

The Birth to School Study: a Longitudinal Evaluation of the Peers Early Education Partnership (PEEP)

Maria Evangelou*, Greg Brooks**, Sally Smith* and Denise Jennings*
*University of Oxford, ** University of Sheffield

An introduction to the Peers Early Education Partnership (PEEP) and the Birth to School Study (BTSS)

The Peers Early Education Partnership (PEEP) is a birth to 5 intervention programme that aims to improve the life chances of children from a disadvantaged area of Oxford by raising their educational achievement. From 1998 to 2004, PEEP was the subject of a long-term evaluation, the Birth to School Study (BTSS). The main aim of the BTSS was to investigate the effects of PEEP on the children and families from the community it served. Embedded within this aim were dual objectives: to determine if the intervention had an effect within the community as a whole and simultaneously, to determine whether it had an effect on the particular families who participated in the PEEP weekly sessions. The foci of these objectives were parental outcomes related to aspects of parent-child relationships, quality of the care-giving environment and maternal mental health and child outcomes related to cognitive and socio-emotional development. The six year span of the study afforded the opportunity to measure effects year by year from ages 1 to 5, and to measure the rates of progress of each group of children between the different points in time.

Key findings

The effects of PEEP on parents

- PEEP parents, compared to similar parents with no access to the programme, reported a significantly enhanced view of their parent-child interaction when the children were 1 year of age. When the children were age 2, PEEP parents were also rated significantly higher on the quality of their care-giving environment.
- Parents living in the PEEP community, were rated as providing a significantly higher care-giving environment when their children were age 2, compared to parents living in an area where PEEP was not available.

The effects of PEEP on the cognitive development of children

- PEEP children, compared to similar children from an area with no access to the programme, scored significantly lower on general cognitive and language outcomes collected at ages 2 and 4. At ages of 3 and 5, there were no significant differences between the two groups. However, PEEP children, compared to a similar group of children with no access to PEEP, made significantly greater progress between the ages of 2 and 4, 2 and 5 and 4 and 5 in a cluster of skills related to future literacy success. These included vocabulary, phonological awareness of rhyme and alliteration, letter identification, understanding of books and print and writing.
- Children living in the PEEP community, compared to a similar group of children with no access to PEEP, scored significantly lower on a range of general cognitive, language and literacy skills at ages 2, 3, 4 and 5. Despite these early disadvantages, the same children made significantly greater progress between the ages of 2 and 5 and 4 and 5, than a similar group of children, in the same cluster of literacy skills. These were in a slightly reduced number of outcomes and showed smaller effect sizes.

The effects of PEEP on the socio-emotional development of children

- There were no significant differences at ages 2, 3 and 4 to either PEEP children, or to comparison children with no access to PEEP, on a range of socio-emotional outcomes. The picture changed when self-esteem was measured for the first time at age 5. At this point, PEEP children showed an advantage in 5 out of 7 possible sub-scales on the self-esteem measure.
- PEEP children, compared to a similar group of children with no access to PEEP, showed no significant advantages in their progress in socio-emotional development.

What is PEEP?

When PEEP began in 1995, it was conceived primarily as a literacy programme with an expanding focus on numeracy, self-esteem and readiness to learn. It was (and still is) intended to benefit children from an economically disadvantaged area of Oxford who were compromised by their lack of skills and confidence when they made the transition to secondary school. Its principal aim has always been to foster reading readiness, and thus to enable each child to maximise their potential within an education system that requires (and often assumes) a certain level of literacy skill. Over the last ten years the organisation has grown and developed, and the principles and practice of PEEP have become widely disseminated throughout the UK and beyond.

PEEP is based on a framework that recognises children's need for:

- **O**pportunities to learn;
- **R**ecognition and valuing of their early achievements;
- **I**nteraction with adults in learning situations;
- **M**odels of literacy and numeracy behaviours and learning strategies.

