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Birth to School Study: A Longitudinal Evaluation of the Peers Early Education Partnership (PEEP) 1998-2005

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The first director of the Birth to School Study was Greg Brooks. From late 1997 until 31st December 2000, the study was the sole responsibility of the National Foundation for Educational Research (NFER). In January 2001, principle responsibility for the study moved to the University of Sheffield, consequent on the appointment of the director of the study to a post there. The NFER remained involved in data analysis throughout 2001 but this ended on 31st January 2002. From October 2001 Maria Evangelou became the Deputy Director of the study until 1st January 2003 when she became the Director and the project was transferred to the University of Oxford.

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List of Abbreviations

AQREC	Applied and Qualitative Research Ethics Committee
ASBI	Adaptive Social Behaviour Inventory
ASBI-R	Adaptive Social Behaviour Inventory Revised
BAS II	British Ability Scales
BERA	British Educational Research Association
BPS	British Psychological Society
BPVS	British Picture Vocabulary Scale
BSID II	Bayley Scales of Infant Development
BTSS	Birth to School Study
C.A.P.	Concepts about Print
CASOC	Computer Assisted Standard Occupational Coding
CLAS	Culturally & Linguistically Appropriate Services
CRPR	Child Rearing Practices Report
CSE	Certificate of Secondary Education
df	Degrees of Freedom
DfES	Department for Education and Skills
e.g. (Lat exempli gratia)	for example
EAS	Emotionality, Activity and Sociability Questionnaire
EASE	Early Access to Success in Education project
ECERS – E	Early Childhood Environment Rating Scale – Extension
ECERS – R	Early Childhood Environment Rating Scale – Revised
EPDS	Edinburgh Postnatal Depression Scale
EPPE	Effective Provision of Pre-school Education project
EPS	Enabling Parents Study
et al. (Lat et alii)	And other people
etc. (Lat et cetera)	And so on
GCA	General Conceptual Ability
GCSE	General Certificate of Secondary Education
GED	General Educational Development
HM Treasury	Her Majesty's Treasury
i.e. (Lat id est)	That is
Ibid. (Lat ibidem)	In the same place
ID	Identification
JRF	Joseph Rowntree Foundation
MCDI	MacArthur Communicative Development Index
MDI	Bayley Mental Index
MSRP	Michigan School Readiness Program
n	Number
N/A	Non-applicable
NAPREC	Nursing and Allied Professions Ethics Committee
NESS	National Evaluation of Sure Start
NFER	National Foundation for Educational Research
NOCN	National Open College Network
ns / non-sig	Non-significant
OCN	Open College Network
OECD	Organisation for Economic Co-operation and Development
OfSTED	Office for Standards in Education
ORCE	Observational Record of the Care-giving environment
ORIM	Opportunities, Recognition, Interaction and Modelling
p	Value (probability)
PAT	Parents as Teachers project
PEEP	Peers Early Education Partnership
PJAS	Parent – Child Joint Activity Scale

PPS	Pleasure in Parenting Scale
PPVT	Peabody Picture Vocabulary Test
PSI	Parenting Stress Index
PSM	Propensity Score Matching
PSPCSA	Pictorial Scale of Perceived Competence and Acceptance for Young Children
RCT	Randomised Controlled Trial
REAL	Raising Early Achievement in Literacy Project
sig	Significant
SES	Socio-economic Status
Socio-emo	Socio-emotional
SPI	Standardised Psychiatry Interview
SSLP	Sure Start Local Programme
t	Statistical value t statistic
U	Mann-Whitney Test Value
UK	United Kingdom
USA / US	United States of America
$\chi 2$	Statistical value chi-square

Executive Summary

Introduction

This report presents the findings of the Birth to School Study (BTSS), a six year evaluation of the Peers Early Education Partnership (PEEP) as it was implemented in Oxford between 1998 and 2004. It explores these findings in relation to PEEP's aims and practice and contextualises the findings within current research on child development and the evaluations of similar interventions. The report concludes with the policy implications of the research and makes recommendations for further areas of study in order to continue to build an evidence base for policy and practice in the field.

What is PEEP?

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

PEEP's aims and practice (now summarised in the Learning Together Programme) continue to be centred not on the children themselves but on the relationship between adults and children, which PEEP considers to be at the heart of learning. PEEP works with families from the child's earliest weeks, and the curriculum makes explicit the notion that babies are active social beings and learners from the outset. It supports 'parents as parents', encouraging them in their role as their child's first and most important educator, not by 'teaching' their child, but by 'communicating' with them. Literacy flowing from interpersonal relationships is central to their philosophy.
It was always envisaged, that as PEEP had time to become established, its effects would filter beyond the families who attended the weekly sessions and into the wider community. Consequently, the Birth to School Study was designed in different layers,

each with the potential to detect effects relating to the complimentary but diverse aspects of the intervention.

The Birth to School Study: Aim and Objectives

The main aim of the Birth to School Study was to investigate the effects of PEEP, between 1998 and 2004, on the children and families from the community it served in Oxford. Embedded within this aim were dual objectives: to determine if the intervention had an effect within the community as a whole (community findings) and simultaneously, to determine whether it had an effect on the particular families who participated in the PEEP weekly sessions (sub-group findings). The foci of these objectives were parental outcomes related to aspects of their parent-child relationship, the quality of the care-giving environment and maternal mental health, and child outcomes related to their cognitive and socio-emotional development. The six year span of the study afforded the opportunity to measure effects year by year (annual findings) and to measure and compare the rates of progress of each group between the different points in time (value-added findings).

Methodology

In order to evaluate an intervention already established within the community, it was necessary to utilise a quasi-experimental design rather than a Randomised Control Trial (RCT). 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. Consequently, it was decided to compare families who lived in the PEEP catchment area in Oxford (Oxford group) with a matched community elsewhere in Oxfordshire (Comparison group). In order to establish the effect of the intervention on families who chose to attend weekly PEEP sessions, participating families (PEEP sub-group) were compared with a matched sub-group in the comparison area (Comparison sub-group). The overall sample size was 604 children.

Table ES.1: Definition of groups and sub-groups

Oxford group n=301	Families in the study living in the four neighbourhoods in Oxford where PEEP operates.
Comparison group n=303	Families in the study living in the matched comparison area.
PEEP sub-group n=174	A sub-group of the Oxford group consisting of families who chose to attend at least one weekly PEEP session between the children's ages of 0 to 3.
Comparison sub-group n = variable between outcomes	A sub-group of the Comparison group consisting of families who were matched to those in the PEEP sub-group.

An initial interview took place with the mother at her home, when the focus child was a few weeks old and then each family was seen at annual intervals. Parental outcomes were obtained at the first to the fourth birthday visits and, from the age of two, the children were assessed on a variety of cognitive and socio-emotional measures. At every stage instruments were selected to measure outcomes that reflected elements of the PEEP curriculum, both generally and specifically.

At the birth interview, the ten demographic characteristics that were later used as the basis for Propensity Score Matching (PSM) were collected. PSM was the analytical strategy employed to match the groups.

Findings of the Birth to School Study

The effects of PEEP on Parents

- When the children were one year old, 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 two years old, the PEEP sub-group were rated significantly higher on the quality of their care-giving environment. In addition, parents living in the area where PEEP operates (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 three or four years of age.

These parental outcomes emerged before any of the child outcomes related to progress in language, the foundations of literacy or in self-esteem, became apparent. The findings are consistent with evidence from evaluations of other interventions which suggest that parental outcomes related to enhanced parenting skills anticipate improved child outcomes in subsequent years.

The effect of PEEP on the cognitive development of children whose parents attended the weekly sessions (PEEP sub-group)

The annual findings showed that children from the Comparison sub-group had significant cognitive advantages when they were assessed at age two and again when they were assessed at age four.

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

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

The findings reflect the progress made over time and take into account the 'level' at which each group started. The cluster of literacy related skills, demonstrated in the progress of children whose families had attended PEEP sessions, is a strong indication of reading readiness (Bryant and Bradley, 1985; Riley, 1996), specifically the ability to read by the end of the Reception year (Riley, 1996).

The effect of PEEP on the socio-emotional development of children whose parents attended the weekly sessions (PEEP sub-group)

There were no significant socio-emotional outcomes in favour of either group until the children were five years old when self-esteem was measured for the first time. 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 area of Oxford where PEEP operates (Oxford group)

The annual findings showed that children from the Comparison group had significant cognitive 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 area where PEEP operates made significantly greater progress over time in:

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

There was one significant cognitive result in favour of children from the comparison area 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 area of Oxford where PEEP operates (Oxford group)

There was no socio-emotional advantage to children living in either area until the age of four 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 area had an advantage in 'Confidence and Independence'. At five years of age, social behaviour was assessed by teachers only and showed outcomes in favour of children from both the areas. However, in the measure of self-esteem, the significant advantages were in favour of the children living in the PEEP area.

The same pattern of advantage to the children from the comparison area in the social behaviour outcomes and of advantage to the children from the PEEP area in self-esteem were also found in the value-added results.

Concluding Remarks

The BTSS is now the most comprehensive and long-term evaluation of a pre-school intervention in the UK. Overall, it has established that:

- PEEP had a significant impact on the quality of parents' interaction with their children when the children were one and two years of age;
- PEEP had a significant impact on children's value-added progress in a number of literacy-related skills, as well as in measures of their self-esteem.

The findings are a reflection of the foci of the PEEP curriculum, which promotes book sharing and activities related to literacy as well as strong elements related to self-esteem and 'dispositions to learn'. They contribute to the existing body of evidence on the efficacy of early interventions with strong parental involvement. They also complement evaluations of other pre-school interventions that demonstrate:

- Parent outcomes related to enhanced parenting skills anticipate improved child outcomes in subsequent years;
- Early interventions lead to enhanced child cognitive and social outcomes for children, particularly those at risk of low educational achievement.

Furthermore, evidence from the BTSS demonstrates effects for families living in the area where PEEP operates as well as for families who attended at least one weekly PEEP

session. This suggests that an effective intervention programme can disseminate effects that filter beyond the families who choose to attend and into the wider community. 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 of schools within the community, the flow of PEEP parents into roles such as teaching assistants and parent governors and finally, by word of mouth.

The findings of the study substantiate current policy that:

- Highlights the importance of the first five years of life on child development;
- Emphasises the crucial role played by parents during early childhood;
- Seeks to support children by helping families to provide 'protective factors' associated with resilience;
- Prioritises early intervention (prevention) rather than later intervention (cure).

The study has important implications for policy: firstly, for the continued funding of those early childhood interventions that have strong parental partnerships; and secondly, for the expansion of the provision of such interventions.

Section 1: The Context of the Birth to School Study

a) The Peers Early Education Partnership (PEEP)

Introduction to PEEP

The Peers Early Education Partnership (PEEP) is a pre-school intervention created in 1995. It was originally specific to four localities in Oxford (Blackbird Leys, Greater Leys, Rose Hill and Littlemore, [Map on page 22]) and was developed to address the educational disadvantage experienced by a high number of young people from the area as they entered the local upper school. It was inspired by a long-term vision:

> "to effect a positive change in the educational achievement of a community of children, especially in the field of literacy, by a series of interventions beginning at the time of the child's birth until his or her entry into school. It intends to form partnerships with parents and carers during a child's pre-school years, and to recognise and support their significant role in their children's learning" (PEEP, 1996, p.3).

Over the last ten years the organisation of PEEP has grown and developed, and the principles and practice of PEEP have become widely disseminated throughout the UK and beyond. PEEP ideas and materials are now used by a growing number of organisations (including Sure Start, Children's Centres, Early Excellence Centres and local councils) and are incorporated into a wide variety of programmes and initiatives.

Principles of the PEEP Programme

Hannon (1995) devised the ORIM framework as a means to encourage shared literacy activities between adults and children. It has been adapted by PEEP into a structure for supporting parents and carers in making the most of everyday life with their children. The framework recognises that children need:

- **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, learning strategies and dispositions.

