Sulzby 1989): and (4) key aspects of oral language such as storytelling (Wells 1987), phonemic or phonological awareness (Adams 1990; Goswami and Bryant 1990), and discourse about written language (Clay 1985; Deunk, Berenst, and de Glopper 2012; Schickedanz 1990; Teale 1986). Conceptualising emergent literacy in terms of these four strands (environmental print, book sharing, writing and oral language) can assist focus on children's development. The strands we have identified could, of course, be unpicked further into sub-strands (as in the case of oral language above with its sub-strands of phonological awareness, storytelling, talk about literacy, and so on). The use of digital technologies can extend and develop what happens in each of the strands (Marsh et al.

2017). What counts as a strand of emergent literacy varies according to theoretical perspectives, cultural contexts practical needs, and available resources. However, the concept of strands helps focus attention on the detail of development and learning without losing an overall multi-strand awareness of literacy. We return to this later in considering the focus of intervention programmes.

Children's early literacy does not emerge in a vacuum. Preschool children learn from their families (understood inclusively as the immediate social groups within which children grow and develop) as well as from their communities and neighbourhoods (Edwards 2014). What is it that families do to foster literacy? We choose to call it 'teaching' without suggesting that it is the same as planned teaching that trained, qualified teachers undertake with classes of children in schools. Several authors have accepted that families, particularly parents but also other close adults and older siblings, do undertake teaching (Johnson, Walker, and Rodriguez 1996; Roskos and Neuman 1993; Wagner, Spiker, and Linn 2002). A broad understanding of teaching has been conceptualised by Hannon (2000) as a *spectrum*, at one end of which is 'instruction' with specified learning objectives, planned curricula or programmes, structured student activities, and teacher input (often to a whole class of children) and, at the opposite end is 'facilitation' that may be less planned, more opportunistic, context-dependent and often embedded in real-life tasks. Although much teaching, whether in schools or families, is a mix of instruction and facilitation, Hannon suggested that facilitation might be particularly salient in families' teaching and fostering of emergent literacy.

Several family characteristics could influence families' teaching of early literacy. These include parents' levels of education and levels of literacy, their attitudes to written language, their past experience of schooling, their understanding of children's literacy and how it is acquired, their knowledge of how children learn, and their confidence as teachers. Whilst studies have attempted to investigate the relative importance of such family characteristics, and their interrelationships, in specific populations (Baroody and Dobbs-Oates 2009; Cottone 2012; Phillips et al. 2017) research into how family characteristics affect children's responses to intervention programmes remains limited.

Reviews and meta-analyses of research into extending families' teaching of early literacy

Reviews of the effectiveness of family involvement in early childhood interventions have generally focussed on families experiencing disadvantage. Desforges and Abouchar (2003) were critical of the poor quality of research into intervention programmes where, 'the design of the studies does not allow safe conclusions to be drawn either about the scale of impact or about the relationship between the intervention activities and the professed impact' (84). Brooks et al. (2008) concluded that there was good evidence of benefits to children's literacy and language skills but did not consider whether effects varied according to families' circumstances. Reese, Sparks, and Leyva (2010) reviewed 11 studies of single-strand literacy interventions for 'a range of social classes' (98) finding evidence for the effectiveness of parent-child book-reading and parent-child conversations, but less for parent-child writing. Effects in relation to disadvantage were not considered. Carpentieri et al. (2011) concluded that children's

early literacy development generally benefits from family involvement intervention, noting smaller effects for children from disadvantaged families. They also identified 'a worrying lack of methodologically robust European research on family literacy initiatives' (61). Brooks and Hannon (2013) followed Carpentieri et al. (2011) in concluding that programmes benefitted children's literacy but they did not consider specifically how disadvantaged families benefitted. Gorard and Huat See (2013) were critical of the quality of evaluations in the field but conceded that there might be gains for pre-school children. The above reviews agreed that young children can gain from family-based emergent literacy intervention but question the quality of research and either ignore or express doubts about the benefits for disadvantaged children.

In recent years, an increase in Randomised Controlled Trial (RCT) and Quasi-Experimental (QE) studies has enabled meta-analyses of effects (generally using Cohen's *d* as a measure of effect size) to be carried out. Three meta-analyses have been concerned exclusively with preschool literacy interventions (Manz et al. 2010; Mol, de Jong, and Smeets 2008; Van Steensel et al. 2011). A fourth meta-analysis (Sénéchal and Young 2008) mainly concerned young school-age children but included a number of interventions for kindergarten children who would be regarded as pre-school in some education systems. (A fifth peer-reviewed meta-analysis was undertaken in the US by the National Early Literacy Panel (2008) but, as it was limited to pre-2003 studies, most of which concerned oral language outcomes, we do not draw upon it here.)

Mol et al. (2008) identified 16 studies (14 RCT, 2 QE) of the effects of parents using Dialogic Reading on 2–5 year-old children's oral language, finding a mean effect size of 0.42, mainly in expressive vocabulary. The mean effect size for children in disadvantaged families (defined in terms of low income, being in receipt of government benefits, having less educated mothers) was much smaller, 0.13. Manz et al. (2010) carried out a meta-analysis of 14 studies (11 RCT, 3 QE) of family-based preschool emergent literacy interventions, (the majority, 10 out of 14, were Dialogic Reading). A mean effect size of 0.33 was found across a range of literacy measures, largely attributable to interventions with predominantly middle/high income or white families. The average effect size in 'predominantly low-income families' was 0.14 (Manz et al. 2010, 422) – a replication of the finding of Mol et al. (2008). Van Steensel et al. (2011) in a meta-analysis of 30 (12 RCT, 18 QE) studies of family literacy programmes, found a mean effect size of 0.18. Where parental education and family income were lowest, the effect size was smaller for those children (0.16 compared to 0.20) but the difference was not statistically significant. A meta-analysis of 16 studies (12 RCT, 4 QE) by Sénéchal and Young (2008) included five at kindergarten level. Interventions had a weighted effect size of 0.51 with a larger mean effect size of 0.65 across all interventions; the most effective intervention being parents tutoring specific skills. Across all the studies in their analysis, the effect size was smaller (0.42) for children where family socioeconomic status was lower. Meta-analyses agree that preschool children gain from family-focused literacy programmes but the size of gain can be small. All four suggest that children in disadvantaged families gain less than others (although the degree to which they were lower was statistically significant only in two meta-analyses).

Problematic issues in the field

From our review we identify four problems.

First, RCT studies have tended to focus on one or two strands of emergent literacy. The four meta-analyses above identified 33 RCTs to which three more can be added (Morgan 2005; St. Pierre et al. 2003; Wagner, Spiker, and Linn 2002). Of these 36, at least 32 focused on book reading (18 as a means to promote oral language). We identified no comparable interest in the strands of writing, environmental print, literacy-related oral language, or digital literacy. Strands can be seen as interrelated and mutually supportive (Goldsworthy 2010). For example, engaging with environmental print probably contributes to early writing and book reading, phonemic awareness to letter recognition and oral language, oral storytelling to shared storybook reading, and to writing as children create their own signs and symbols. Intervening in several strands might therefore have greater effects than more limited foci. The lack of RCT studies of multi-strand programmes is perhaps because multi-strand programmes are rare or difficult to evaluate through an RCT – as in the cases of HIPPY (Baker, Piotrokowski, and Brooks-Gunn 1998) and PAT (Wagner, Spiker, and Linn 2002). Some have only been evaluated through a QE design as in the case of Project EASE (Jordan, Snow, and Porche 2000) and PEEP (Evangelou, Brooks, and Smith 2007). An RCT investigation of a multi-strand programme could assist in understanding what intervention that might benefit disadvantaged children.

Second, benefits to children's preschool literacy may not be as great as hoped. Despite some meta-analyses (Mol et al. 2008; Sénéchal and Young 2008) finding quite large mean effect sizes of 0.42 and 0.51 respectively, van Steensel et al. (2011) have argued that these may be over-estimates due to the inclusion of outlier studies and a narrow focus on certain kinds of outcomes. Van Steensel et al. (2011) maintain that their overall mean effect size of 0.18 is more realistic. The mean effect size of 0.33 found in the Manz et al. (2010) meta-analysis perhaps represents a mid-way estimate of what can be gained from family emergent literacy interventions. Whatever the overall effect size, disadvantaged children seem to benefit *less* than children from advantaged families. One might hope that disadvantaged children would benefit more insofar as intervention aims to reduce, rather than increase, the achievement gap between them and children in more advantaged families. The mean effect sizes for children from disadvantaged families were estimated in the four meta-analyses as 0.13, 0.43, 0.14 and 0.16. As those figures include QE as well as RCT studies, with the former tending to find larger effect sizes (Lipsey 2003; National Early Literacy Panel 2008; van Steensel et al. 2011), they may well be over-estimates. Small effect sizes are not trivial but are not large enough substantially to reduce educational inequalities.