PEEP's objectives and practice are centred not on the children themselves but on the relationship between adults and children, which PEEP considers to be at the heart of learning. It supports 'parents as parents', encouraging them in their role as their children's first and most important educators, not by 'teaching' their children, but by communicating with them. Literacy flowing from interpersonal relationships is central to PEEP's philosophy. They also make explicit the assumption that positive self-esteem is an essential pre-condition for successful life-long learning (Roberts, 2002).

The PEEP curriculum

From birth to school entry, all families in the catchment area of the programme are offered

age-related PEEP materials and the opportunity to attend weekly groups or receive home visits. PEEP for 3s and 4s (known as Foundation PEEP) is also run via weekly sessions in pre-schools and playgroups. PEEP-trained nursery teachers deliver the programme (on a weekly basis) to Foundation Stage classes in schools within the area. The curriculum is detailed in the "Learning Together Series" (PEEP, 2000). Full details can be found on the website:

www.peep.org.uk.

PEEP groups

PEEP groups take place at a variety of easily accessible locations throughout the community, such as the local Sure Start centre. All groups contain the same fundamental elements:

- **Circle time:** parents, carers and children are led in a variety of carefully chosen songs and rhymes. All families are offered an audiotape and a songbook containing the songs and rhymes used in the programme.
- **Talking time:** an opportunity for adults to discuss information and ideas, to share experiences and offer support.
- **Story time:** as daily sharing of books is a fundamental aspect of the curriculum, this is an integral part of every session. It is modelled by the leader who demonstrates stimulating ways of sharing books with children.
- **Borrowing time:** a library of play packs that contain a book and play materials related to the story are offered on a weekly basis.
- **Home activities:** practical suggestions for games and activities that are connected to and support the curriculum are provided.

Contact with PEEP in the community

This is extremely varied, from regular weekly attendance to no formal contact at all. Some families may have attended PEEP in the past. Some children may have only experienced PEEP at pre-school or school. Families, with

no registered attendance at a weekly group, may use the folder or tape left during a home visit.

The Birth to School Study (BTSS)

Aims and objectives

The main aim of the BTSS was to investigate the effects of PEEP on parents and children within the area it serves in Oxford. This had two dimensions: to determine if the programme had an effect on the community as a whole and simultaneously, whether it had an effect on a sub-group of families who had chosen to attend at least one weekly PEEP session before their child was 3 years old. The six-year span of the study provided the opportunity to measure effects both on a yearly basis and in terms of the children's progress over time.

Research questions

Related to the impact of PEEP on parents:

1. Did parents who lived in the PEEP catchment area, regardless of their participation in PEEP (Oxford group), differ in their parenting views and practices from a matched group of parents who lived in the comparison area (Comparison group)?
2. Did parents who attended PEEP (PEEP sub-group) differ in their parenting views and practices from a matched sub-group of parents who lived in the comparison area (Comparison sub-group)?

Related to the impact of PEEP on children:

1. Did children who lived in the PEEP catchment area, regardless of whether their families participated in PEEP (Oxford group), differ in their cognitive and socio-emotional development from a matched group of children who lived in the comparison area (Comparison group)?
2. Did children whose parents attended PEEP (PEEP sub-group), differ in their cognitive and socio-emotional

development from a matched sub-group of children who lived in the comparison area (Comparison sub-group)?

Design

As PEEP was already established in the community, it was not possible to conduct an experiment by randomly allocating families to either a participant or control group. Consequently, a quasi-experimental design¹ was used to compare a sample of families from the PEEP catchment area, regardless of whether they participated in the programme, to a sample of families from an area with comparable indices of poverty elsewhere in Oxfordshire (Smith, 1998).

It was also important to establish the effects of PEEP on the families who chose to participate in the programme. This aspect was accommodated within the same design by comparing the sub-group of families who had attended at least one weekly session of PEEP with a matched sub-group from the comparison area.