A further aim of the PEEP intervention programme is to facilitate the connections between home and school in order that parents are best placed to support their children in the transition to formal education.

Peers PEEP in Practice

Inevitably, during the eight years since the Birth to School Study began, PEEP has been through a process of evolution and refinement in all areas which has culminated in the *Learning Together Programme.* From birth to school, all families in the catchment area of the intervention are offered PEEP materials and the opportunity to attend groups or receive home visits (PEEP Link). In addition, PEEP is incorporated within a number of pre-schools and primary schools, providing a group leader or trained teacher one day a week whose role is not only to offer PEEP-style activities to the children, but also to promote the welcome already offered to the parents.

The PEEP Curriculum

Each age-related level of PEEP has its own curriculum and materials. It is currently divided into two sections known as Early PEEP (for Babies, Ones and Twos) and Foundation PEEP (for Threes and Fours). Early PEEP is offered via groups and via home visits, as is PEEP for threes. In addition, Foundation PEEP is also run in weekly sessions in playgroups, pre-schools and schools.

The curriculum is detailed in the "Learning Together Series" (PEEP, 2000a). Full details can be found on the website, www.peep.org.uk. Originally focused on literacy, the PEEP curriculum has expanded to include numeracy and has made explicit the assumption that positive self esteem and positive dispositions to learn are essential pre-conditions for successful life-long learning (Roberts, 2001). Each year, whether they chose to attend a group or not, every family is given a folder appropriate to the age of the child. This specifies the content and objectives of each session and offers ideas for activities to do at home. The Learning Together Series complements the content and style of the Foundation Stage curriculum and is intended as a bridge between the language and cultural norms commonly used in schools and those of the family.

PEEP Groups

PEEP groups take place at a variety of easily accessible locations throughout the community. All groups contain the same fundamental elements:

- **Circle time**: parents, carers and children are led in a variety of carefully chosen songs and rhymes which are seen as "a powerful interactive medium in relationships" (McColl, 2003). 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.
- **Book sharing**: books for parents to share with their children and to borrow.
- **Borrowing time**: a library of playpacks, 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 closely related to, and support the curriculum.

Observations of PEEP groups and PEEP days at school were carried out during the course of the study, and three of these are offered in the appendix as vignettes of the PEEP experience (Appendix A).

Contact with PEEP

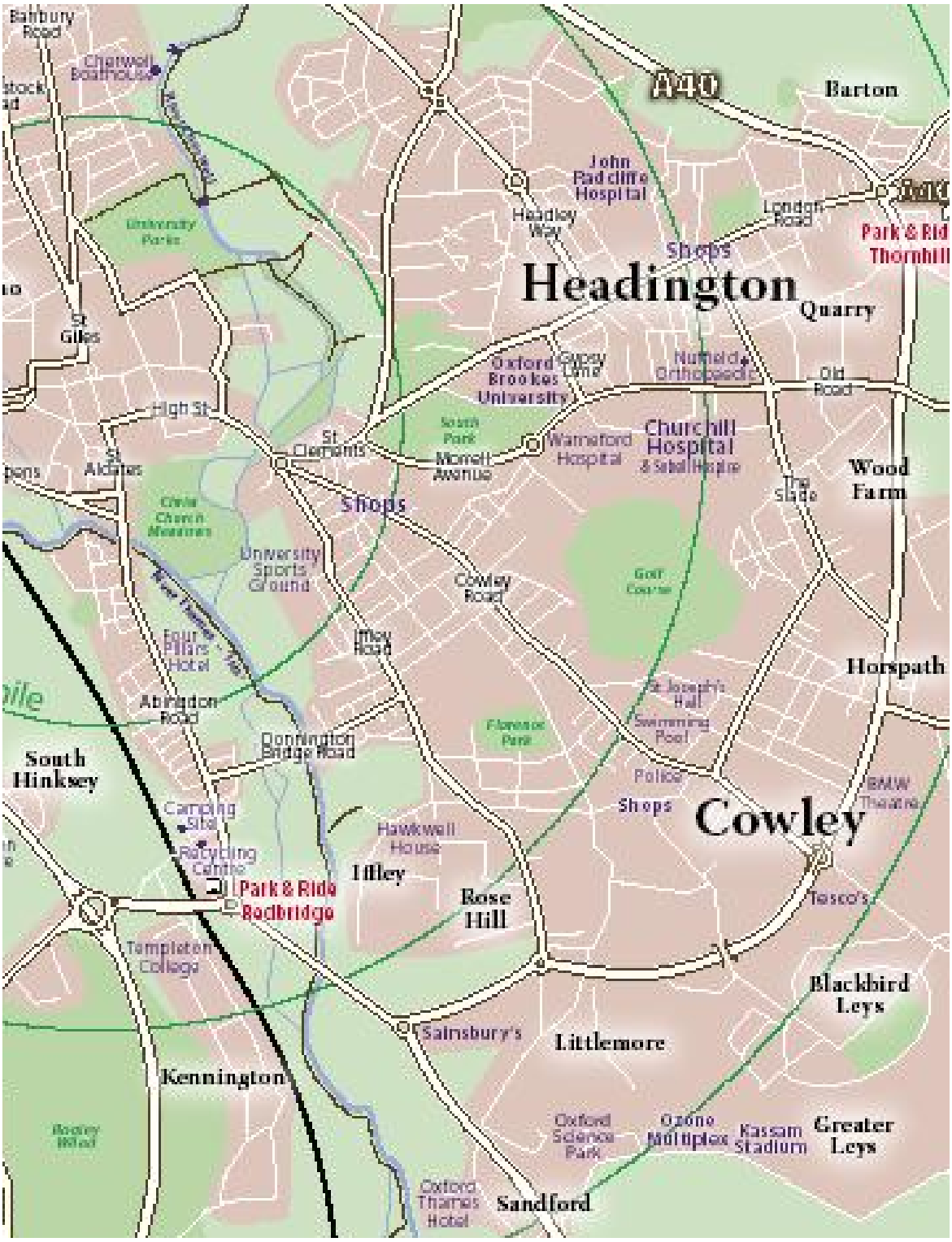
This is extremely varied; families in the catchment area differ greatly in the extent to which they are involved in the programme, from regular weekly attendance to no formal contact at all. In relation to the Birth to School Study, families attended varying numbers of weekly sessions. Others attended the regular weekly session with the sibling of a study child and some children only had experience of the programme at pre-school or in Foundation Stage classes at school. Families who had no registered attendance at a weekly group may have used the folder or tape left during a home visit. Others families may also have had 'experience' of PEEP through friends or relatives who had had direct contact with the programme.

PEEP for Parents

PEEP not only supports parents and carers in their role as educators, but also promotes their own learning via the National Open College Network (NOCN), www.nocn.org.uk. The NOCN is the UK's foremost provider of accreditation services for adult learning. PEEP OCN level 1 is specifically designed for PEEP parents and carers and acknowledges their role in facilitating children's learning. OCN level 1 is broadly equivalent to a basic GCSE pass or an NVQ level 1. PEEP also provides up to date written information on local courses and works closely with Newstart.

Intended Outcomes for PEEP Children

The intended outcomes for children before they enter Key Stage 1 are that they will have the foundations for later literacy success and also enhanced self esteem and a positive disposition to learn. This was encapsulated by McColl (2003), chairman of the PEEP trustees, when he wrote that PEEP has a long-term vision: "to make a difference for a whole generation or more through the creation of a programme aimed at improving life chances through supporting parents and carers as their children's first educators".



Map showing the PEEP catchment areas of Blackbird Leys, Greater Leys, Rose Hill and Littlemore (Littlewood, 2004)

b) PEEP within the Context of Current Early Years Policy

> "Overall, this country is still one where life chances are unequal. This damages not only those children born into disadvantage, but our society as a whole. We all stand to share the benefits of an economy and society with less educational failure, higher skills, less crime, and better health" (DfES, 2003a).

There is a recognised link between social class and achievement. It is known that disadvantage begins early and has a cumulative effect. Consequently, the chances of breaking the cycle of poverty and deprivation are considerably reduced as children get older (DfES, 2004a). When children enter primary school, despite early indications of potential, poorer children tend to fall behind: "children from a poor background with a high developmental score at twenty-two months have fallen behind by the age of ten, compared to children from higher socio-economic groups but with a low developmental score at twenty-two months" (DfES, 2003a, p.19). Evidence shows that disadvantaged children are particularly vulnerable at two different stages: during the early years and at the transition from primary to secondary school (DfES, 2003a).

However, a range of protective factors has been identified which can help children overcome their initial disadvantage. These include:

- Strong relationships with parents, family members and other significant adults;
- Parental interest and involvement in education with clear and high expectations;
- Positive role models;
- Active involvement in family, school and community life;
- Recognition, praise and feeling valued.

In particular, research suggests that "parenting appears to be the most important factor associated with educational attainment at age ten which in turn is strongly associated with achievement later in life. Parental involvement in education seems to be a more important influence than poverty, school environment and the influence of peers" (DfES, 2003a, p.18).

Current policy is focused on a commitment to strengthen provision available to families during their children's early years in such a way that more and more children experience 'protective factors' and are thus put on a surer road to reaching their full potential. It

also recognises the importance of early intervention in improving early development and school readiness, as well as acting as a preventive method that can assist in avoiding or reducing more serious problems later in life (Snow, Burns and Griffin, 1998). The Five Year Strategy for Children and Learners states its intention "to move further towards early intervention and work to prevent problems rather than picking up the pieces afterwards" (DfES, 2004a, p.8).

Support for families has been concentrated in services accessed through Sure Start Local Programmes (SSLPs) and Children's Centres, www.surestart.gov.uk "to ensure that children and families in disadvantaged areas have access to the services, opportunities and practical help which enable young children to flourish from birth….so that they are ready to succeed when they start school" (DfES, 2001, p.19). In addition, drawing on evidence that children from workless households are likely to achieve less at school (DfES and HM Treasury, 2004), Sure Start offers services which support parents in gaining appropriate qualifications and with advice on finding employment.

The PEEP early intervention programme fits into strategy to support children and families with the ultimate goal of breaking the cycle of low educational achievement, anti-social behaviour, poverty and deprivation. The aims and principles of PEEP read as a 'microcosm' of the 'protective factors' identified in Every Child Matters (DfES, 2004b, p.18). Its over-arching philosophy is one of "prevention rather than cure" by making a difference to its families in the short-term which will result in lasting benefits. Similarly, PEEP acknowledges the vital influence of parenting on children's development and is also pro-active in facilitating communication between home and school, identified by research, and highlighted in policy, as being of key importance in making the most of the opportunities that school affords. In line with the government target of reducing the number of children raised in workless households, PEEP gives parents the opportunity to improve their qualifications, and thus their chances of employment, by offering a course accredited by the National Open College Network.

Integral to the current policy context is the Birth to Three Matters framework (DfES, 2003b). This provides comprehensive information about children's early development distilled into guiding principles and a practical guide for effective practice. It is aimed at adults working with, and caring for, young children. The authors acknowledge the PEEP

project as an important influence on its development (DfES, 2003b). Both frameworks, constructed around common principles, now enrich and support each other.

The framework is based on the most up to date understanding of child development which is outlined in an extensive review of the relevant literature. The salient features include:

- Parents and families are central to the well-being of the child;
- Relationships with other people (both adults and children) are of crucial importance in a child's life;
- Babies and children are social beings; they are competent learners from birth;
- Learning is a shared process; children learn most effectively when, with the help of a trusted, knowledgeable adult, they are actively involved and interested;
- Caring adults count more than resources and equipment;
- Children learn by doing rather than by being told.

During December 2003 the Birth to Three Matters materials were distributed to all settings registered with Ofsted to provide care for children under three years of age. They are now used extensively as a source of well-founded information and guidance to those caring for young children and are utilised by Ofsted as a benchmark of best practice.