Third, an under-discussed problem is whether families take up and engage with programmes. Monitoring take-up and participation need thoughtful consideration in relation to which families programmes are intended to reach. Some programmes are intended for all families in particular social groups or areas; others are more selectively targeted. Yet studies are not always explicit about the target population (the 'intention-to-treat' group). Where the target population is poorly specified, it is not clear whether take-up and participation are satisfactory (Baker, Piotrokowski, and Brooks-Gunn 1998; Evangelou, Brooks, and Smith 2007; St Pierre et al. 2003; Wagner, Spiker, and Linn

2002). Low take-up and participation can pose difficulties for RCT/QE evaluations because programme gains have to be considered for the whole of the intention-to-treat group and the mean gain may therefore be greatly reduced by the number of non-participants. Low take-up and participation can in themselves be evidence of limited effectiveness. If families do not take up certain programmes, drop out, or participate at a very low level, those programmes could be a poor fit with families' wishes or circumstances and however robust the research design, evaluation is hardly worthwhile. It has been argued that such programmes can amount to a form of social exclusion (Davis, McDonald, and Axford 2012) and there have been calls for closer investigation of the factors affecting take-up, drop-out and participation (Boag-Munroe and Evangelou 2012; Hannon 1995; Wagner, Spiker, and Linn 2002). Studies of programme effects should ideally define the target population and take-up and participation within that population should be reported.

Fourth, many interventions have sought to enhance families' *instructional* role, requiring parents to teach to specified learning objectives in planned curricula with structured activities for children, rather than their *facilitative* role which may be less deliberate, more opportunistic, context-dependent and more often embedded in real-life tasks. A concomitant of extending parents' instructional role is that they need to be *trained* and remain faithful to using certain instructional techniques with children, as specified by experts. Programmes that emphasise training parents for an instructional role include Dialogic Reading (Whitehurst et al. 1994) and Project EASE (Jordan, Snow, and Porche 2000). A less instructional approach was developed and studied by Sheridan et al. (2011). Extending facilitative teaching is about enabling parents to see, to understand and to exploit learning opportunities for children, i.e. to *think differently* about their role and make decisions about how to facilitate their children's learning, rather than to follow prescriptions.

The study reported here concerned the above four issues. It aimed to investigate, through an RCT, effects on children's literacy of a preschool intervention programme that sought to extend disadvantaged families' teaching of several strands of emergent literacy. The programme emphasised facilitative, rather than instructional, teaching by engaging children's parents and other family members. Programme implementation (including take-up, drop-out and participation) was systematically monitored.

Method

Programme design

The focus for change in the intervention programme studied was identified through a conceptual framework proposed by Hannon (1995), and developed by Hannon and Nutbrown (1997). In relation to emergent literacy, Hannon (1995) suggested that there are four key factors that help learners: having *opportunities* to learn; *recognition* of their achievements by others; *interaction*, particularly with others more proficient in literacy; and observing *models* of others using literacy in their lives. These four factors were referred to by the acronym, ORIM – Opportunities, Recognition, Interaction, and Model – and Hannon suggested that each could be applied separately to various strands of literacy.

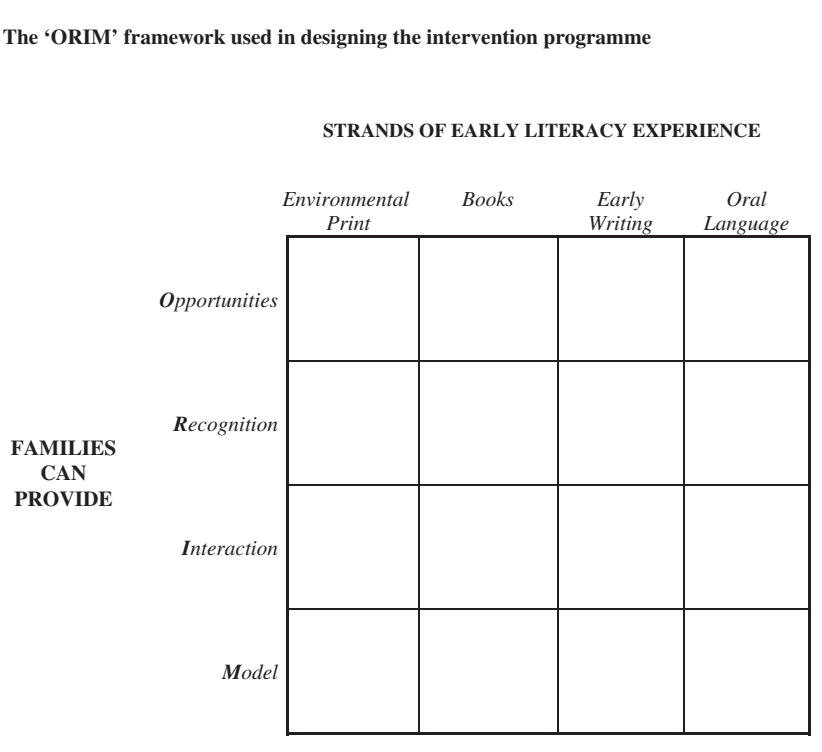

Figure 1. The 'ORIM' framework used in designing the intervention programme.

Each cell in the framework matrix (Figure 1) represents an area where families can facilitate the emergence of aspects of children's early literacy. Almost all families in societies where print is ubiquitous will already be doing something in several cells but there are variations in how frequently, how deliberately and how successfully families teach in this way. For example, some families may create opportunities for children's book-reading (by providing attractive books for them or borrowing books from a library) and parents may initiate shared book reading sessions but their capacity to do so may vary according to parents' income, educational level and their own ability and confidence in reading and writing. Likewise children in some families may often see their parents providing a model of writing; for others it might be quite rare.

The intervention programme in this study sought to change ORIM in families (provided that accorded with parents' wishes) by having early childhood teachers invite parents to think how they could extend their teaching in all cells of the framework. The ORIM framework was used, both as a way of recognising what families already do, and, further, as Hannon (1995) put it, as 'a map of intervention possibilities' (52). To effect change, programme teachers, in common with other early childhood educators who work with families, were to use methods such as respectful dialogue with parents individually and in

groups, home visiting, demonstrations, provision of materials, community activities, and information, support and encouragement [*www.real-online.group.shef.ac.uk/index.html*]. To maintain flexibility and fit for each family, the programme did not seek specifically to introduce elements of other programmes such as 'dialogic reading' but rather programme teachers were to draw on their own knowledge as teaching professionals to share skills and strategies with parents as individually appropriate. Programme teachers were expected to work respectfully with individual families – taking their specific circumstances and understandings as a starting point – and negotiating action from there. In this way it was hoped that individual family culture would be at the heart of engagement from which sustainable teaching practices would ensue. A key idea in the programme was to share an emergent literacy perspective with disadvantaged families, not to provide expert-designed, theory-based, detailed prescriptions for them to implement.

Programme components

The programme consisted of six components, previously developed, tested and documented in a pilot study involving 70 schools.

(1) *Home visits*, shown to be a powerful way of working with families (Gomby 2012; Wasik and Bryant 2000), were conducted by programme early childhood teachers who provided one-to one engagement with families focussing on a strand of literacy, loaned materials and made suggestions to families about what they might do next to support their child's learning. For example, a home visit that focused on environmental print might include a walk to the local shop and the suggestion that the parent and child might make a collection of words they found on food packages to share on the next visit. Most visits followed a format of 'review-focus-anticipate'.
(2) *Provision of literacy resources* was essential for enhancing opportunities for literacy learning, particularly where families did not own books or writing materials. Families could borrow from the school library and were encouraged to do so as part of usual practice within the early years settings (as for all children). Membership of public libraries was also encouraged and facilitated early in the programme. Most families exchanged project loan books at each home visit whilst a few kept favourites for longer. Other resources, including literacy games, drawing/writing materials, scrapbooks, glue, magnetic letters, and audio devices, were loaned to families by the programme teachers who (in discussion with parents), identified the literacy interests of the child, and provided appropriate resources to help develop particular strands of literacy. For example, a focus on playing with letters of the alphabet was developed by making play dough which parents used with loaned alphabet cutters for children to use to make their names and those of others in the family. Most teacher recommendations were for inexpensive, free or home-made materials and writing materials were replenished on every visit as necessary.