Although care was taken to select a comparison area that was very similar in its demographic profile, the initial stages of analyses revealed numerous significant differences between the areas. This was addressed by the use of Propensity Score Matching (PSM) which reduced (but did not eliminate) the differences between the groups. The information used for this matching was background data collected at the birth interview and therefore prior to the families exposure to PEEP. It comprised ten maternal, child and family characteristics.

Sample

All new mothers, in both the PEEP catchment area and the comparison area, were

¹ A quasi-experimental design is a research design where the individuals are not assigned randomly to groups but are matched on a number of demographic characteristics thought to be related to the outcomes.

contacted whilst still in hospital via their health visitor. Those who expressed an interest to participate in the study were approached by the research team. Seventy percent of these agreed to participate (n=604). All the children were born between April 1998 and July 1999.

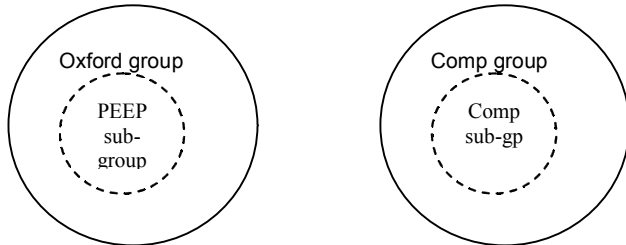


Figure1: Diagrammatical representation of the groups and sub-groups

Oxford group: The 301 families in the study who lived in the PEEP catchment area, regardless of their participation in the PEEP programme.

Comparison group: The 303 families in the study who lived in the comparison area where PEEP was not available.

PEEP sub-group: A sub-group of the Oxford group consisting of the 174 families who had attended a PEEP group at least once by the time their child was three.

Comparison sub-group: A sub-group of the Comparison group, consisting of families matched to those in the PEEP sub-group.

Data-gathering

An initial interview took place with the mother at home when the child was a few weeks old, then each family was seen once a year, as close as possible to the child's birthday. Information was gathered about family circumstances and a range of measures was used to establish impacts of PEEP on outcomes for parents. At ages 2, 3, 4 and 5 the children were assessed, using standardised instruments, on their cognitive (general cognitive, language, literacy and numeracy) and socio-emotional (social behaviour and self-esteem) development.

Levels of data analyses

The complexity of the study was reflected in the analyses which generated findings at different levels.

Annual findings

These are the findings for children as assessed at each yearly time point: at ages 2, 3, 4 and 5. In addition, parental outcomes were collected when the children were 1, 2, 3 and 4 years old.

Value-added findings

As children's developmental scores were available for four consecutive years, the study was able to measure the progress made between these time points, i.e. between the ages of 2 and 3, 2 and 4, 2 and 5, 3 and 4, 3 and 5 and 4 and 5. This allowed the study to comment not only on achievement but to explore the rate of improvement by taking into account the starting points of each group.

Community findings

These are the findings for children of families who lived in the PEEP catchment area (Oxford group) compared to children from families who lived in an area where the PEEP programme was not available (Comparison group). They reflect the effect of PEEP within the community as a whole, and not only for the families who chose to participate in at least one weekly PEEP session.

Sub-group findings

These are the findings for children of families who chose to participate in the PEEP programme (PEEP sub-group) compared to a matched sub-group of children from families who lived in the comparison area (Comparison sub-group). They reflect the effect of PEEP on the families who lived in the area where PEEP operates and who chose to participate in at least one weekly PEEP session.

Findings²

The effects of PEEP on parents

- When the children were 1 year old, parents in the PEEP sub-group, who had attended at least one weekly PEEP session, reported a significantly enhanced view of their parent-child interaction.
- When the children were 2 years old, parents in the PEEP sub-group were rated significantly higher on the quality of their care-giving environment. In addition, parents who lived in the PEEP catchment area (Oxford group) were also rated significantly higher on the quality of their care-giving environment.
- There were no significant findings in favour of any group when the children were 3 or 4 years of age.