In conclusion, the Organisation for Economic Cooperation and Development (OECD) has reviewed the progress made since 1997. It states that:

> "the review team was impressed …. with attempts to address many years of neglect in the early childhood education and care field and to mobilise people and resources in the service of young children and families…early childhood provision in the UK….is now benefiting from significant funding and a radical reform of policy, coordination and planning. The result has been a remarkable number of new initiatives launched in a brief period" (Bertram and Pascal, 2000, p.41).

The outcomes of these initiatives are yet to be documented, both in terms of research and in the practical alleviation of the inequalities that persist between rich and poor.

c) Early Childhood Interventions and their Evaluations

Rationale for Early Childhood Interventions

PEEP can be seen in the context of an increasing number of early childhood interventions that aim to enhance the life chances of the children and families that take part. Like other interventions, PEEP is based on the observation that not all children are born with the same opportunities to achieve their full potential: "One in five children in England, Scotland and Wales are living in families receiving means-tested benefits where their parents or carers are not working" (Joseph Rowntree Foundation, 2005).

In their attempts to address this problem, interventions share the view that prevention is better than cure. They are also based on a growing body of evidence that early intervention is more successful than later intervention in overcoming initial disadvantage and social exclusion (Durlak, 1995; Snow, Burns and Griffin, 1998). The ultimate goal of these programmes is to promote school readiness by diminishing "the socio-economic status (SES) disparities in the pre-school years so that poor children enter school on a more equal footing to their more affluent peers" (Brooks-Gunn, 2000, p.9).

This section will summarise a number of international, national and local interventions that have a particular emphasis on literacy development. They generally target socio-economically disadvantaged families whose children may be at risk of, amongst other things, educational underachievement. Some of the evaluations of each intervention will also be discussed.

International Interventions and their Evaluations

Head Start

Head Start has received US government funding since its inception in 1965. It is a comprehensive child development programme aimed at children who are three and four years old. The main focus of the programme is on increasing the overall school readiness of young children living in low-income families.

A meta-analysis of over 210 Head Start studies and reports found short-term gains in cognitive performance in 179 studies, and a positive impact on school readiness in 137 studies (McKey, Condelli, Ganson, Barrett, McConkey, and Plantz, 1985). In addition, a longitudinal study of a Head Start programme of the 1970s found long-term positive effects of participation. This 17-year follow-up study of 622 adults aged 22, found evidence that Head Start had favourable effects on high-school success and on crime-reduction. (Oden, Schweinhart, Weikart, 2000).

The research on Head Start has revealed both short-and long-term benefits of participation in an early intervention programme. Although the programme targets children in a more restricted age range than does the PEEP intervention, the results are still relevant. They show that the effects of an intervention may be consolidated over time: the transformation of demonstrable gains in short-term cognitive skills into measurable differences in long-term social well-being.

Early Head Start

As an intervention offered from birth, Early Head Start has more in common with the PEEP programme. It was designed "as a two-generation programme to enhance children's development and health, strengthen family and community partnerships, and support the staff delivering new services to low-income families with pregnant women, infants, or toddlers" (Love et al., 2002, p.1). The programme operates in 664 communities and serves around 55,000 children.

One Early Head Start evaluation study selected a representative sample of 17 programmes from across the USA involving 3001 families. It was an experimental study with a control group who did not have access to the programme. The results of the study are noteworthy:

> "The Early Head Start research programs stimulated better outcomes along a range of dimensions (with children, parents, and home environments) by the time children's eligibility ended at age 3. Overall impacts were modest…but the overall pattern of favourable impacts is promising, particularly since some of the outcomes that the programs improved are important predictors of later school achievement and family functioning" (ibid., p.3).

The authors conclude that the pattern of modest, favourable outcomes demonstrated at two and three years of age, may lead to improved outcomes in the future. They also emphasise the association between early parenting outcomes and the later benefits for children in both cognitive and socio-emotional areas (ibid.).

High/Scope – The Perry Preschool Project

The Perry Preschool Project, implemented by the High/Scope Educational Research Foundation, is similar to Head Start in that it focuses on older pre-school children. Established in 1970, the Foundation originated from research and programme activities for three to five year-olds in the Ypsilanti Public School. The approach is explicitly Piagetian, with children viewed as active learners (Schweinhart, Barnes and Weikart, 1993).

The evaluation of High/Scope is one of the most frequently cited of all pre-school interventions, despite the small sample size of 123. The first cohort of children was part of an experimental study that has been ongoing for 40 years. It has found differences favouring the intervention group, at age 40, in intellectual ability and academic success (including literacy skills), economic performance, crime prevention, and health and social welfare (Schweinhart, 2004).

The findings of the Perry Preschool Project were important for policy makers as they show that investment in high quality early childhood education could save government money in the future (Sylva, 1999). The most recent report on the findings, relating to the subjects at age 40, shows a return rate of almost $13 for every dollar invested (Schweinhart, 2004). This represents savings on education, welfare and crime, and increased income from taxes on earnings.

Michigan School Readiness Program (MSRP)

The Michigan School Readiness Program was established in 1985 for those children who may be at risk of school failure (Xiang et al., 2000). It

> "provides 9 months of educational experiences…beginning at age 4. Its curriculum is designed to promote children's intellectual and social growth through developmentally appropriate activities. The program also encourages family participation and provides parenting support, guidance, and referrals to community services as needed" (Xiang and Schweinhart, 2002, p.1).

A longitudinal evaluation of the programme, which followed two cohorts from kindergarten through the primary grades, began in 1995. At the beginning of kindergarten, participating children scored significantly higher in language and literacy, creative representation, music and movement, initiative and social relations (ibid.). Five years later, the intervention children were continuing to do better, and were "rated significantly more ready to learn", than the non-participating children (ibid., p.29). In addition,

> "parents whose children had participated in the MSRP were significantly more involved in school activities and communication with teachers during the first 3 years of school than were similar parents whose children had not participated in the program" (ibid., p.25).

Early Access to Success in Education Project (EASE)

Project EASE, http://gseweb.harvard.edu/~pild/projectease.htm, was developed in Minnesota and is based on theoretical work by Snow (1998, 2001). Parental involvement in the literacy development of their children is the major focus of the programme. It was designed for children at kindergarten, to increase the frequency and quality of language interactions through book-centred activities and to give parents information about, and opportunities for, engagement in their children's developing literacy abilities. Participation is relatively intensive, with a commitment to attend five monthly parent education sessions plus follow-up weekly parent-child activities. The activities are designed to foster de-contextualised language skills that not only support emerging literacy behaviours but also literacy success in later years.

> "Project EASE had four central goals: to give students the strongest possible start to their educational careers; to meet the individual needs of young learners; to engage parents in an integral way; and to build capacities that would underpin later school success…….it was rich language experiences that laid the foundation for later, more sophisticated literacy skills, which were the very skills Project EASE was designed to develop….. an early childhood focus on language rather than unitary reading skills can be of long-term value" (Snow and Jordan, 2001).

As an intervention that targets literacy development via engagement with the parents, it is interesting to compare it with the PEEP project, which, though less intensive in its delivery, shares the same focus.

The results of an experimental evaluation demonstrated a significant increase in language skills for children whose parents participated in the programme with most pronounced increases for children at the greatest risk for having problems with reading, (Jordon, Snow and Porche, 2000).

Parents as Teachers (PAT)

Initiated in 1981 in the USA, Parents as Teachers is an international early childhood parent education and family support programme serving families from pregnancy until their child enters kindergarten. Like PEEP, PAT provides knowledge and resources to parents to enable them to enhance their children's development, http://www.patnc.org.

Evaluation has been integral to the programme since its inception. An early quasi-experimental pilot study found the following effects in favour of the intervention (Parents as Teachers National Center, 2000):

- PAT parents were more knowledgeable about child-rearing practices and child development;
- PAT parents were more confident in their parenting skills;
- PAT parents engaged in more language- and literacy-promoting behaviours with their children;
- PAT parents were more involved in their children's schooling;
- PAT children at age three were more advanced than comparison children in language, problem solving and other cognitive abilities;

- PAT children scored higher on kindergarten readiness tests and on standardized measures of reading, maths and language from first to fourth grades.

National Interventions and their Evaluations

Sure Start

In 1999, the UK government announced the beginning of a new national scheme, based on the Head Start model, called Sure Start http://www.surestart.gov.uk. Sure Start Local Programmes (SSLPs) and Children's Centres support children, families and communities through the integration of early education, childcare, health and family support. PEEP is embedded in many of these local programmes and its aims and materials mesh with SSLP objectives.

The National Evaluation of the Sure Start programme (NESS) consists of a set of long-term, wide ranging studies designed to evaluate the efficacy and cost-effectiveness of Sure Start. The first phase of the evaluation runs from 2001 to 2008; a summary of this research is presented on the website: http://www.ness.bbk.ac.uk.

One project, aimed at assessing the impact of SSLPs on child and family functioning, is of particular relevance to an evaluation of PEEP. The Impact Module of NESS studied 9-month and 36-month old children and their families in 150 SSLP areas and in 50 comparison communities (areas designated to become SSLPs). A wide range of child, parenting, and family effects were measured:

> "These analyses revealed only one significant difference suggestive of a SSLP effect…specifically, in SSLP areas, mothers/principal carers were observed to treat the child in a warmer and more accepting manner than in comparison areas. This effect is consistent with the broad goals of SSLPs" (NESS, 2004, p3).

Raising Early Achievement in Literacy Project (REAL)

The REAL Project is a programme to promote pre-school children's literacy through work with parents, particularly parents of children likely to have difficulties in the early years of school http://www.shef.ac.uk/education/research/topics/rtphannandnut.html. It utilises the ORIM framework devised by Hannon (1995), and later adapted for use by PEEP, as a means by which parents can support their child's developing literacy skills.

REAL is a family literacy initiative which assumes that parent and child literacy are inextricably linked. It offers adults as well as children the chance to develop their literacy and learning.

The programme has been evaluated in a number of ways, both quantitatively and qualitatively. In a Randomised Control Trial (RCT), eighty-eight children aged three from deprived areas were invited to participate. Quantitative analysis showed that, by five years of age, programme children were ahead on literacy measures despite the fact that the programme did not set out to teach children directly. "By providing parents with ways of thinking about their roles to help them to help their children's literacy development, children's literacy levels did improve" (Hannon and Nutbrown, 2001 in The National Literacy Trust, 2005).

Local Interventions and their Evaluations

The Peers PEEP Project

The Birth to School Study (BTSS) is an evaluation of the Peers PEEP project. Previous studies have shown that PEEP has a positive impact both on children's development and on the role of parents and carers as first educators (Evangelou and Sylva, 2003; Sylva, Evangelou, Taylor, Rothwell and Brooks, 2004).

The Foundation Study (Evangelou and Sylva, 2003) focused on the effects of PEEP on children, from the ages of three to five. Children whose parents participated in PEEP made significantly greater progress than children in a comparison group in measures of vocabulary, language comprehension, understanding about books and print and early numeracy skills. They also scored higher on measures of self-esteem.

The Enabling Parents Study (EPS) (Sylva, Evangelou, Taylor, Rothwell and Brooks, 2004) explored the effects of PEEP on parents. The findings showed that the parents who participated in PEEP:

- Had made a significant improvement in their socio-economic status;
- Took significantly more basic skills courses;
- Reported significantly greater awareness of their child's literacy development and of ways to foster it;
- Saw PEEP as a source of support and encouragement;

- Reported that the social support offered by PEEP was an important factor in their decision to extend their employment related skills and to enhance their parenting techniques.

Summary

This range of early interventions and their evaluations suggest that early interventions can have a number of impacts on the lives of children and their parents who live in socio-economically disadvantaged communities, and that these impacts can have both short-term and lasting effects.

Section 2: The Birth to School Study

a) Aim and Objectives

The main aim of the Birth to School Study (BTSS) was to investigate the effects of PEEP on the community it served in Oxford between 1998 and 2004. Embedded within this aim were dual objectives: to determine if the intervention had an effect within the community as a whole (community effect) and simultaneously, to determine whether it had an effect on the particular group of families who participated in the weekly sessions offered by the PEEP programme (sub-group effect). The foci of these objectives were parental outcomes as measured on a year by year basis (annually) and child outcomes as measured annually and by the rate of progress made between points in time (value-added).