(3) *Centre-based activities* involved small groups of parents meeting with the programme teacher to discuss aspects of literacy. For example, workshops were held to share key theories of early writing development and help parents identify how their own child's writing development was progressing within the broad range of writing development that can be identified in emergent literacy. This gave parents opportunities to talk and learn with other parents in the programme, and to benefit from the sharing of ideas. Centre-based activities built upon – but did not replace – home visits.
(4) *Special events* included group visits and activities. Library visits enabled families to join the library and enjoy especially planned activities for the children. Book parties included food, games and activities linked to a favourite book. Print walks and bus rides involved families in 'literacy treasure hunts' – spotting words and signs in the local community. Again, this gave opportunities for families to share ideas and enjoy a literacy-focused event together that would have been difficult or less rewarding, on a one-to-one basis but which offered ideas for parents to draw on for later engagement with their children.
(5) *Postal communication between the child and the programme teacher* included teachers mailing birthday cards, postcards and reminder notes to the children. Nursery-rhyme cards designed for the programme, were sent to children by the programme teachers periodically, so providing the words of popular rhymes, with illustrations, for the child and parent and prompting literacy interaction as the parent and child shared the rhyme. The inclusion of postal communication was serendipitous. When teachers realised how much excitement their notes to children generated this was built into the programme as a distinct component to offer additional opportunities for literacy interaction when parents read the personally addressed card that has been delivered through the letterbox to the child.
(6) *Adult education opportunities* were offered through the programme but parents were not required to participate in this component. It was made clear to them that it was optional and children could be in the programme whether or not parents took up the adult learning opportunities. This was because the emphasis in the programme was on maximising parents' participation in their children's learning and a compulsory adult learning component might have resulted in some parents declining to join the programme. Parents were offered two opportunities: (1) information, advice and support to access local adult education from various providers, and (2) a course based on the family literacy programme, whereby parents learned more about their own role in supporting children's literacy. The course was accredited by the Open College Network (OCN), a UK organisation that provided credit-based formal recognition of the achievements of adult learners on non-traditional courses. This component was offered personally to parents by the programme teachers and provided by an adult educator working with small groups and individuals.

Above all, teachers worked from a value position of mutual respect and partnership with families. Their starting points were the individual circumstances of each family with the aim of building respectful, collaborative partnerships on this foundation,

where each partner could contribute their own distinct knowledge and skills to their joint work.

Resources

The programme resource, in terms of teacher time, was at the level of one teacher-halfday per week for eight families to implement all six components of the programme described above (particularly the home visiting) and for planning, and recording work with families. All teachers had a set of approximately 100 high quality children's books – mostly story books but some children's non-fiction (these were retained by the schools post-project, for further work with families and to add to the school library resource. Child operated technology for playing audio stories and rhymes which could be loaned to parents. A small amount of petty cash for purchase of resources to support literacy activities and to make packs for each family to use at home. The programme is rated as 'medium-cost' by the UK Early Intervention Foundation (Asmussen, et al. 2016, 142).

Research question

The key research question was: Would the intervention programme produce measurable gains in children's emergent literacy and, if so, would they persist? In addition, to check programme implementation, take-up, participation and drop-out were systematically recorded.

Measures of emergent literacy

Literacy was measured at three stages in the study: *pre-programme* (children aged 2;9 to 3;0), *end-of-programme* (4;4 to 4;11), and *school follow-up* (6;6 to 7;4). The assessment team comprised qualified and experienced early childhood practitioners who had not previously worked with the children they assessed or their families and who were unaware of children's group allocation. School follow-up assessments were carried out by schools, independently of the study, as part of national assessment procedures (class teachers conducting these assessments were not told that the children had participated in the project, either in programme or control groups).

Sheffield Early Literacy Development Profile (SELDP)

The SELDP, used at the pre-programme and end-of-programme stages of the study, is an individual, 60-point scale which measures children's knowledge of three areas of early literacy: engagement with books, environmental print and writing (detailed in Nutbrown 1997). The measure focuses on aspects of emergent literacy: developing knowledge and use of environmental print in everyday contexts; early writing (valuing scribble and letter-like marks as well as conventionally recognized script); and the use and knowledge of books and storytelling. The books component asks children to identify elements of the book (for example: picture, page, cover) and to tell the assessor some of the main events in the story. The environmental print component measures children's knowledge of print both in and out of context, using photographs of print on

food and household product packaging. The writing component measures children's skills and knowledge about writing, with points given for both emergent and conventional writing.

British Picture Vocabulary Scale – Revised (BPVS-II)

The BPVS is the UK version of the Peabody Picture Vocabulary Test, PPVT-R (Dunn et al. 1997). It was used as pre-programme and end-of-programme measures of receptive vocabulary. Children were shown a page containing drawings of four different objects and asked to point to the one named by the assessor. The process was repeated until a ceiling was reached (8 incorrect responses out of a set of 12). The BPVS is standardised from age three. Since a few children were not three at the start of the programme, raw scores only are reported. This measure valued early and developing language and many items focussed on non-school objects thus enabling children to draw upon their home learning.

Letter recognition

A standard letter recognition test (Clay 1985) in which children were asked to identify randomly presented upper and lower case letters of the alphabet was an end-of-programme measure, shown in other studies to be a predictor of later attainment (Tizard et al. 1988; Wells 1985).

School literacy achievement at seven

Children in schools in England were given a range of national statutory tests, known as 'Key Stage One Assessments', towards the end their second year of compulsory schooling when most were aged seven. The literacy assessments were used at the school follow-up stage and included: a reading task, a reading comprehension test, a writing task, a spelling test and a handwriting judgement. For the purposes of this study, *School Literacy Achievement* was operationalized as the total unweighted scores of all literacy assessments.

Data from families and other sources

Other data collected in the study, and used mainly to monitor implementation, take-up, drop-out and participation included: programme teachers' notes of families' home visits; attendance records for centre-based and other activities, records of books borrowed and other literacy materials provided or loaned to parents.

Context and sample

The study was conducted in Sheffield, England, as part of a collaborative project between a university, the city education authority and schools serving preschool children across the city. The programme was directed by two university researchers, working with a team of programme teachers. Schools with preschool provision were invited to join an experimental study of the effectiveness of a parental involvement programme if they met the following criteria: commitment to developing such work; located in areas of social need as indicated by free school meal data; having pupils with

literacy attainment at age seven significantly below national norms; and having sufficient numbers of preschool children in the target age range due to attend the school. Schools had to be willing to nominate a key member of staff to work as a programme teacher. We judged that, given the resources available, each programme teacher would be able to work with eight families. Eleven schools met the criteria, one of which had significant numbers of children of bilingual Pakistani-origin for whom English was an Additional Language. All schools were in city electoral wards below the median for England in terms of the government's Index of Multiple Deprivation (DETR 2000) and five were in the most deprived two percent in the country.

The study sample comprised 176 preschool children selected and allocated to programme or control conditions as follows. Sixteen children born in specified months were selected, at random, from the waiting lists of each of the 11 schools. There was no targeting of families according to perceived needs (the only targeting having been done in the selection of schools). Families were invited by the programme teacher at each school to participate in a University-led research project. Parents were asked to consent to their children being assessed and thereafter to the possibility of being selected, at random, for an invitation to participate in a family literacy programme, which they might or might not want to take up. All parents so approached agreed to participate in this stage of the study. The children were assessed using measures of emergent literacy development (the SELDP) and of receptive vocabulary (the BPVS) described above. The sixteen children were placed in pairs as similar as possible in terms of gender, pre-programme assessments and age. One child from each pair was then selected at random for the programme group; the other for a control group. According to Campbell and Stanley (1966), this method of random allocation from matched pairs 'produces an experimental design with greater precision than would randomization alone' (49). Thus the programme and control groups each consisted of 88 children.

Programme implementation

The programme was planned to begin when children were about three years old and to end when they entered statutory schooling (when they were about four and a half years old). We decided to make it low-intensity/long-duration on the grounds that literacy emerges over a long period and one short, intense intervention would not be the best use of limited resources. The intention was to offer all families an 18-month programme. However, six of the younger children started school later than the others and for them the programme was 21 months. Also, organisational constraints meant that the programme for eight children for whom English was an additional language started later and lasted 12 months. The great majority of families (74 out of 88) had the main 18-month version of the programme. All families had the same amount of input, albeit spaced over different durations. In 10 schools the teacher who worked with the families was also a member of the nursery class teaching team. In one school there was no nursery class and so the reception class teacher was the programme teacher.