The effects of PEEP on children

The effect of PEEP on the cognitive development of children whose parents attended at least one weekly PEEP session (PEEP sub-group)

The annual findings show that children from the Comparison sub-group had significant cognitive advantages when they were assessed at age 2 in general cognitive development, vocabulary, grammatical competence and sentence complexity. At age 4 they had significant cognitive advantages in vocabulary, awareness of rhyme and in writing. At ages 3 and 5, there were no differences between the groups.

By contrast children, whose families had participated in at least one of the weekly PEEP sessions, made significantly greater progress over time in:

- Vocabulary (between the ages of 2-4, 2-5, 4-5);
- Phonological Awareness of Rhyme and Alliteration (between the ages of 2-4, 2-5);
- Letter Identification (between the ages of 2-5, 4-5);
- Understanding of Books and Print (between the ages of 2-4, 2-5);
- Writing (between the ages of 4-5).

The effect of PEEP on the socio-emotional development of children whose parents attended at least one weekly PEEP session (PEEP sub-group)

The annual findings show no significant socio-emotional outcomes in favour of either group until the age of 5 when children from the PEEP sub-group showed a significant advantage in five out of the seven measures related to self-esteem:

- Peer Acceptance;
- Cognitive Competence;
- Physical Competence;
- General Competence;
- Total Self-esteem.

There were no significant findings in favour of either group as measured by their progress over time.

The effect of PEEP on the cognitive development of children living in the PEEP catchment area (Oxford group)

The annual findings show that children from the Comparison group had significant advantages at each year that they were assessed in a range of cognitive measures including general cognitive development, language, literacy and early numeracy skills.

However, the children whose families lived in the PEEP catchment area made significantly greater progress over time in:

- Vocabulary (between the ages of 2-5, 4-5);

² All findings are relative to the appropriate matched group: see definitions of Oxford group, Comparison group, PEEP sub-group and Comparison sub-group on page 4. See the BTSS full report for further details of all significant and non-significant findings.

- Phonological Awareness of Rhyme and Alliteration (between the ages of 2-5);
- Letter Identification (between the ages of 2-5, 4-5);
- Writing (between the ages of 2-5, 4-5);
- Early Numeracy Skills (between the ages of 2-3).

There was one significant cognitive finding in favour of the children from the comparison area. These children made greater progress in Early Numeracy Skills between the ages of 3 and 4.

The effect of PEEP on the socio-emotional development of children living in the PEEP catchment area (Oxford group)

The annual findings showed that there was no socio-emotional advantage to children living in either area until the age of 4 when the children from the comparison area were scored significantly higher by their pre-school teachers/key workers on three different aspects of social behaviour:

- Compliance and Conformity;
- Pro-social Behaviour;
- Confidence and Independence.

When parents were given the same questionnaire, the children living in the PEEP catchment area had an advantage in Confidence and Independence. At 5 years of age, social behaviour was assessed by teachers only and showed outcomes in favour of children from both areas. The children from the comparison area had advantages in:

- Independence and Concentration;
- Confidence.

The children living in the PEEP area had an advantage in Reduced Anti-social behaviour. In the measure of self-esteem, all the significant advantages were in favour of the children living in the PEEP area in the subscales measuring:

- Peer Acceptance;
- Cognitive Competence;

- General Competence.

The same pattern of advantage to the children from the comparison area in social behaviour and of advantage to the children from the PEEP area in self-esteem was also found in the value-added results. These demonstrated that the children who lived in the comparison area made greater progress between the ages of 2 and 4 and 3 and 4 as assessed by their teachers in:

- Pro-social Behaviour;
- Confidence and Independence.

Children who lived in the PEEP area made greater progress between the ages of 4 and 5 in the total measure of Self-esteem.