Table 2.1: Aim, objectives and foci of the BTSS evaluation

Aim	To investigate the efficacy of PEEP					
Objectives	Community Effect			Sub-group Effect		
Foci	Parent	Child		Parent	Child	
Levels of Analysis	Annual	Annual	Value-Added	Annual	Annual	Value-Added
Time Points of Analysis	At Child's Age	At Age	Between Ages	At Child's Age	At Age	Between Ages
	1 2 3 4	2 3 4 5	2-3 2-4 2-5 3-4 3-5 4-5	1 2 3 4	2 3 4 5	2-3 2-4 2-5 3-4 3-5 4-5

b) Summary of Methodology

Design

In order to evaluate an intervention that was already established within the community, it was necessary to utilise a quasi-experimental design rather than a Randomised Control Trial (RCT). 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. This approach is particularly suited to an initiative that attempts to have an impact on a whole community, including those who do not participate in the programme. Consequently, it was decided to compare the PEEP catchment area in Oxford (Oxford group) with a matched community elsewhere in Oxfordshire (Comparison group).

It was also important to establish the effect of the intervention on families who chose to participate in the weekly sessions offered by PEEP. This aspect was accommodated within the same design by comparing the participating families (PEEP sub-group) with a matched sub-group in the comparison area (Comparison sub-group).

Table 2.2: Definition of groups and sub-groups

Oxford group n=301	Families in the study who lived in the four neighbourhoods in Oxford where PEEP operates.
Comparison group n=303	Families in the study who lived in the matched comparison area.
PEEP sub-group n=174	A sub-group of the Oxford group consisting of families who chose to attend at least one weekly PEEP session between the children's ages of 0 to 3.
Comparison sub-group n = variable between outcomes	A sub-group of the Comparison group consisting of families who were matched to those in the PEEP sub-group.

In addition, the longitudinal nature of the evaluation afforded the opportunity to collect outcome measures each year which could also be analysed to yield value-added results. The value-added element gave a measure of progress over time regardless of any initial differences between the groups.

Research Questions

Questions that reflect parent outcomes were as follows:

1. Do parents who live in the PEEP catchment area (Oxford group), differ in their parenting views, and reported and observed practices, from a matched group of parents from the comparison area (Comparison group)?
2. Do parents who attended PEEP weekly sessions (PEEP sub-group), differ in their parenting views, and reported and observed practices, from a matched sub-group of parents from the comparison area (Comparison sub-group)?

Questions that reflect child outcomes were as follows:

1. Do children who live in the PEEP catchment area (Oxford group), make greater progress than a matched group of children from the comparison area (Comparison group), in their language, literacy, numeracy and socio-emotional developmental outcomes as measured annually, and in their value-added results?
2. Do children whose parents attended PEEP weekly sessions (PEEP sub-group), make greater progress than a matched sub-group of children from the comparison area (Comparison sub-group), in their language, literacy, numeracy and socio-emotional developmental outcomes as measured annually, and in their value-added results?

Research Sample

The Oxford group was derived from families living in the four disadvantaged neighbourhoods of Oxford that form the PEEP catchment area. The indices of poverty, as calculated for the PEEP catchment area, were used as the basis on which to select a suitable comparison area. The choice was restricted, for practical reasons, to urban areas within Oxfordshire. Other suburbs of Oxford were rejected as a comparison as they would have been too close to the PEEP area to prevent programme leakage and might not have provided a large enough sample. The choice of the comparison area was established by Smith (1998).

The study aimed to recruit 300 children at birth from each area. From April 1998, all families who registered a live birth in both areas were approached to take part in the study. Recruitment lasted 11 months in the comparison area and 16 months in the

Oxford area, resulting in a final total of 604 children. This represented a participation rate of 71% in the Comparison group and 68% in the Oxford group.

Table 2.3: Participation and attrition from birth to five

	Oxford group	**Comparison group**	**Total**	**Attrition relative to previous year**
Birth	301	303	604	
1st Birthday	270	268	538	11%
2nd Birthday	252	254	506	6%
3rd Birthday	230	240	470	3%
4th Birthday	220	239	459	2%
5th Birthday	215	230	445	3%
Final Retention Rate	71.4%	75.9%	73.7%	

Data Collection

An initial interview took place with the mother at her home, when the focus child was a few weeks old. At this time, background demographic information was gathered, which formed the basis on which Propensity Score Matching (PSM) was later carried out. (Section 2c). Families were subsequently visited on an annual basis during which demographic characteristics continued to be collected, including questions on maternal and child health, family characteristics, employment and childcare. Parent outcomes were established at the first to the fourth Birthday visits. From the age of two, the children were tested annually on a variety of cognitive and socio-emotional measures. All data were collected at home until the fifth birthday, when the parental interviews took place over the telephone and the children were assessed at their pre-school or school.

Instruments

At every stage, instruments were selected to measure outcomes that reflected elements of the PEEP curriculum, both generally and specifically. These are summarised in tables 2.4 and 2.5.

Table 2.4: Parent instruments and what they measured

Time of Visit	Instruments Used	Aspects Measured
1st birthday	Parental Stress Index (PSI)	Parental Stress Levels
	ORIM Questionnaire	Use of the framework in parental interaction with child
2nd birthday	Observational Record of the Care-giving Environment (ORCE)	Quality of care-giving environment
3rd birthday	Pleasure in Parenting Scale (PPS)	Parental pleasure in carrying out routine care-taking activities
	Parent-Child Joint Activity Scale (PJAS)	Range and frequency of parent-child activities
	Edinburgh Postnatal Depression Scale (EPDS)	Maternal depression
4th birthday	Shared Activities Questionnaire	Range and frequency of parent-child activities

Table 2.5: Child instruments and what they measured

Child's Age	Instruments Used	Aspects Measured
Age 2	Bayley Mental Index (MDI)	General measure of cognitive and language development
	MacArthur Communicative Development Inventory (MCDI)	Vocabulary, Decontextualised language, Sentence complexity, Grammatical competence
	Bayley Behaviour	Personal and social development
Age 3	British Ability Scale (BAS) • Picture Similarities • Verbal Comprehension • Vocabulary • Block Building • Early Number Concepts	General non-verbal reasoning Understanding of spoken language Expressive vocabulary Visual-perceptual skills Early numeracy skills
	Emotional Activity and Sociability (EAS) Temperament Scale	Shyness and sociability
Age 4	British Ability Scale (BAS) • Verbal Comprehension • Early Number Concepts	Understanding of spoken language Early numeracy skills
	Phonological Awareness Rhyme	Awareness of rhyme
	Phonological Awareness Alliteration	Awareness of alliteration
	Concepts about Print (C.A.P.)	Understanding of books and print
	Writing	Emergent writing skills
	British Picture Vocabulary Scale (BPVS)	Receptive vocabulary
	Adaptive Social Behaviour Inventory (ASBI)	Compliance and conformity, Pro-social behaviour, Confidence and independence, Anti-social behaviour
Age 5	British Ability Scale (BAS) • Picture Similarities • Early Number Concept	General non-verbal reasoning Early numeracy skills
	Phonological Awareness Rhyme	Awareness of rhyme
	Phonological Awareness Alliteration	Awareness of alliteration
	Concepts about Print (C.A.P.)	Understanding of books and print
	Writing	Emergent writing skills
	British Picture Vocabulary Scale (BPVS)	Receptive vocabulary
	Letter Identification	Ability to identify lower case letters
	Adaptive Social Behaviour Inventory (ASBI-R)	Independence and concentration, Co-operation and conformity, Anti-social behaviour, Peer sociability, Peer empathy, Confidence
	The Pictorial Scale of Perceived Competence and Social Acceptance for Young Children (PSPCSA)	Maternal acceptance, Peer acceptance, Cognitive competence, Physical competence, General competence, Social acceptance, Total self-esteem

Full details of the instruments used can be found in Appendix B.

Observations of PEEP Groups

In order to contextualise the quantitative data and draw out some recurring themes, a series of observations of the different levels of PEEP groups and PEEP days in Schools was carried out. This involved two sessions from each group:

- Baby PEEP (Early PEEP);
- PEEP for One's (Early PEEP);
- PEEP for Two's (Early PEEP);
- PEEP for Three's (Early PEEP);
- PEEP in Playgroup (Foundation PEEP);
- PEEP in Nursery (Foundation PEEP).

An observation schedule devised by Brooks, Gorman, Harman, Hutchison, and Wilkin (1996) was used (Appendix A). This comprised a series of questions to the PEEP leader both before and after the session, an opportunity to reflect on the quality of the session by both the leader and the observer as well as actual observations of the session.

Ethics

For full details please see Appendix C.

c) Analytical Strategy

The Birth to School Study employed a quasi-experimental design that compared families from the PEEP catchment area with those from a matched community. This was because it was neither feasible nor ethical to randomly assign families to groups. In the absence of a Randomised Control Trial (RCT), Propensity Score Matching (PSM) was utilised in the analyses as the optimum method to reduce the demographic differences between the groups.

> "Health (and social) scientists are often interested in the effect of a treatment in situations when randomisation is difficult or impossible. One useful alternative involves propensity score methods, a means for matching members of different groups based on a range of characteristics" (Foster, 2003).

Propensity Score Matching

In the Birth to School Study, Propensity Score Matching was used to create a matched group from the comparison area, based on the likelihood of any given individual in the comparison area belonging to the Oxford group. This was calculated by using ten background characteristics of the families from the Oxford group as measured prior to the intervention. These were collected at the birth interview. Individuals were matched on a one-to-one basis; therefore neither group was a constant unit as the groups were re-matched for the analysis of every outcome. Cases were dropped if an adequate match could not be found.

In order to predict a group of families from the comparison area who would have been most likely to attend PEEP sessions, they were matched to families from the PEEP sub-group using the same ten characteristics. These were:

Mother's Characteristics:

- Mother's age at recruitment;
- Mother's ethnicity;
- Mother's level of qualifications;

Family Characteristics:

- Father/partner present;
- Benefits received;
- Car ownership;
- Number of older siblings;

Child's Characteristics:

- Child's gender;
- Child's age in days;
- Birth weight in grams.

In general, older mothers, single parents, children with fewer older siblings and mothers with lower educational qualifications were more likely to have attended PEEP sessions.

Details of the ten background characteristics and information on the socio-economic status of the mothers can be found in Appendices D and E.

Before matching across all characteristics, the difference[a] between the Oxford group and the Comparison group was 17.6%. After PSM, the difference was reduced to 4.7% between the Oxford group and the Comparison group and to 6.4% between the PEEP sub-group and the Comparison sub-group.

Although the difference between the groups was significantly reduced by PSM, it was not eliminated. Clearly the ten characteristics did not fully encapsulate the differences between the groups. This is demonstrated by the level of the mothers' writing ability, as collected prior to the intervention. This showed that the level of writing of the Comparison group was significantly better than the level of the Oxford group (see Appendix F).

The Quality of Pre-School Provision

The quality of the pre-school provision (when the children were four years of age) was explored by two scales: the Early Childhood Environment Rating Scale – Revised (ECERS-R) (Harms, Clifford and Cryer, 1998) and the Early Childhood Environment Rating Scale – Extension (ECERS-E) (Sylva, Siraj-Blatchford and Taggart, 2003). The results revealed no significant differences between the two areas (Appendix G). Consequently, the quality of pre-school provision did not have to be taken into account in the analyses.

[a] The average standardised absolute difference in the mean of the covariates.