Before the programme was implemented, all programme teachers participated in a bespoke five-day professional development programme during which they engaged with theory and practice about emergent literacy and about working with parents as

adult learners. Teachers worked with the study directors to co-produce the previously described programme based around the ORIM framework and the six programme components. During the programme, teachers met monthly for up to two hours to discuss their work with families, share issues, develop practices, and solve problems collectively. Teachers' notes of their work with each family, written after each visit, meeting or event, were shared at Professional Development meetings throughout the programme. These served to monitor how teachers were implementing the programme with their families and highlighted individual tailoring and variation. These notes were also used to reflect on coverage of all cells of the ORIM framework, levels of parental participation secured, successes, and challenges that needed to be overcome.

Interaction between programme and control groups

One threat to the validity of the research design was that, as children in programme and control groups at each site lived in the same communities and were expected in due course to attend the same schools, there might have been interaction between the two groups. Nothing was said by programme teachers to dissuade parents from discussing the programme with whosoever they wanted. If parents in the control group felt they were missing something of value they might either have reacted adversely or, if they learned what the programme involved, they might have tried to adopt similar ways of supporting their children's literacy. To check whether this happened, programme parents were asked in independently conducted end-of-programme interviews whether they had ever talked to other parents about what they had been doing and, if so, whether they thought that had changed what other parents did with their children. Parents in the control group were asked whether they knew families had been involved in a project, and, if so, whether they knew what the project was about and whether they had talked to any of the programme parents. If they said that they had talked to programme parents, they were to be asked whether this had changed what they did with their own children. If responses to these questions indicated a significant degree of interaction between programme and control groups, it would not have been valid to use the within-school controls. (There was a contingency plan to use quasi-experimental controls but this turned out to be unnecessary.)

Data analyses

Statistical significance of effects, unless otherwise stated, was determined by one-tailed t-test comparisons of means between groups. We judged that more complex multivariate analyses were not required because the strictly random allocation of children to programme and control groups meant that potential covariates could not, by virtue of the research design, be correlated with membership of either group. As stated earlier, Tables 2 and 4 show that the two groups were indeed equivalent at pre-programme in terms of children's ages, gender balance, whether English was an additional language, number of siblings, number of children having mothers without educational qualifications, SELDP and BPVS scores. To estimate the educational

significance of differences between the programme and control group means, effect sizes (Cohen's *d*) were computed for comparisons between the programme and control groups (but only if differences in group means were statistically significant at $p < .05$).

Ethical issues

The study complied with all University research ethics and integrity protocols and requirements and all necessary approvals were obtained. The study also followed the guidance of the British Educational Research Association and the American Educational Research Association relating to the fully informed consent of teachers, parents and, in so far as they were able to understand, the children. All were informed of their right to withdraw from any session and at times this was respected and facilitated by testers and teachers. Particular attention and sensitivity was given to the testing and interactions with young children; testers and programme teachers were attentive to their comfort and prepared to facilitate withdrawal if children seemed not at ease. Assessments were carried out in child-friendly situations with their wellbeing paramount. Anonymity of parents and children was ensured and protected. All ethical requirements including anonymity, confidentiality, informed consent, and wellbeing of participants – were strictly observed throughout the study. All families had clear information about what participation entailed and were assured they were free to withdraw at any time. A key ethical issue at the heart of any RCT is whether one group is being deprived of a good that is offered to another. Two considerations justified the approach taken. First, although it was hoped the programme would be beneficial, that could not be guaranteed – a study of effects was needed. Second, no families had anything taken away – all the children continued with their usual home and preschool experiences. The development and implementation of the study were also overseen by a Steering Group which scrutinised all aspects of the study including ethical conduct throughout.

Results

Sample characteristics

Table 1 shows that parents in the study sample, compared to national norms, were more likely to be long term unemployed or never to have had paid work and twice as likely to be in routine or semi-routine occupations compared to adults nationally. The sample could therefore be considered relatively disadvantaged. Many mothers in the sample (39.9%) had no educational qualifications, having passed no public examinations at the end of the period of compulsory schooling at age 16 (usually because they had ceased regular school attendance) and had not gained any qualifications since leaving school. Only 5.6% had the level of qualifications then expected of school leavers in England, compared to 65% nationally. Unfortunately, it was not possible to ascertain fathers' level of education because the great majority of interviewees were mothers who, knew very little about the fathers' education. Table 2 shows that, as would be expected from the randomisation procedures used, the programme and control groups were

Table 1. Families in the study: socio-economic levels and maternal educational levels.

Levels	Study sample	Indicative national comparison
Fathers' socio-economic levels (according to occupation)		
Managerial/Professional (Levels 1–2) %	19.3	40.3
Intermediate/other (Levels 3–5) %	31.1	32.5
Routine/semi-routine occupations (Levels 6–7) %	45.2	23.5
Never worked or long term unemployed (Level 8) %	4.4	3.6
All %	100	100
Mothers' socio-economic levels (according to occupation)		
Managerial/Professional (Levels 1–2) %	8.3	37.5
Intermediate/other occupations (Levels 3–5) %	19.1	29.2
Routine/semi-routine occupations (Levels 6–7) %	54.1	28.1
Never worked or long term unemployed (Level 8) %	12.5	5.2
All %	100	100
Mothers' educational levels (highest qualification held)		
Expected school leaving qualifications up to degree level (Levels 2–5) %	5.6	65
Other qualifications (Level 1) %	54.4	20
No qualifications of any kind (Level 0) %	39.9	15
All %	100	100

Definitions of socio-economic levels in terms of UK Office of National Statistics Socio-economic Classification. Indicative national comparisons of all men and all women of working age in the UK from Hall (2006). Definitions of educational levels and indicative comparisons of all women of working age in England from DfEE (2001). Expected school leaving qualifications = 5 GCSE passes, A-C, in England, or equivalent. Insufficient information from interviews to determine fathers' educational levels.

Table 2. Children in the study: characteristics.

	Groups		
Characteristics and measures	Whole sample	Programme group	Control group
From data collected at start of study			
Number of children in study	176	88	88
Girls/Boys	75/101	38/50	37/51
Children with English as an Additional Language	16	8	8
Age in months at start of intervention period, *M*	38.9	38.8	39.0
SD, *n*	2.53, *n* = 176	2.56, *n* = 88	2.52, *n* = 88
From data collected at end of intervention period			
Number of other children in family, *M*	1.49	1.46	1.53
Children of mothers without educational qualifications, %	39.9	41.2	38.4

M = mean; *SD* = standard deviation; *n* = number.

equivalent in terms of age at the start of the intervention period, proportion of boys to girls, and whether English was an additional language.

Programme implementation

In all schools the programme teachers were qualified early childhood teachers (one male, 10 female) who worked with their group of eight families for the duration of the programme. A critical issue concerned how many families would accept the invitation to participate. If a large number declined, any benefits conferred by the programme would be limited at the community level and it might be inferred that the programme offered was not sufficiently wanted by, or accessible to, families. Also, from a research design point of view, it would make it more difficult to detect

Table 3. Indicators of programme implementation.

Programme teacher ratings of level of families' participation	*n*	%	Indicators of participation: Home visits received *M*	Centre events attended *M*	Other events attended *M*	Books borrowed *M*
Full participation with clear, continuing indications of activity between contacts	38	45	10.7	2.2	1.2	29.0
Regular participation but intermittently active between contacts	23	27	10.6	2.0	1.1	24.3
Regular participation with no indication of activity between contacts	17	20	10.8	1.2	1.0	24.7
Irregular or minimal participation and contact	4	5	7.3	0	0.3	13.3
Stopped out for one or more periods without withdrawing from programme	3	4	8.3	0	0.7	21.3
Withdrew from programme while still in area	0	0	-	-	-	-
All families completing programme	85	100	10.5	1.8	1.1	26.1
Left area	3					
Total originally starting programme	88					

Teachers provided ratings at end-of-programme without sight of other data in this table. *M* = mean.

programme effects at community level (since any gains by those in the programme would be diluted by those not participating). An initial finding was that of the 88 families randomly selected and invited to join the programme, there were 88 acceptances, i.e. 100% take-up.