Discussion of the significant findings

There is a wealth of evidence from evaluations of other pre-school programmes that demonstrates their effectiveness. This evidence can be summarised under two headings which are particularly relevant to the challenges addressed by PEEP and to the results of the BTSS:

i. Enhanced early parenting skills anticipate improved child outcomes in later years

The parent outcomes established by the BTSS were apparent before the child outcomes related to literacy and self-esteem emerged. This sequence is consistent with PEEP's aims and practice, which put the adult/child relationship at the core of learning. Although parenting skills are often seen as 'behaviour management', PEEP defines parenting very differently. They foster the specific aspects of parenting that are about learning and having a positive and communicative bond with the child. The parental findings when the children were 1 and 2 years old reflect an approach to parent/child interaction focused on communication, sensitivity, responsiveness and modelling. This in turn can be seen as related to the cluster of child outcomes found by the BTSS, demonstrating progress in early

literacy skills and self-esteem by the time the children were 5.

ii. Early interventions lead to cognitive and social benefits for children, particularly those at risk of low educational achievement

The early annual cognitive findings, from the BTSS, at age 2 were in favour of the Comparison sub-group. This emphasises the disadvantages faced by the PEEP sub-group and the possibility of under-achievement as they progressed into formal educational settings³.

However, when the data were analysed to investigate the progress that the groups had made over time, it became clear that the children whose families had attended PEEP had made significantly greater progress from the age of 2, relative to the matched group of children living in the comparison area, in a range of literacy skills. Taken together these skills are a strong indication of reading readiness, specifically the ability to read by the end of the Reception year. The findings are a reflection of the literacy focus of the PEEP curriculum, which promotes book sharing and other activities related to literacy from birth.

The annual socio-emotional findings which showed a significant advantage to the Oxford group in self-esteem at age 5 can also be understood in terms of the PEEP curriculum, of which 'self-esteem' is an integral part.

It is important to note that families living in the comparison area attended a similar number of pre-school groups to the families living in the PEEP area. However, they did not have access to the PEEP curriculum and practice.

In addition, one of the challenges of PEEP was to achieve a significant improvement in educational attainment by the whole

³ Although the difference between the groups was significantly reduced by Propensity Score Matching, it was not eliminated.

community of children regardless of whether or not their families had chosen to participate in the programme.

The BTSS community findings demonstrate that such an impact had occurred. This can be explained in a number of ways including outreach work by PEEP leaders, the use of PEEP materials by a range of local professionals, the inclusion of PEEP activities in the Foundation Stage for the entire community and the dissemination of PEEP ideas by word of mouth.

Although various aspects of PEEP have been evaluated previously, the design of the BTSS made it possible to explore the community effects of the programme for the first time. The cognitive and self-esteem effects in favour of the children living in the PEEP catchment area, suggest that children whose families were not inclined to participate in an education or parenting-based intervention still benefited from the existence of an effective early intervention programme, within the community.

The findings strongly support existing evidence that both good quality early parenting and effective early interventions lead to improved cognitive and social skills for pre-school children, particularly those at risk of low educational achievement.

References:

PEEP, 2000. *Learning Together Series*. Oxford: PEEP.

Roberts, R., 2002. *Self-Esteem and Early Learning*. Second edition. London: Paul Chapman Publishing.

Smith, G., 1998. *Report on Selection of Matched Area for PEEP Study*. Oxford: University of Oxford, Department of Applied Social Studies and Social Research, Unpublished paper.

Contact information

Dr Maria Evangelou
University of Oxford
Department of Educational Studies
15 Norham Gardens
Oxford OX2 6PY

maria.evangelou@edstud.ox.ac.uk
<http://www.edstud.ox.ac.uk/FELL/FELL.htm>
<http://www.peep.org.uk/>

Acknowledgements

In the early stages, the BTSS was funded by the PEEP Trustees, the Esmée Fairbairn Charitable Trust and the Hamilton Trust. From April 2000 it was funded by the Department for Education and Skills (DfES) and the Learning and Skills Council (LSC).

The BTSS would also like to thank all the children, families and teachers involved in the study. They were generous with their time, welcomed us into their homes and settings and added enormous pleasure to our work.