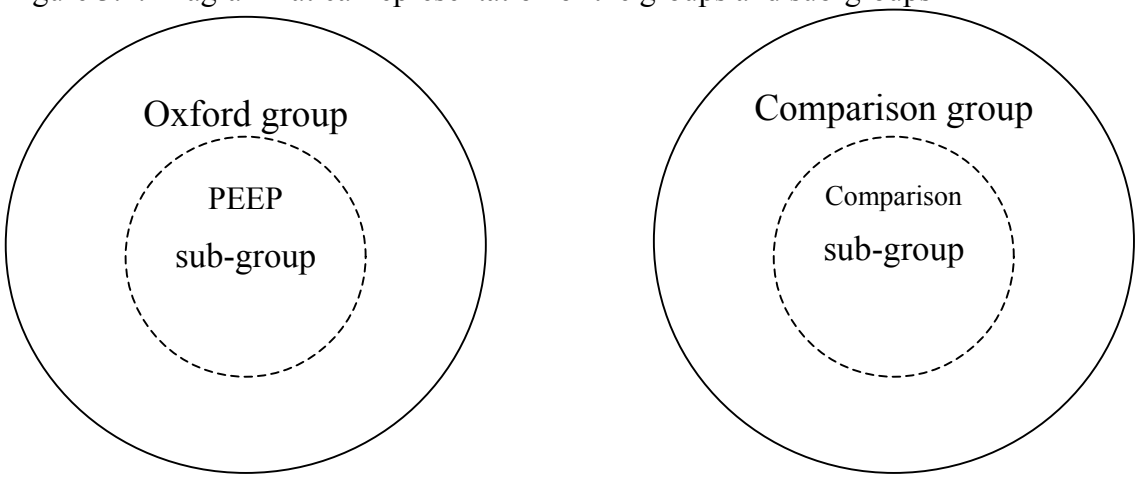
Section 3: Findings of the Birth to School Study

A Note on the Analyses and Terms Explained

This section reports firstly on the findings for families living in the area where PEEP operates (**Oxford group**) compared to families living in an area where the PEEP programme does not operate (**Comparison group**). These are reported as the **community findings,** as they reflect the effect of PEEP within the community as a whole, and not only for families who chose to participate in the weekly sessions that PEEP offered.

Secondly, it reports on the findings for those families who chose to attend at least one weekly session (**PEEP sub-group**) compared to a matched sub-group of families living in the comparison area (**Comparison sub-group**). These are reported as the **sub-group findings** as they reflect the effect of PEEP on the sub-group of families who participated in the weekly sessions that PEEP offered.

Figure 3.1: Diagrammatical representation of the groups and sub-groups



During the first to the fourth birthday visits, the parents provided information on a variety of measures related to aspects of their parent/child relationship, the quality of the care-giving environment and maternal mental health.

The children were assessed each year between the ages of two and five, on **cognitive** and **socio-emotional measures**. The analyses of these assessments are referred to as the **annual findings**.

As children's scores were available for four consecutive years, the study was able to measure and compare the rates of progress of each group between the different points in time. These measures of the children's progress over time are referred to as the **value-added findings.**

The annual findings for both parents and children are based on the actual scores for each individual instrument or sub-scale. Therefore the size of the 'difference' can not be compared between findings except where the same instrument has been used. For example, in the child findings at age four, the Phonological Awareness of Rhyme was scored on a scale of 1 – 10 but Vocabulary was scored on a scale of 1 – 168.

All the (statistically) significant results are significant at the 95% confidence level. The significant findings are presented in tables which show the average scores of each (matched) group. (The unmatched means are presented in Appendix H.)

The number of cases reported in each outcome varies because Propensity Score Matching (PSM) re-matched the samples for the analysis of each outcome. Families were excluded from the analysis if a suitable match could not be identified.

a) Parent Findings

1st Birthday

At the first birthday visit, parental stress was scored using the Parenting Stress Index (PSI). This gave four outcomes:

- Parental Distress;
- Parent-child Interaction;
- Difficult Child;
- Total Parenting Stress Index Score.

The use of the ORIM framework in parent/child interactions was quantified using a fourteen-item questionnaire.

Community findings

At the first birthday visit, there were no significant differences between the Oxford group and the Comparison group on any of the parental outcomes.

Sub-group findings

At the first birthday visit, the parents from the PEEP sub-group had a significant advantage over the Comparison sub-group in their:

- Positive view of their Parent-child Interaction.

There were no significant differences between the sub-groups in the remaining three sub-scales of the PSI or the ORIM questionnaire.

Table 3.1: Significant sub-group finding at the 1st birthday visit

Outcome	PEEP sub-group	Comparison sub-group	Difference between means
Parent-child Interaction n = 393	**46.78**	45.47	**1.31**

2nd Birthday

At the second birthday visit, the quality of the care-giving environment was assessed using the Observation Record of the Care-giving Environment (ORCE). This yielded a single measure.

Community findings

At the second birthday visit, the parents from the Oxford group had a significant advantage over the Comparison group in the quality of their care-giving environment:

Table 3.2: Significant community finding at the 2nd birthday visit

Outcome	Oxford group	Comparison group	Difference between means
ORCE n=390	**27.39**	26.13	**1.26**

Sub-group findings

At the second birthday, the PEEP sub-group had a significant advantage over the Comparison sub-group in the quality of their care-giving environment:

Table 3.3: Significant sub-group finding at the 2nd birthday visit

Outcome	PEEP sub-group	Comparison sub-group	Difference between means
ORCE n=327	**28.90**	26.57	**1.33**

3rd Birthday

At the third birthday visit, outcomes were measured using the following instruments:

- Pleasure in Parenting Scale (PPS);
- Parent-child Joint Activity Scale (PJAS);
- Edinburgh Post-natal Depression Scale (EPDS).

Community findings

There were no significant differences between the Oxford group and the Comparison group on any of the three measures.

Sub-group findings

There were no significant differences between the PEEP sub-group and the Comparison sub-group on any of the three measures.

4th Birthday

At the fourth birthday visit, the range and frequency of parent-child activities was quantified using the shared activities questionnaire.

Community findings

There were no significant differences between the Oxford group and the Comparison group on this questionnaire.

Sub-group findings

There were no significant differences between the PEEP sub-group and the Comparison sub-group on this questionnaire.

5th Birthday

No parental outcomes were measured at the fifth birthday visit.

b) Child Findings

i. Annual findings

Age 2

Cognitive development

At age two, the children's general cognitive development was assessed using the Bayley Scales of Infant Development. This gave rise to a single outcome:

- Mental Development Index.

Language development was assessed using the MacArthur Communicative Development Index. Four separate outcomes were derived from this instrument:

- Vocabulary;
- Decontextualised Language;
- Sentence Complexity;
- Grammatical Competence.

Community findings

At age two, the Comparison group had a significant advantage in general cognitive development over the Oxford group on the:

- Mental Development Index.

The results also showed that the Comparison group were significantly ahead on the language measure of:

- Grammatical Competence.

There were no significant differences between the groups on the three other outcomes related to language development.

Table 3.4: Significant cognitive community findings at age 2

Outcomes	Oxford	Comparison	Difference between means
Mental Development Index n=342	89.79	**95.70**	**5.91**
Grammatical Competence n=383	79.24	**116.03**	**36.79**

Sub-group findings

At age two, the Comparison sub-group had a significant advantage in general cognitive development over the PEEP sub-group on:

- Mental Development Index.

The Comparison sub-group also had a significant advantage over the PEEP sub-group in the language outcomes:

- Vocabulary;
- Grammatical Competence;
- Sentence Complexity.

There were no significant differences between the sub-groups on Decontextualised Language.

Table 3.5: Significant cognitive sub-group findings at age 2

Outcomes	PEEP sub-group	Comparison sub-group	Difference between means
Mental Development Index n = 282	92.24	**97.76**	**5.52**
Vocabulary n = 334	286.06	**366.28**	**80.22**
Grammatical Competence n=328	70.80	**118.46**	**47.65**
Sentence Complexity n = 298	17.89	**26.00**	**8.11**

Socio-emotional development

At age two, the children's socio-emotional development was measured using the Bayley Scales of Infant Development (Behaviour Scale). This gave rise to a single outcome:

- Bayley Behaviour Score.

Community findings

There were no significant differences between the Oxford group and the Comparison group on the Bayley Behaviour Score.

Sub-group findings

There were no significant differences between the PEEP sub-group and the Comparison sub-group on the Bayley Behaviour Score.

Age 3

Cognitive development

At age three, the children's cognitive ability was assessed using the British Ability Scales (BAS) II. Five different sub-scales were used: two language-based: Verbal Comprehension and Vocabulary, two based on general measures of cognitive development: Visual Perceptual Matching and Picture Similarities and one related to the development of numeracy: Early Numeracy Skills. Combinations of scales were also calculated. The eight possible outcomes are illustrated in Table 3.6.

Table 3.6 Sub-scales and combination scales used from the BAS at age 3

<table>
<tr><td>Verbal Comprehension</td><td rowspan="2">Verbal Ability</td><td rowspan="4">General Conceptual Ability (GCA)</td></tr>
<tr><td>Vocabulary</td></tr>
<tr><td>Visual Perceptual Matching</td><td rowspan="2">Non-verbal Ability</td></tr>
<tr><td>Picture Similarities</td></tr>
<tr><td>Early Numeracy Skills</td><td colspan="2"></td></tr>
</table>

Community findings

The Comparison group had a significant advantage over the Oxford group in:

- Visual Perceptual Matching;
- Non-verbal Ability;

- General Conceptual Ability.

None of the five other sub-scales or combination scales showed any significant differences between the Oxford group and the Comparison group.

Table 3.7: Significant cognitive community findings at age 3

Outcomes	Oxford	Comparison	Difference between means
Visual Perceptual Matching n=429	3.32	**4.27**	**.94**
Non-verbal Score n=434	17.33	**18.91**	**1.58**
General Conceptual Ability n=412	49.15	**51.87**	**2.72**

Sub-group findings

There were no significant differences between the PEEP sub-group and the Comparison sub-group on any of the eight measures of cognitive development.

Socio-emotional development

At three years of age, the children's socio-emotional development was assessed using the Emotional Activity and Sociability (EAS) Temperament Scale. Two sub-scales were used:

- Sociability;
- Shyness.

Community findings

There were no significant differences between the Oxford group and the Comparison group on either of the sub-scales related to socio-emotional development.

Sub-group findings

There were no significant differences between the PEEP sub-group and the Comparison sub-group on either of the sub-scales related to socio-emotional development.

Age 4

Cognitive development

At age four, the children were assessed on eight different outcomes. Seven of these related to language and literacy development and one to early numeracy skills:

- Vocabulary;
- Verbal Comprehension;
- Phonological Awareness of Alliteration;
- Phonological Awareness of Rhyme;
- Total Phonological Awareness (Rhyme plus Alliteration);
- Understanding about Books and Print;
- Writing;
- Early Numeracy Skills.

Community findings

The Comparison group had a significant advantage over the Oxford group on the following six measures:

- Vocabulary;
- Verbal Comprehension;
- Phonological Awareness of Rhyme;
- Understanding about Books and Print;
- Writing;
- Early Numeracy Skills.

There were no significant differences between the groups on the remaining two measures: Total Phonological Awareness (Rhyme plus Alliteration) or Phonological Awareness of Alliteration.

Table 3.8: Significant cognitive community findings at age 4

Outcomes	Oxford	Comparison	Difference between means
Vocabulary n = 426	37.81	**39.83**	**2.02**
Verbal Comprehension n = 427	18.38	**19.57**	**1.19**
Phonological Awareness of Rhyme n = 407	2.68	**3.72**	**1.04**
Understanding about Books and Print n = 412	2.88	**3.37**	**.49**
Writing n = 401	5.91	**8.17**	**2.27**
Early Numeracy Skills n = 427	12.23	**13.60**	**1.37**

Sub-group findings

When the children were aged four, the Comparison sub-group had a significant advantage over the PEEP sub-group in the three cognitive measures of:

- Vocabulary;
- Phonological Awareness of Rhyme;
- Writing.