It is one thing for families to agree to join a programme; another for them to continue to participate for 18 months. A degree of drop-out and variation in levels of participation should be expected. No families actually dropped out of the programme (although one moved to another city and two left their homes suddenly with no forwarding addresses). Table 3 shows that participation in the programme for the 85 families completing it was satisfactory. The mean number of visits per family was 10.5, and the mean number of books borrowed was 26.1. Mean attendance at meetings and other events combined was 2.9. To explore participation further, programme teachers were asked to rate the participation of each of their families' in terms of five levels. The levels were devised collaboratively with the teachers and definitions discussed to generate shared understanding and application. Ratings were collected for all 85 families who completed the programme. Table 3 shows that the teachers rated overall participation as high, with 92% of families rated as participating 'regularly', with 72% at the highest levels, (participating regularly and appearing to be engaged in literacy activities at times with children between contacts with teachers). Forty-five percent were at the highest possible level of perceived participation. Other measures of participation reported in Table 3 (numbers of home visits received, events attended, books borrowed) were correlated to some extent, with levels of perceived participation. However, the overall picture is one of satisfactory participation.

In contrast to the child-focused parts of the programme, there was lower take-up of adult education opportunities. Eleven per cent of parents (all mothers) completed the OCN-accredited course; one parent took up other adult education.

Interaction between programme and control groups

When control group parents were asked (by independent interviewers) after the intervention period whether they knew there had been a programme for other children in the school, only three had any awareness that it had been in operation. It was apparent from further questioning that they had no real idea of what it involved. None of the programme parents reported ever discussing the programme with other parents apart from those also in the programme (although there had been no bar on them doing so). Therefore it was concluded that there was no significant interaction between the two groups.

Effects on children's emergent literacy

At the start of the programme there were no statistically significant differences between programme and control group means in the measures of emergent literacy (the SELDP) and oral language (the BPVS) used at that point and reported in Table 4. That was to be expected, given the strict random allocation to groups. At the end of the programme, however, there were differences in mean scores between the two groups. Although the random allocation procedures may have rendered it unnecessary to correct for children's prior attainment, we used mean *gain* scores (pre-programme to end-of-programme) in comparing the groups. The results are shown in Table 4. The programme group had a statistically significant superiority in SELDP gain scores (Cohen's d = .43) but not in BPVS gain scores. On Letter Recognition

Table 4. Programme-Control comparisons: pre-programme, end-of-programme, and follow-up measures.

	Programme			Control			Comparison		
Groups/subgroups and measures	*n*	*M*	*SD*	*n*	*M*	*SD*	Difference	p	Cohen's *d*
All children									
Pre-programme SELDP	87	14.6	7.1	88	14.8	7.9	0.1	.889	-
Pre-programme BPVS	84	25.6	9.6	85	25.9	7.9	0.3	.855	-
End-of-programme SELDP	85	33.6	7.5	80	30.2	8.6	3.4**	.006	.42
End-of-programme Letter Recognition	85	18.1	17.3	79	13.4	15.9	4.7*	.035	.29
End-of-programme BPVS	85	45.4	10.9	79	43.7	12.2	1.7	.383	-
SELDP gain	84	19.2	8.1	80	15.6	8.9	3.6**	.004	.43
BPVS gain	81	19.8	9.7	77	18.0	9.6	1.8	.125	-
Follow-up Literacy Achievement at Seven	78	38.9	14.6	78	37.7	15.0	1.2	.310	-
Children of mothers without educational qualifications									
Pre-programme SELDP	34	13.9	6.4	28	14.7	7.1	0.8	.620	-
Pre-programme BPVS	33	23.1	8.6	27	22.0	10.0	1.1	.640	-
End-of-programme SELDP	35	32.6	8.7	28	26.4	6.2	6.2**	.002	.82
End-of-programme Letter Recognition	35	13.6	16.1	28	5.0	6.6	8.6**	.005	.65
End-of-programme BPVS	35	42.4	9.5	28	36.9	8.9	5.5**	.005	.60
SELDP gain	34	18.7	7.7	28	11.7	7.6	7.0**	.000	.92
BPVS gain	33	19.5	9.3	27	15.1	9.6	4.3*	.042	.47
Follow-up Literacy Achievement at Seven	32	39.3	13.5	37	31.4	16.6	6.9*	.042	.52

SELDP = Sheffield Literacy Development Profile; BPVS = British Picture Vocabulary Scale raw score. Outcomes for SELDP and BPVS reported and analysed by pre-programme/end-of-programme gain scores; actual scores used for Letter Recognition and Literacy Achievement at Seven.
*p < .05, **p < .01, ***p < .001. Cohen's *d* not computed if p > .05.

scores, where only end-of-programme scores were available, the programme group was superior (Cohen's d = .29).

There was differential attrition in the study sample: three children lost from the programme group, eight from the control group. This did not affect the comparisons of SELDP and BPVS gain scores reported in Table 4 because, by definition, children present for pre-programme assessment but not for end-of-programme assessment were excluded from the analysis.

There was an opportunity in this study to investigate how one characteristic of families referred to earlier – mothers' level of education – affected children's gains in the programme. A large proportion (39.9%) of children in the study sample had mothers who reported having no educational qualifications. At the end of the intervention period there were 63 children in this category (35 from the programme group and 28 from the control group). Table 4 shows that there had been no significant pre-programme differences between programme and control children in the category in terms of mean SELDP or BPVS scores. Therefore comparisons were carried out for the same end-of-programme outcome measures as for the whole sample (SELDP and BPVS gain scores and Letter Recognition). The comparisons reported in Table 4 show that within this category there had been considerable gains for programme children (effect sizes of 0.92 on SELDP gains, 0.47 on the BPVS gains, and 0.65 on Letter Recognition). Possible reasons for this finding are explored in the Discussion section.

Persistence of programme effects

It is a long established finding in the early childhood intervention literature that end-of-programme gains, even when positive and of an educationally significant effect size, are rarely maintained as children progress through school (Lazar et al. 1982; McKey et al. 1985). To investigate persistence of the gains reported above, the mean of programme children's *Literacy Achievement at Age Seven* was compared to that of controls (Table 4). For the programme group as a whole, there was, unsurprisingly but disappointingly, little or no evidence of persistence of gains. Analyses of the category of children whose mothers had no educational qualifications revealed a different picture (Table 4). Not only was the difference in means statistically significant after two years but it was arguably educationally significant with an effect size of 0.52.

Discussion

The research question posed earlier can now be answered. The intervention programme did produce gains in children's emergent literacy. Gains were greater for children of mothers having a low educational level (defined as having no educational qualifications). Gains persisted for children of mothers with no educational qualifications, but not for other children.

Programme implementation

Families' take-up and participation in the programme was high compared to what has been reported for some other programmes (Evangelou, Brooks, and Smith 2007; Jordan,

Snow, and Porche 2000; Wagner, Spiker, and Linn 2002). Three of the 88 families moved away and so left the programme; there was no other drop-out so 85 of the sample of 88 completed the programme.

Why did all parents agree to take up the programme? The 11 programme teachers collaborated closely with the university researchers in trying to anticipate all the difficulties that might lead parents to decline involvement (e.g. parents' work patterns, childcare arrangements, caregivers' other family responsibilities, poor physical or mental health, or suspicion of authority) and how each difficulty might be overcome. The programme teachers also thought carefully about how to approach each individual family, gave clear information, emphasised parents' right to withdraw at any point, pointed to possible (although certainly not guaranteed) benefits for the children and, above all, offered flexibility to ensure that the programme fitted families' lives rather than families having to conform to programme requirements and timetabling.

Why did so many families continue to participate so fully and so few leave the programme? Three factors may be relevant. First, the programme was low-intensity with families having contact with their programme teacher on average about once a month. Second, the ORIM framework provided a broad and flexible guide for work fitted to individual families' needs and interests; it did not impose a single view of literacy or closely prescribe the kind of teaching and learning encounters that could enhance children's emergent literacy. Third, as others have noted (Gomby 2012; Wasik and Bryant 2000) home visiting is a powerful way of engaging with families: the usual teacher-parent power relations are altered when the teacher is on the parent's territory, the visitor has a better chance of understanding how to tailor a programme to family circumstances, and both parties have the opportunity to develop a respectful and warm relationship. The mean number of home visits for families was 10.5 (Table 3). Families and teachers reported that they welcomed home visits and in some cases parents described the visiting teacher as 'a friend'.

High take-up in the child-focused component of the programme was not paralleled in the adult-focused component which, at 11%, was low. Participation levels for the child-focused component would almost certainly have been much lower if, as is the case with some family literacy programmes, it had been conditional upon parents participating in an adult learning component.

Programme effects

Families' participation in the programme resulted in gains for children. The RCT showed post-programme gains of programme children to be statistically significant on measures of emergent literacy (SELDP) and Letter Recognition and strikingly so in the case of children whose mothers had no educational qualifications. This is noteworthy because the programme-control comparisons reported were between *all* the programme children and *all* the within-school control children. It included all children whose parents were invited to join the programme (the 'intention-to-treat' group). This study found, for the whole programme group, an end-of-programme effect size of 0.43 on the SELDP, the principal early literacy measure used. That compares well with other programmes in the literature

For children whose mothers had no educational qualifications, the end-of-programme SELDP gain effect size was 0.92. This finding had not been anticipated. It means that, insofar as having a mother without educational qualifications is a disadvantage, this is the first study in the literature to report a programme that was of *more*, rather than less, benefit for disadvantaged families. Limitations of our data prevent us from fully explaining this finding but it is reasonable to speculate that mothers who had incomplete or unhappy school experiences might be particularly motivated to do better for their children. As stated earlier in relation to study sample characteristics, most such mothers had ceased regular school attendance before the official leaving age. In a qualitative study of a sample of – mostly poorly educated – parents in a family literacy programme, Phillips and Sample (2005) found evidence of parents' 'longing and disabling regret' that they had not completed high school, a desire to move on, and a desire for their children to be 'better than me'. Given their sustained engagement we suggest that, through the programme, mothers without educational qualifications, more than others, increased in confidence and knowledge of how to influence children's emergent literacy development. It could be that the programme provided them with an opportunity that was eagerly seized.

It is not surprising that the intervention had less effect on children's oral language as the emphasis in the programme was on written language. A more focused language intervention such as a form of dialogic reading might have had an effect on oral language, but such a prescriptive approach could have been at odds with the programme ethos which was to extend families' existing ways of teaching rather than import specific techniques.

For the whole programme group, superiority was not maintained two years after the programme ended. This is not surprising in the light of previous research. However, those children whose mothers had no educational qualifications remained ahead of their controls to the extent of an SELDP effect size of 0.52. It is unusual for intervention programmes to have demonstrable effects after a two-year interval.

The finding that a category of children within the study sample benefited more than others raises the question of whether programmes such as the one studied here should in future be targeted at certain families. In this study the approach was to target communities that were generally disadvantaged but not to single out particular families within those communities so as to avoid stigmatising them. However, the difference in effects is so great that perhaps targeting families most likely to benefit should be considered. One way to achieve this would be to take an approach of 'progressive universalism' (Rowlands 2010). A modest, reduced version of the programme could be offered to all families in a community (i.e. universally) but, as programme teachers acquire more knowledge of their families (particularly parents' educational level), a fuller, or more intense, version of the programme could be offered to families most likely to benefit.

Nature of the programme

The programme aimed to share key ideas of emergent literacy theory with families, largely through informal dialogue and also in the straightforward sharing of information as appropriate in home visits and workshops. For example, the idea that children learn about written language through co-operating in everyday tasks was not explained by explicitly referring to the 'zone of proximal development' (Vygotsky 1978) or the

concept of 'scaffolding' (Wood, Bruner, and Ross 1976) but by suggesting practices, for example, by pointing out what a child might learn by having the opportunity to add their writing in a greeting card for a grandparent. Selected theory – such as how early writing can develop from mark making to producing conventionally recognised letters – was shared, in everyday terms, with parents in order to enhance their own underpinning knowledge and confidence in teaching their children.

The nature of the programme can be understood in terms of two distinctive characteristics: it had a particular *conceptual basis* and it was *co-produced*.

The *conceptual basis* for the programme was the ORIM framework which encouraged programme teachers to see families' teaching, in terms of them providing opportunities, recognition, interaction, and models for identifiable strands of early literacy. The concepts in ORIM were defined fairly broadly and could accommodate a range of meanings. The concepts of strands and of teaching aspects were not difficult to grasp but, once grasped, they did seem to increase participants' awareness of families' teaching of emergent literacy. For the programme teachers, the full ORIM framework went further in linking four strands of emergent literacy to the four aspects of teaching in a 4 × 4 matrix (Figure 1). The framework was originally developed as a way for programme teachers to appreciate how families were already teaching emergent literacy and as a way for them to plan (and later reflect upon) work with families to extend that teaching. It worked as intended. Additionally, as the programme progressed, more teachers shared the framework explicitly with families. Thus it would seem that key concepts on which the programme was based were sufficiently novel to extend understanding and action but not so novel as to be difficult to acquire, use, or share.

The programme was *co-produced* between university researchers, programme teachers and – to varying degrees – with families. The researchers initiated the project in proposing programme aims, elaborating underlying theory, and introducing programme teachers to methods of working with parents related to the ORIM conceptual framework but thereafter many details and ideas for the programme emerged through dialogue and collaboration with the programme teachers who in turn collaborated with the families. Co-production was enabled by the initial professional development programme, followed by twilight meetings as the intervention programme was implemented. In total, 70 hours over 18 months were spent in collaboration and the building of productive professional relationships. The professional development time was very much welcomed by the programme teachers and the ethos of co-production such as that advocated by Boyle and Harris (2009) also extended to the way in which programme teachers worked with families. The programme teachers were committed to fitting their work to families' circumstances, interests and pace. Each of them had at their disposal a set of concepts, brought together in the ORIM framework, to plan their work with individual families.

Nature of families' teaching to support emergent literacy

The programme aimed to extend families' teaching of emergent literacy; all inputs were directed to that end. Families had been encouraged to take advantage of ordinary everyday experiences to engage with their children in literacy, not to contrive artificial learning experiences intended to reproduce what might be seen as 'school literacy'.

Therefore potential for shared literacy involvement between home visits was greater than it might have been if the programme required use of particular materials or forms of literacy activity. The programme increased families' awareness of opportunities and expanded parent's views of what counted as literacy. It did not focus on supposed deficits in families' teaching but built upon what families were already doing (including in non-literacy domains) to extend that teaching in ways that might never have occurred to many of the participating families.

The fact that there were gains in the early literacy of children in the programme suggests that families' teaching, and the learning engagements they provided for their children, had become more effective. Here it is worth recalling that, because the intervention programme did not teach children directly, the programme produced gains indirectly, through families' activities. What was done in the programme was to provide parents and other family members with encouragement and ways of thinking about their roles (and resources where needed) to help children's literacy development. The gains reported in Table 4 therefore reflect socio-cultural changes in family literacy that were produced because teacher-family interaction affected the nature and frequency of family-child engagement. It is, perhaps, surprising that something so subtle should have effects detectable at all by quantitative methods.

Further research

Several threats to the validity of the study were obviated by the RCT design and by having assessors of child outcomes who did not know children's group allocation. Therefore programme-control differences in outcome measures can plausibly be attributed to the programme.

Nevertheless, one limitation of this study that could be remedied in future research in an RCT study would be to have an 'equal attention' third group. It is a matter of judgement as to whether it was the specifically literacy or pedagogical character of the programme that was responsible for the children's gains (although it is interesting that impact on oral language was less than for literacy). It might be argued that simply giving children and families extra attention could have produced literacy gains. A further limitation to the present study is that it was restricted to investigating measurable outcomes. Non-quantitative outcomes such as children's love of reading or excitement about writing or parents' understanding their power to help children's literacy are also important but more difficult to quantify.

This study points to other issues worth further investigation. The findings are encouraging from the point of view of the search for more effective ways of enhancing disadvantaged children's emergent literacy, particularly since they suggest – unusually, if not uniquely – that the programme was particularly effective with families who might be regarded as further disadvantaged on account of lower maternal education. Therefore a replication of that finding, again using an RCT design, would be desirable. There is a view that evidence of effectiveness ideally requires at least two RCTs (Early Intervention Foundation 2015; What Works Clearinghouse 2014). It would be desirable to explore how mothers' level of education relates to their reading beliefs, literacy levels and expectations of their children and the bearing of these factors on programme impact. It is also of interest to find out whether the effects reported could be achieved with less resource. The present study found that teachers working with families valued the ORIM framework. It is worth investigating whether that is

true of practitioners in other circumstances who have applied ORIM in different domains of learning (e.g. numeracy, music, art) and at different age levels (e.g. university students, professional development, adult education) reported by Smith (2016). This study found that the end-of-programme superiority of the programme group as a whole was not retained after school entry. It would be worth investigating ways of maintaining gains into the school years by working with families and the receiving schools to ease the transition to a new educational experience in different kinds of institutions.

Conclusions

This article has reported an RCT evaluation of a co-produced preschool literacy intervention programme with disadvantaged families. The programme, based on the ORIM conceptual framework, linking concepts of emergent literacy to concepts of families' teaching, was multi-strand, emphasised families' facilitative teaching, and had high participation. There were literacy gains for children in the programme. Children further disadvantaged in terms of their mothers' lower levels of education had greater, and longer lasting, gains. The rigour of the study design and execution means that, although further research is desirable, findings reported here can be acted upon with confidence by early childhood educators to enhance practice and by educational policymakers to create the conditions for them to do so.