There were no significant differences between the groups in the five cognitive measures of: Verbal Comprehension, Understanding about Books and Print, Total Phonological Awareness (Rhyme plus Alliteration scores), Phonological Awareness of Alliteration and Early Numeracy Skills.

Table 3.9: Significant cognitive sub-group findings at age 4

Outcomes	PEEP sub-group	Comparison sub-group	Difference between means
Vocabulary n = 351	39.84	**41.81**	**1.97**
Phonological Awareness of Rhyme n = 341	3.10	**4.01**	**.91**
Writing n = 329	6.50	**8.26**	**1.77**

Socio-emotional development

At the fourth birthday, parents and key-workers/teachers were both asked to rate the children's social behaviour using the Adaptive Social Behaviour Inventory (ASBI). There are four sub-scales in the instrument:

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

Therefore, as both parents and teachers/key workers completed the ASBI, there were eight possible outcomes on which to compare the groups.

Community findings

There was one significant difference between the groups as scored by parents. It showed an advantage to the Oxford group on:

- Confidence and Independence.

There were no significant differences between the groups on Compliance and Conformity, Pro-social Behaviour or Anti-social Behaviour.

There were three significant differences between the groups as scored by teachers/key workers in favour of the Comparison group. These were in:

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

The Anti-social Behaviour subscale showed no significant differences between the Oxford group and the Comparison group.

Table 3.10: Significant socio-emotional community findings at age 4

Outcomes	Oxford	Comparison	Difference between means
Confidence and Independence n=383 (parents)	**14.11**	13.88	**.24**
Confidence and Independence n=336 (teachers)	12.39	**13.00**	**.60**
Pro-social Behaviour n=337 (teachers)	20.52	**22.15**	**1.63**
Compliance and Conformity n=337 (teachers)	17.69	**18.88**	**1.20**

Sub-group findings

There were no significant differences between the PEEP sub-group and the Comparison sub-group on any of the four outcomes rated by teachers/key workers or the four outcomes rated by parents.

Age 5

Cognitive development

When the children were aged five, they were assessed by the same measures used at age four with the exception of Verbal Comprehension which was substituted by the Picture Similarities subscale from the BAS. In addition, a letter identification task was used giving a total of nine possible outcome measures.

Community findings

The Comparison group had a significant advantage in the following three measures:

- Vocabulary;
- Phonological Awareness of Alliteration;
- Early Numeracy Skills;

There were no significant differences between the Oxford group and the Comparison group in the remaining six measures of cognitive development: Picture Similarities, Phonological Awareness of Rhyme, Total Phonological Awareness, Understanding about Books and Print, Writing or Letter Identification.

Table 3.11: Significant cognitive community findings at age 5

Outcomes	Oxford	Comparison	Difference between means
Vocabulary n = 393	50.64	**52.21**	**1.57**
Phonological Awareness of Alliteration n = 367	5.99	**6.69**	**.70**
Early Numeracy Skills n = 383	21.41	**22.17**	**.76**

Sub-group findings

There were no significant differences between the PEEP sub-group and the Comparison sub-group on any of the nine measures of cognitive development.

Socio-emotional development

At five years of age, a total of thirteen measures were calculated. Socio-emotional development was assessed by a questionnaire, appropriate for Reception age children (ASBI-R), completed by their class teacher. This gave six sub-scales:

- Independence and Concentration;
- Co-operation and Conformity;
- Anti-social Behaviour;
- Confidence;
- Peer Sociability;
- Peer Empathy.

In addition, self-esteem was measured for the first time using the Pictorial Scale of Perceived Competence and Acceptance for Young Children (PSPCSA). This instrument has four subscales and three combination scales giving seven possible measures as illustrated in Table 3.12.

Table 3.12 Sub-scales and combination scales used to measure self-esteem at age 5

<table>
<tr><td>Maternal Acceptance</td><td rowspan="2">Social Acceptance</td><td rowspan="4">Total Self-esteem</td></tr>
<tr><td>Peer Acceptance</td></tr>
<tr><td>Cognitive Competence</td><td rowspan="2">General Competence</td></tr>
<tr><td>Physical Competence</td></tr>
</table>

Community findings

There was one significant advantage from the socio-emotional development questionnaire, as completed by teachers, in favour of the Oxford group:

- Anti-social Behaviour (reduced).

The Comparison group had an advantage in two measures:

- Independence and Concentration;
- Confidence.

There were no significant differences between the groups on the remaining three sub-scales measuring Co-operation and Conformity, Peer Sociability and Peer Empathy.

In Self-esteem, the Oxford group had a significant advantage over the Comparison group in the following three outcomes:

- Peer Acceptance;
- Cognitive Competence;
- General Competence.

There were no significant differences between the groups on the sub-scales measuring Maternal Acceptance, Physical Competence, Social Acceptance and Total Self-esteem.

Table 3.13: Significant socio-emotional (inc. self-esteem) community findings at age 5

Outcomes	Oxford	Comparison	Difference between means
Anti-social Behaviour (reduced) n=341	**23.78**	25.19	**1.41**
Independence and Concentration n=341	28.07	**28.80**	**.73**
Confidence n=341	15.75	**16.41**	**.66**
Peer Acceptance n =349	**15.91**	15.21	**.70**
Cognitive Competence n=351	**21.09**	20.15	**.94**
General Competence n=351	**37.90**	36.73	**1.17**

Sub –group findings

When the children were aged five, there were no significant differences between the PEEP sub-group and the Comparison sub-group on any of the six sub-scales from the teacher questionnaire related to social-emotional development.

However, the PEEP sub-group had a significant advantage over the Comparison sub-group in five out of the seven subscales related to self-esteem:

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

There was no significant difference between the PEEP sub-group and the Comparison sub-group on Maternal Acceptance and Social Acceptance.

Table 3.14: Significant socio-emotional (inc. self-esteem) sub-group findings at age 5

Outcomes	PEEP sub-group	Comparison sub-group	Difference between means
Peer Acceptance n = 287	**16.15**	15.21	**.94**
Cognitive Competence n = 289	**21.21**	20.04	**1.17**
Physical Competence n = 288	**16.94**	16.27	**.67**
General Competence n = 288	**38.14**	36.34	**1.80**
Total Self-esteem n = 286	**72.97**	69.91	**3.06**

ii Value-added Findings

This section reports the findings from which compared the rates of progress made by the Oxford group to the rates of progress made by the Comparison group. It also reports on the findings which compared the rates of progress of the PEEP sub-group to the rates of progress made by the Comparison sub-group. These are referred to as the **value-added findings.**

The scores from different instruments (with different scales) were standardised to a single scale. In order to calculate the rate of progress between different points in time, the average score of an earlier assessment was deducted from the average score of a later, comparable assessment giving a score referred to as 'change'. Appendix I presents the combination of instruments used for each value-added analysis. This new score represents the rate of progress made between the different points in time:

- from age 2 to age 3;
- from age 2 to age 4;
- from age 2 to age 5;
- from age 3 to age 4;
- from age 3 to age 5;
- from age 4 to age 5.

The significant advantages are expressed in terms of effect sizes. Effect size is a way of quantifying the difference between two groups. As the Oxford group had access to the PEEP programme and the Comparison group did not, the effect size is a measure of the effectiveness of the PEEP programme. Effect size uses the idea of 'standard deviation' to contextualise the difference between the two groups. Standard deviation is a measure of how spread out a set of values is.

In this study, the effect size is expressed as the standardised difference between the average scores of the two groups.

Between the ages of 2 and 3

Cognitive development

Rate of progress was measured in three areas:

- General Cognitive Development;
- Vocabulary;
- Early Numeracy Skills.

Community findings

The Oxford group had a significantly greater rate of progress than the Comparison group in:

- Early Numeracy Skills.

There was no significant difference in the rates of progress between the Oxford group and the Comparison group in Vocabulary or General Cognitive Development.

Table 3.15: Significant cognitive community finding between the ages of 2 and 3

Outcome	Oxford change	Comparison change	Effect Size
Early Numeracy Skills n = 311	**.12**	-.19	**.31**

Sub-group findings

There were no significant differences in the rates of progress between the PEEP sub-group and the Comparison sub-group on the three measures of cognitive development.

Socio-emotional development

No value-added scores between the ages of two and three were calculated.

Between the ages of 2 and 4

Cognitive development

Rate of progress was measured in eight areas:

- Verbal Comprehension;
- Vocabulary;

- Phonological Awareness Rhyme;
- Phonological Awareness Alliteration;
- Total Phonological Awareness (Rhyme plus Alliteration);
- Understanding about Books and Print;
- Writing;
- Early Numeracy Skills.

Community findings

There were no significant differences in the rates of progress between the Oxford group and the Comparison group in any of these areas.

Sub-group findings

Between the ages of two and four, the children in the PEEP sub-group had a significantly greater rate of progress than those in the Comparison sub-group in measures of:

- Vocabulary;
- Phonological Awareness of Rhyme;
- Phonological Awareness of Alliteration;
- Understanding about Books and Print.

There were no significant differences between the PEEP sub-group and the Comparison sub-group in the four remaining measures of Verbal Comprehension, Total Phonological Awareness, Writing or Early Numeracy Skills.

Table 3.16: Significant cognitive sub-group findings between the ages of 2 and 4

Outcomes	PEEP sub-group change	Comparison sub-group change	Effect Size
Vocabulary n = 304	**.34**	-.07	**.41**
Phonological Awareness of Rhyme n = 298	**.23**	-.12	**.35**
Phonological Awareness of Alliteration n = 274	**.23**	-.15	**.37**
Understanding about Books and Print n = 299	**.17**	-.29	**.46**

Socio-emotional development

Progress in three areas of the children's socio-emotional development was measured;

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

These were rated twice, once by parents and once by teachers/key workers giving six possible outcomes.

Community findings

The Comparison group had a significantly greater rate of progress, as scored by their teachers/key workers, than the Oxford group, in two out of three measures:

- Pro-social Behaviour;
- Confidence and Independence.

There was no significant difference between the groups on Compliance and Conformity as rated by the teachers/key workers.

There were no significant differences between the groups on any of the same three measures as rated by the parents.

Table 3.17: Significant socio-emotional community findings between the ages of 2 and 4

Outcomes	Oxford change	Comparison change	Effect Size
Pro-social Behaviour (teachers) n = 248	-.18	**.28**	**.47**
Confidence and Independence (teachers) n = 284	-.14	**.17**	**.30**

Sub-group findings

There were no significant differences in the rates of progress between the PEEP sub-group and the Comparison sub-group on any of the six outcomes related to socio-emotional development.

Between the ages of 2 and 5

Cognitive development

Rates of progress were measured in seven areas related to literacy development, plus one related to cognitive development and one related to early numeracy skills, giving a total of nine possible outcomes:

- Vocabulary;
- Phonological Awareness of Rhyme;
- Phonological Awareness of Alliteration;
- Total Phonological Awareness (Rhyme plus Alliteration);
- Letter Identification;
- Writing;
- Understanding of Books and Print;
- Picture Similarities (cognitive development);
- Early Numeracy Skills.

Community findings

The Oxford group made significantly greater progress than the Comparison group in a cluster of five out of the seven literacy measures:

- Vocabulary;
- Total Phonological Awareness (Rhyme plus Alliteration);
- Phonological Awareness of Rhyme;
- Letter Identification;
- Writing.

There were no significant differences in favour of either group in the following areas: Understanding of Books and Print, Phonological Awareness of Alliteration, Early Numeracy Skills and Picture Similarities (cognitive development).

Table 3.18: Significant cognitive community findings between the ages of 2 and 5

Outcomes	Oxford change	Comparison change	Effect Size
Vocabulary n = 332	**.19**	-.28	**.48**
Total Phonological Awareness n = 325	**.09**	-.25	**.34**
Letter Identification n = 327	**.09**	-.38	**.47**
Writing n = 315	**.02**	-.34	**.36**
Phonological Awareness of Rhyme n = 325	**.08**	-.21	**.29**

Sub-group findings

Between the ages of two and five, the children in the PEEP sub-group had a significantly greater rate of progress than those in the Comparison sub-group in measures of:

- Vocabulary;
- Total Phonological Awareness (Rhyme plus Alliteration);
- Letter Identification;
- Understanding about Books and Print.

There were no significant differences between the PEEP sub-group and the Comparison sub-group in their rates of progress in the other five measures: Phonological Awareness of Rhyme, Phonological Awareness of Alliteration, Writing, Early Numeracy Skills and Picture Similarities (cognitive development).

Table 3.19: Significant cognitive sub-group findings between the ages of 2 and 5

Outcomes	PEEP sub-group change	Comparison sub-group change	Effect Size
Vocabulary n=279	**.38**	-.23	**.61**
Total Phonological Awareness n = 275	**.15**	-.29	**.44**
Letter Identification n = 276	**.24**	-.40	**.65**
Understanding about Books and Print n = 274	**.20**	-.30	**.50**

Socio-emotional development

The children's progress in six areas of socio-emotional development was measured:

- Independence and Concentration;
- Co-operation and Conformity;
- Anti-social Behaviour;
- Confidence;
- Peer Sociability;
- Peer Empathy.

Community findings

There were no significant differences between the Oxford group and the Comparison group in the rates of their progress in any of the six areas.

Sub-group findings

There were no significant differences between the PEEP sub-group and the Comparison sub-group in the rates of their progress in any of the six areas.

Between the ages of 3 and 4

Cognitive development

Rate of progress was measured in a total of eight areas: seven areas related to literacy development and one to early numeracy skills:

- Verbal Comprehension;
- Vocabulary;
- Phonological Awareness of Rhyme;
- Phonological Awareness of Alliteration;
- Total Phonological Awareness (Rhyme plus Alliteration);
- Understanding of Books and Print;
- Writing;
- Early Numeracy Skills.

Community findings

The Comparison group had a significant advantage over the Oxford group in their rate of progress in:

- Early Numeracy Skills.

There were no significant differences between the Oxford group and the Community group on any of the seven outcomes measuring the rates of progress in literacy development.

Table 3.20: Significant cognitive community finding between the ages of 3 and 4

Outcome	Oxford change	Comparison change	Effect Size
Early Numeracy Skills n= 399	6.25[b]	**7.42**[b]	**.11**

[b] These numbers are based on raw scores as the instrument used was the same at both points in time.

Figure 3.2 represents this change graphically.

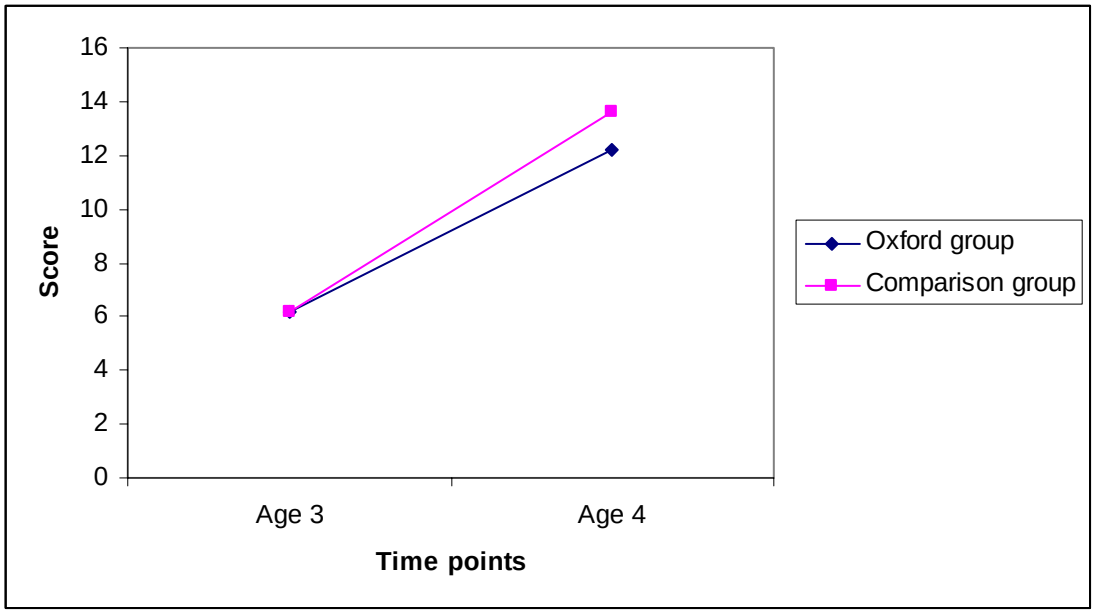


Figure 3.2: Community change in Numeracy means between the ages of 3 and 4

Sub-group findings

There were no significant differences between the PEEP sub-group and the Comparison sub-group on their rates of progress in any of the eight measures of cognitive development.

Socio-emotional development

The children's progress in two areas of socio-emotional development, as rated by parents, was measured. These were Pro-social Behaviour and Confidence and Independence. Progress in the same two areas plus Anti-social Behaviour, as rated by their teachers/key workers, was also measured giving a total of five outcomes.

Community findings

The Comparison group made significantly greater progress, as rated by their teachers/ key-workers, in the measures of:

- Pro-social Behaviour;
- Confidence and Independence.

There were no other significant differences between the groups on the remaining three measures of progress in socio-emotional development.

Table 3.21: Significant socio-emotional community findings between the ages of 3 and 4

Outcomes	Oxford change	Comparison change	Effect Size
Pro-social Behaviour (teachers) n = 320	-.14	**.59**	**.73**
Confidence & Independence (teachers) n= 319	-.07	**.47**	**.54**

Sub-group findings

There were no significant differences between the PEEP sub-group and the Comparison sub-group on rate of progress in any of the five measures of socio-emotional development.

Between the ages of 3 and 5

Cognitive development

Rates of progress were measured in a total of nine areas: seven areas related to literacy development, one area related to general cognitive development and one area related to early numeracy skills:

- Vocabulary;
- Phonological Awareness of Rhyme;
- Phonological Awareness of Alliteration;
- Total Phonological Awareness (Rhyme plus Alliteration);
- Understanding of Books and Print;
- Writing;
- Letter Identification;
- Picture Similarities (cognitive development);
- Early Numeracy Skills.

Community findings

There were no significant differences between the Oxford group and the Comparison group on rates of progress in any of the nine measures of cognitive development.

Sub-group findings

There were no significant differences between the PEEP sub-group and the Comparison sub-group on rates of progress in any of the nine measures of cognitive development.

Socio-emotional development

Three measures of the rate of progress in socio-emotional development were calculated:

- Independence and Concentration;
- Confidence;
- Anti-social Behaviour.

Community findings

There were no significant differences between the Oxford group and the Comparison group on progress in any of the three measures of socio-emotional development as rated by teachers.

Sub-group findings

There were no significant differences between the PEEP sub-group and the Comparison sub-group on progress in any of the three measures of socio-emotional development as rated by teachers.

Between the ages of 4 and 5

Cognitive development

Rates of progress were measured in seven areas related to literacy development, one related to general cognitive development and one related to early numeracy skills giving a total of nine possible outcome measures:

- Vocabulary;
- Letter Identification;
- Writing;
- Phonological Awareness of Rhyme;
- Phonological Awareness of Alliteration;
- Total Phonological Awareness (Rhyme plus Alliteration);
- Understanding of Books and Print;

- Picture Similarities (general cognitive development);
- Early Numeracy Skills.

Community findings

Between the ages of four and five, the Oxford group made significantly greater progress in three measures related to literacy development:

- Vocabulary;
- Letter Identification;
- Writing.

There were no significant differences between the groups in the six remaining areas: Phonological Awareness of Rhyme, Phonological Awareness of Alliteration, Total Phonological Awareness (Rhyme plus Alliteration), Understanding of Books and Print, Picture Similarities (general cognitive development) and Early Numeracy Skills.

Table 3.22: Significant cognitive community findings between the ages of 4 and 5

Outcomes	**Oxford change**	**Comparison change**	**Effect Size**
Vocabulary n = 388	**13.09**[c]	11.13[c]	**.22**
Letter Identification n = 383	**-.01**	-.23	**.21**
Writing n = 347	**7.47**[c]	5.63[c]	**.34**

[c] These numbers are based on raw scores as the instruments used were the same at both points in time.

Figure 3.3 shows the change in the mean Vocabulary score from age four to age five. The change in the mean writing score can be seen in Figure 3.4.

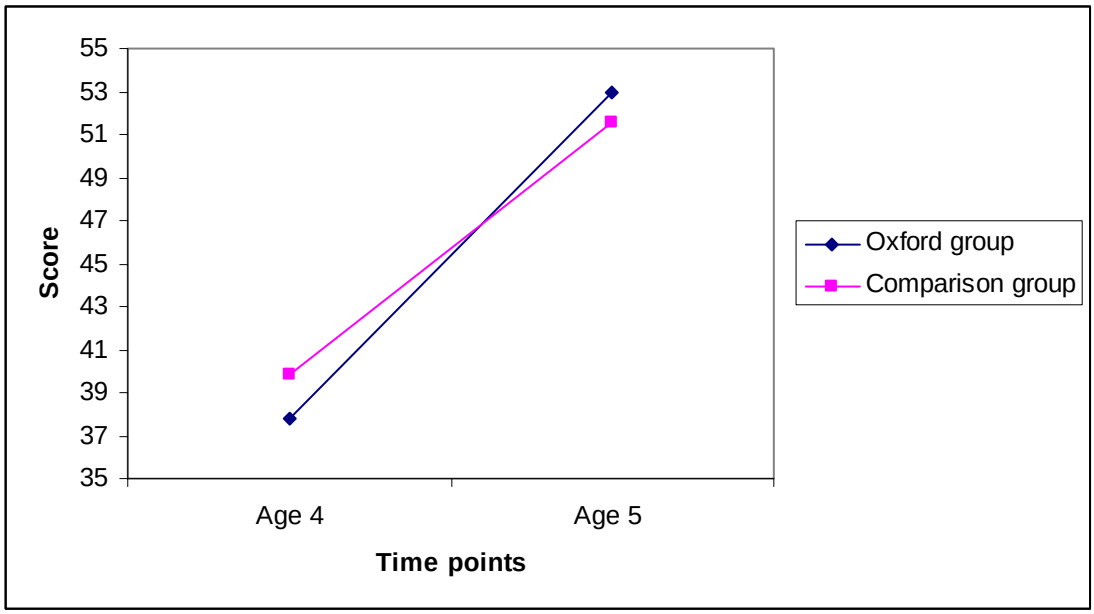


Figure 3.3: Community change in Vocabulary means between the ages of 4 and 5

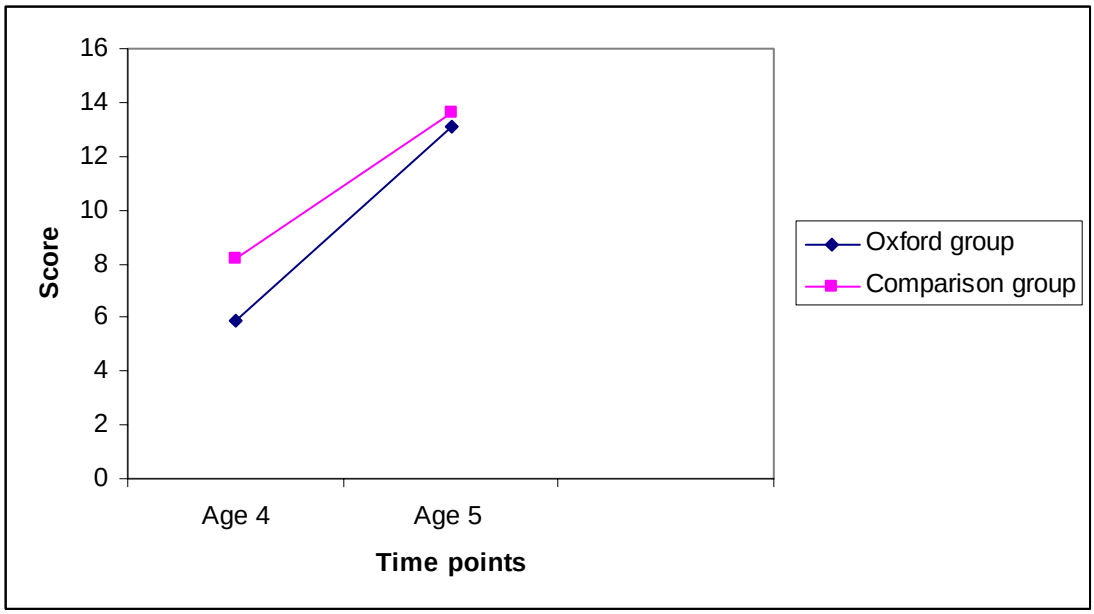


Figure 3.4: Community change in Writing means between the ages of 4 and 5

Sub-group findings

Between the ages of four and five, the PEEP sub-group had significantly greater rates of progress in measures of:

- Vocabulary;
- Letter Identification;
- Writing.