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References

Adams, M. J. 1990. *Beginning to Read: Thinking and Learning about Print*. Cambridge, MA: MIT Press.

Asmussen, K., L. Feinstein, J. Martin, and H. Chowdry. 2016. *Foundations for Life: What Works to Support Parent Child Interaction in the Early Years*. London: Early Intervention Foundation. Accessed 11 September 2018. http://www.eif.org.uk/publication/foundations-for-life-what-works-to-support-parent-child-interaction-in-the-early-years/

Baker, A., C. Piotrokowski, and J. Brooks-Gunn. 1998. "The Effects of the Home Instruction Programme for Preschool Youngsters (HIPPY) on Children's School Performance at the End of the Programme and One Year Later." *Early Childhood Research Quarterly* 13 (4): 571–588. doi:10.1016/S0885-2006(99)80061-1.

Baroody, A. E., and J. Dobbs-Oates. 2009. "Child and Parent Characteristics, Parental Expectations, and Child Behaviours Related to Preschool Children's Interest in Literacy." *Early Child Development and Care* 181 (3): 345–359. doi:10.1080/0300440903387693.

Boag-Munroe, G., and M. Evangelou. 2012. "From Hard to Reach to How to Reach: A Systematic Review of the Literature on Hard-To-Reach Families." *Research Papers in Education* 27 (2): 209–239. doi:10.1080/02671522.2010.509515.

Boyle, D., and M. Harris. 2009. *The Challenge of Co-Production: How Equal Partnerships between Professionals and the Public are Crucial to Improving Public Services*. London: nef/NESTA.

Brooks, G., and P. Hannon. 2013. "Research Issues in Family Literacy." In *Handbook of Early Childhood Literacy Research*, edited by J. Larson and J. Marsh, 194–206. 2nd ed. London, England: SAGE.

Brooks, G., K. Pahl, A. Pollard, and F. Rees. 2008. *Effective and Inclusive Practices in Family Literacy, Language and Numeracy: A Review of Programmes and Practice in the UK and Internationally*. Reading: CfBt Schools Trust, London, England.

Brooks-Gunn, J., L. J. Berlin, and A. S. Fuligni. 2000. "Early Childhood Intervention Programmes: What about the Family?" In *Handbook of Early Childhood Intervention*, edited by J. P. Shonkoff and S. J. Meisels, 549–577. 2 ed. Cambridge, England: Cambridge University Press.

Campbell, D. T., and J. C. Stanley. 1966. *Experimental and Quasi-Experimental Designs for Research*. Boston, MA: Houghton Mifflin.

Carpentieri, J., K. Fairfax-Cholmeley, J. Litster, and J. Vorhaus. 2011. *Family Literacy in Europe: Using Parental Support Initiatives to Enhance Early Literacy Development*. London: National Research and Development Centre for Adult Literacy and Numeracy, Institute of Education.

Clay, M. M. 1985. *The Early Detection of Reading Difficulties*. Portsmouth, NH: Heinemann.

Cottone, E. A. 2012. "Preschoolers' Emergent Literacy Skills: The Mediating Role of Maternal Reading Beliefs." *Early Education and Development* 23: 351–372. doi:10.1080/10409289.2010.527581.

Davis, F. A., L. McDonald, and N. Axford. 2012. *Technique Is Not Enough: A Framework for Ensuring that Evidence-Based Parenting Programmes are Socially Inclusive*. Leicester: British Psychological Society.

Desforges, C., and A. Abouchaar. 2003. "The Impact of Parental Involvement, Parental Support and Family Education on Pupil Achievement and Adjustment: A Literature Review." *Research Report No.433*. London, England: Department for Education and Skills.

DETR (Department of the Environment, Transport and the Regions). 2000. *Indices of Deprivation 2000*. London: DETR.

Deunk, I. M., J. Berenst, and K. de Glopper. 2012. "Home–School Book Sharing Comes in Many Forms: A Microanalysis of Teacher–Child Interaction during the Activity of Borrowing A School Book." *Journal of Early Childhood Literacy* 13 (2): 242–270. doi:10.1177/1468798411430103.

DfEE (Department for Education and Employment). 2001. The Level of Highest Qualification Held by Young People and Adults: England 2000. *SFR 06/2001*. London: DfEE.

Dunn, L. M., L. M. Dunn, C. Whetton, and J. Burley. 1997. *British Picture Vocabulary Scale*. 2nd ed. Windsor: NFER Nelson.

Early Intervention Foundation. 2015. *The Best Start at Home: What Works to Improve the Quality of Parent-Child Interactions from Conception to Age 5 Years: A Rapid Review of Interventions*. London: Early Intervention Foundation.

Edwards, C. M. 2014. "Maternal Literacy Practices and Toddlers' Emergent Literacy Skills." *Journal of Early Childhood Literacy* 14 (1): 53–79. doi:10.1177/1468798412451590.

Evangelou, M., G. Brooks, and S. Smith. 2007. "The Birth to School Study: Evidence on the Effectiveness of PEEP: An Early Intervention for Children at Risk of Educational Under-Achievement." *Oxford Review of Education* 33 (5): 581–609. doi:10.1080/03054980701476477.

Fletcher, K. L., and W. Holmes Finch. 2015. "The Role of Book Familiarity and Book Type on Mothers' Reading Strategies and Toddlers' Responsiveness." *Journal of Early Childhood Literacy* 15 (1): 73–96. doi:10.1177/1468798414523026.

Goldsworthy, C. L. 2010. *Linking the Strands of Language and Literacy: A Resource Manual*. San Diego, CA: Plural Publishing.

Gomby, D. S. 2012. "Family Literacy and Home Visiting Programmes." In *Handbook of Family Literacy*, edited by B. H. Wasik, 103–134. 2nd ed. New York, NY: Routledge.

Goodman, Y. 1986. "Children Coming to Know Literacy." In *Emergent Literacy: Writing and Reading*, edited by W. H. Teale and E. Sulzby, 1–14. Norwood, NJ: Ablex.

Gorard, S., and B. Huat See. 2013. *Do Parental Involvement Interventions Increase Attainment? A Review of the Evidence*. London: Nuffield Foundation, England.

Goswami, U., and P. Bryant. 1990. *Phonological Skills and Learning to Read*. Hove: Lawrence Erlbaum.

Haas Dyson, A. 2010. "Writing Childhoods under Construction: Re-Visioning 'Copying' in Early Childhood." *Journal of Early Childhood Literacy* 10 (1): 7–31. doi:10.1177/1468798409356990.

Hall, C. 2006. "A Picture of the United Kingdom Using the National Statistics Socio-Economic Classification." *Population Trends* 125: 7–14.

Hannon, P. 1995. *Literacy, Home and School: Research and Practice in Teaching Literacy with Parents*. Bristol, PA: Falmer Press.

Hannon, P. 2000. *Reflecting on Literacy in Education*. New York, NY: Routledge Falmer.

Hannon, P., and C. Nutbrown. 1997. "Teachers' Use of a Conceptual Framework for Early Literacy Education with Parents." *Teacher Development* 1 (3): 405–420. doi:10.1080/13664539700200031.

Johnson, D. L., T. B. Walker, and G. G. Rodriguez. 1996. "Teaching Low-Income Mothers to Teach Their Children." *Early Childhood Research Quarterly* 11 (1): 101–114. doi:10.1016/S0885-2006(96)90031-9.

Jordan, G. E., C. E. Snow, and M. V. Porche. 2000. "Project Ease: The Effect of a Family Literacy Project on Kindergarten Students' Early Literacy Skills." *Reading Research Quarterly* 35 (4): 524–546. doi:10.1598/RRQ.35.4.5.

Lazar, I., R. Darlington, H. Murrary, J. Royce, and A. Snipper. 1982. "Lasting Effects of Early Education." *Monographs of the Society for Research in Child Development* 47 (2–3, Serial No. 195). doi:10.2307/1165938.

Lipsey, M. W. 2003. "Those Confounded Moderators in Meta-Analysis: Good, Bad, and Ugly." *Annals of the American Academy of Political and Social Science* 587: 69–81. doi:10.1177/0002716202250791.

Manz, P. H., C. Hughes, E. Barnabas, C. Bracaliello, and M. Ginsburg-Block. 2010. "A Descriptive Review and Meta-Analysis of Family-Based Emergent Literacy Interventions: To What Extent Is the Research Applicable to Low-Income, Ethnic-Minority or Linguistically-Diverse Young Children?" *Early Childhood Research Quarterly* 25 (4): 409–431. doi:10.1016/j.ecresq.2010.03.002.

Marsh, J., P. Hannon, M. Lewis, and L. Ritchie. 2017. "Young Children's Initiation into Family Literacy Practices in the Digital Age." *Journal of Early Childhood Research* 15 (1): 47–60. doi:10.1177/1476718X15582095.

McKey, H. R., L. Condelli, H. Ganson, B. Barrett, C. McConkey, and M. Plantz. 1985. *The Impact of Head Start on Children, Families and Communities*. Head Start Bureau, Administration of Children, Youth and Families, Office of Human Development Services. Washington, DC: CSR Incorporated.

Meek, M. 1988. *How Texts Teach What Readers Learn*. Stroud: Thimble Press.

Mol, S. E., A. G. Bus, M. T. de Jong, and D. J. Smeets. 2008. "Added Value of Dialogic Parent-Child Readings: A Meta-Analysis." *Early Education and Development* 19 (1): 7–26. doi:10.1080/10409280701838603.

Moll, L. C., C. Amanti, D. Neff, and N. Gonzalez. 1992. "Funds of Knowledge for Teaching: Using a Qualitative Approach to Connect Homes and Classrooms." *Theory into Practice* 31 (2): 132–141. doi:10.1080/00405849209543534.

Morgan, A. 2005. "A Dialogic Reading Intervention Programme for Parents and Preschoolers." In *Learning from Sure Start: Working with Young Children and Their Families*, edited by J. Weinberger, C. Pickstone, and P. Hannon, 177–192. Maidenhead, England: Open University Press.

National Early Literacy Panel. 2008. *Developing Early Literacy: Report of the National Early Literacy Panel*. Washington, DC: National Institute for Literacy, USA.

Neumann, M. M., M. Hood, R. M. Ford, and D. L. Neumann. 2011. "The Role of Environmental Print in Emergent Literacy." *Journal of Early Childhood Literacy* 12 (3): 231–258. doi:10.1177/1468798411417080.

Nutbrown, C. 1997. *Recognising Early Literacy Development: Assessing Children's Achievements*. London: Paul Chapman.

Pantaleo, S. 2009. "An Ecological Perspective on the Socially Embedded Nature of Reading and Writing." *Journal of Early Childhood Literacy* 9 (1): 75–99. doi:10.1177/1468798408096480.

Phillips, L. M., S. P. Norris, D. V. Hayward, and M. A. Lovell. 2017. "Unique Contributions of Maternal Reading Proficiency to Predicting Children's Preschool Receptive Vocabulary and Reading Proficiency." *Early Childhood Education Journal* 45: 111–119. doi:10.1007/s10643-014-0632-y.

Phillips, L. M., and H. L. Sample. 2005. "Family Literacy: Listen to What the Families Have to Say." In *Portraits of Literacy across Families, Communities, and Schools: Intersections and Tensions*, edited by J. Anderson, M. Kendrick, T. Rogers, and S. Smythe, 91–113. Mahwah, NJ: Lawrence Erlbaum Associates.

Reese, E., A. Sparks, and D. Leyva. 2010. "A Review of Parent Interventions for Preschool Children's Language and Emergent Literacy." *Journal of Early Childhood Literacy* 10 (1): 97–117. doi:10.1177/1468798409356987.

Roskos, K., and S. Neuman. 1993. "Enhancing Head Start Parents' Conceptions of Literacy Development and Their Confidence as Literacy Teachers: A Study of Parental Involvement." *Early Child Development and Care* 89 (1): 57–73. doi:10.1080/0300443930890105.

Rowlands, J. 2010. "Services are Not Enough: Child Well-Being in a Very Unequal Society." *Journal of Children's Services* 5 (3): 80–88. doi:10.5042/jcs.2010.0553.

Scarborough, H. S. 2001. "Connecting Early Language and Literacy to Later Reading (Dis) Abilities: Evidence, Theory and Practice." In *Handbook of Early Literacy Research*, edited by S. B. Neuman and D. K. Dickinson, 97–110. New York, NY: Guilford Press.

Schickedanz, J. 1990. *Adam's Righting Revolutions*. Portsmouth, NH: Heinemann.
Sénéchal, M., and L. Young. 2008. "The Effect of Family Literacy Interventions on Children's Acquisition of Reading from Kindergarten to Grade 3: A Meta-Analytic Review." *Review of Educational Research* 78 (4): 880–907. doi:10.3102/0034654308320319.
Sheridan, S. M., L. L. Knoche, K. A. Kupzyk, C. P. Edwards, and C. A. Marvin. 2011. "A Randomised Trial Examining the Effects of Parent Engagement on Early Language and Literacy: The 'Getting Ready' Intervention." *Journal of School Psychology* 49 (3): 361–383. doi:10.3102/0034654308320319.
Shonkoff, J. P., and S. J. Meisels. 2000. *Handbook of Early Childhood Intervention*. 2nd ed. Cambridge: Cambridge University Press. ISBN: 0-521-58573-2
Smith, S. 2016. "Origins and Uses of the ORIM Framework." Unpublished Doctoral Thesis, University of Sheffield, England.
St. Pierre, R., A. Ricciuti, F. Tao, C. Creps, J. Swartz, W. Lee, A. Parsad, and T. Rimdzius. 2003. *Third National Even Start Evaluation: Programme Impacts and Implications for Improvement*. Washington, DC: US Department of Education.
Sulzby, E. 1989. "Assessment of Writing and of Children's Language while Writing." In *The Role of Assessment and Measurement in Early Literacy Instruction*, edited by L. Morrow and J. Smith, 83–89. Englewood Cliffs, NJ: Prentice Hall.
Taylor, D., and C. Dorsey-Gains. 1988. *Growing up Literate: Learning from Inner-City Families*. Portsmouth, NH: Heinemann.
Teale, W. H. 1986. "Home Background and Young Children's Literacy Development." In *Emergent Literacy: Writing and Reading*, edited by W. H. Teale and E. Sulzby, 173–205. Norwood, NJ: Ablex.
Teale, W. H., and E. Sulzby. 1986. *Emergent Literacy: Writing and Reading*. Norwood, NJ: Ablex.
Tizard, B., P. Blatchford, J. Burke, C. Farquar, and I. Plewis. 1988. *Young Children at School in the Inner City*. London: Lawrence Erlbaum Associates.
Van Steensel, R., N. McElvany, J. Kurvers, and S. Herppich. 2011. "How Effective are Family Literacy Programmes?: Results of a Meta-Analysis." *Review of Educational Research* 81 (1): 69–96. doi:10.3102/0034654310388819.
Van Voorhis, F. L., M. F. Maier, J. L. Epstein, and C. M. Lloyd. 2013. *The Impact of Family Involvement on the Education of Children Ages 3 to 7: A Focus on Literacy and Math Achievement Outcomes and Social-Emotional Skills*. New York: MRDC.
Vygotsky, L. 1978. *Mind in Society: The Development of Higher Psychological Processes*. Cambridge, MA: Harvard University Press.
Wagner, M., D. Spiker, and M. Linn. 2002. "The Effectiveness of the 'Parents as Teachers' Programme with Low-Income Parents and Children." *Topics in Early Childhood Special Education* 22 (2): 67–81. doi:10.1177/02711214020220020101.
Wasik, B. H., and D. M. Bryant. 2000. *Home Visiting: Procedures for Helping Families*. Thousand Oaks, CA: SAGE.
Wells, G. 1985. *Language Development in the Preschool Years*. Cambridge: Cambridge University Press.
Wells, G. 1987. *The Meaning Makers: Children Learning Language and Using Language to Learn*. London: Hodder and Stoughton.
What Works Clearinghouse. 2014. *Procedures and Standards Handbook, Version 3.0*. Washington, DC: Institute of Education Sciences.
Whitehurst, G. J., J. N. Epstein, A. L. Angell, A. C. Payne, D. A. Crone, and J. E. Fischel. 1994. "Outcomes of an Emergent Literacy Intervention in Head Start." *Journal of Educational Psychology* 86 (4): 542–555. doi:10.1037/0022-0663.86.4.542.
Wood, D. J., J. S. Bruner, and G. Ross. 1976. "The Role of Tutoring in Problem Solving." *Journal of Child Psychology and Psychiatry* 17 (2): 89–100. doi:10.1111/j.1469-7610.1976.tb00381.x.