There were no significant differences between the groups in the six remaining areas: Phonological Awareness of Rhyme, Phonological Awareness of Alliteration, Total Phonological Awareness (Rhyme plus Alliteration), Understanding of Books and Print, Picture Similarities (cognitive development) and Early Numeracy Skills.

Table 3.23: Significant cognitive sub-group findings between the ages of 4 and 5

Outcomes	PEEP sub-group change	Comparison sub-group change	Effect Size
Vocabulary n = 319	**13.30[d]**	11.06[d]	**.25**
Letter Identification n = 315	**-.08**	-.27	**.19**
Writing n = 284	**7.30[d]**	5.78[d]	**.29**

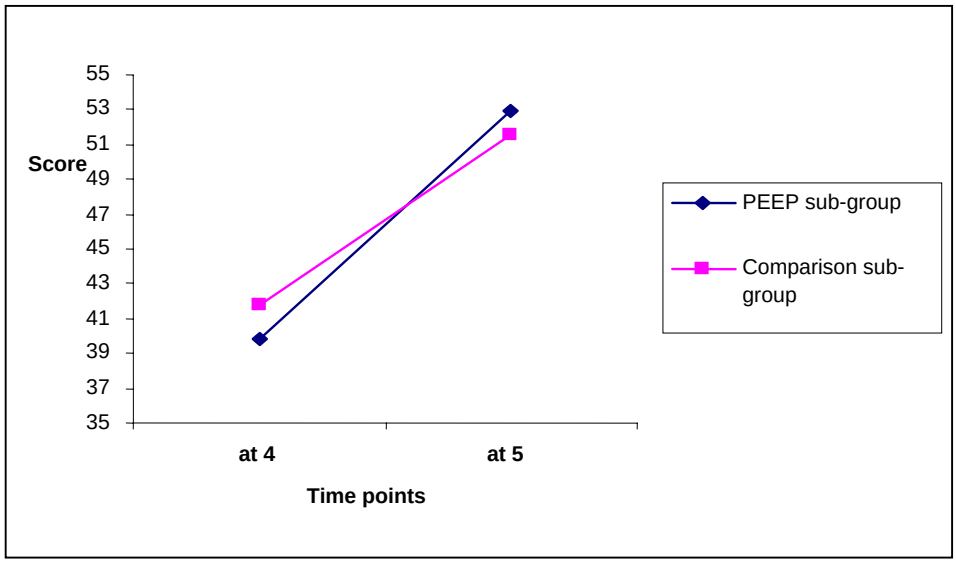


Figure 3.5: Sub-group change in Vocabulary means between the ages of 4 and 5

[d] These numbers are based on raw scores as the instruments used were the same at both points in time.

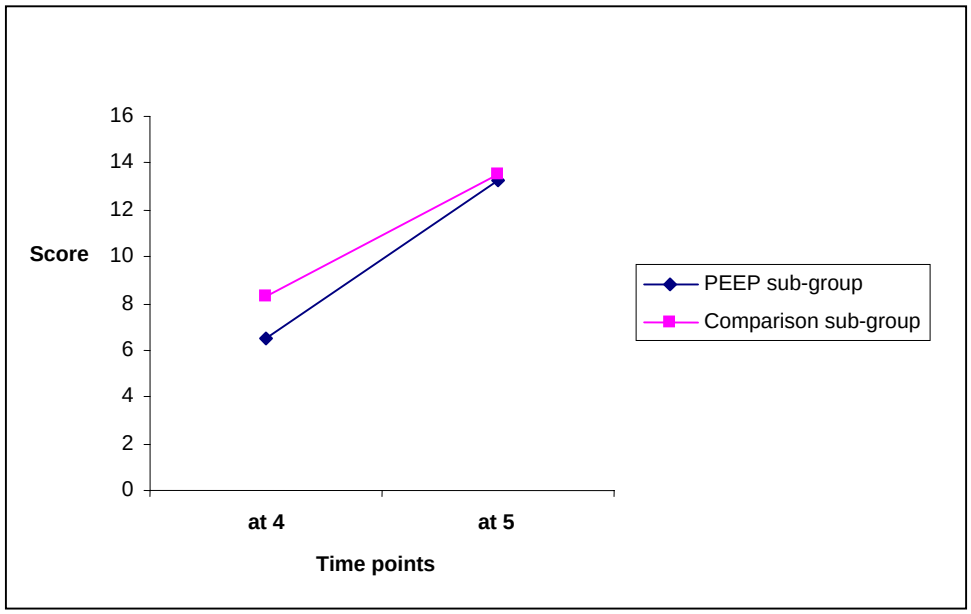


Figure 3.6: Sub-group change in Writing means between the ages of 4 and 5

Socio-emotional development

The rates of progress for ten measures of socio-emotional development were calculated. Six of these were measures of social behaviour:

- Independence and Concentration;
- Co-operation and Conformity;
- Anti-social Behaviour;
- Peer Sociability;
- Peer Empathy;
- Confidence.

Four were measures of self-esteem:

- Maternal Acceptance;
- Peer Acceptance;
- Social Acceptance;
- Total Self-esteem.

Community findings

Children in the Oxford group made significantly greater progress than those in the Comparison group in their Total score of Self-esteem.

There were no significant differences between the groups on the nine remaining measures of progress in socio-emotional development.

Table 3.24: Significant socio-emotional community finding between the ages of 4 and 5

Outcome	Oxford change	Comparison change	Effect Size
Total Self-esteem n =272	**.04**	-.37	**.41**

Sub-group findings

There were no significant differences between the PEEP sub-group and the Comparison sub-group on progress in any of the ten measures of socio-emotional development.

Comment on effect sizes

The effect sizes for the significant outcomes are summarised in figures 4.1 - 4.5. Morris and DeShon (2002) suggest that studies that utilise different research designs will often produce effect sizes that are not directly comparable. This is because studies use different outcomes measures, methodologies and analytical strategies. Consequently, it has not been possible to comment in relative terms on the effect sizes found in the BTSS except where they can be compared to a relevant study.

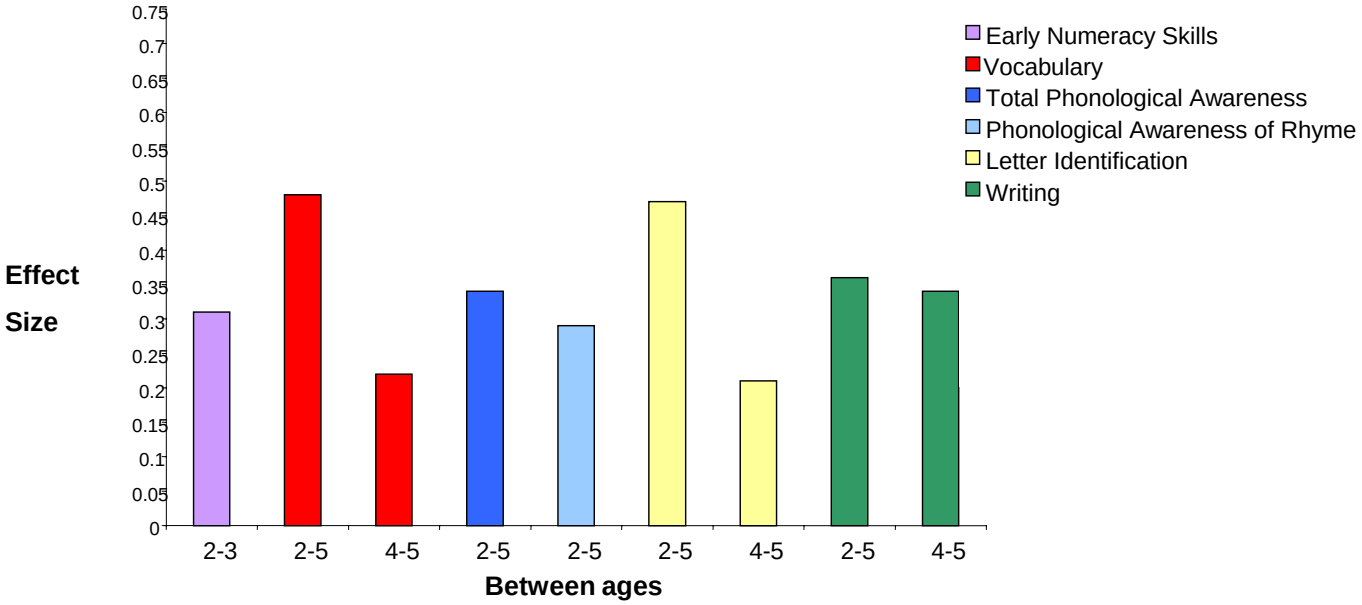


Figure 4.1: Effect sizes of the Significant Value-added Cognitive Outcomes in favour of the Oxford group

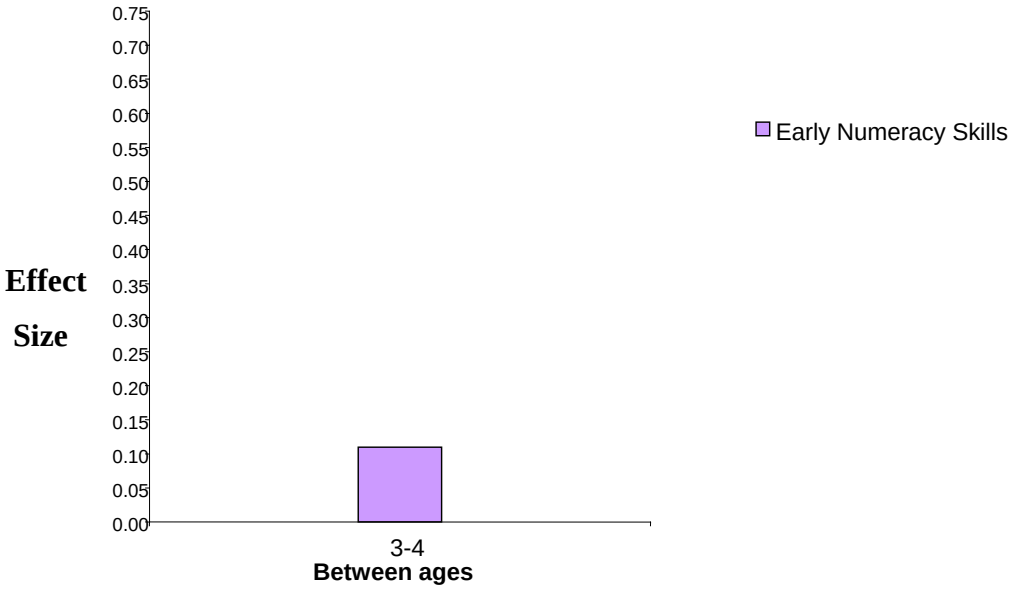


Figure 4.2: Effect size of the Significant Value-added Cognitive Outcome in favour of the Comparison group

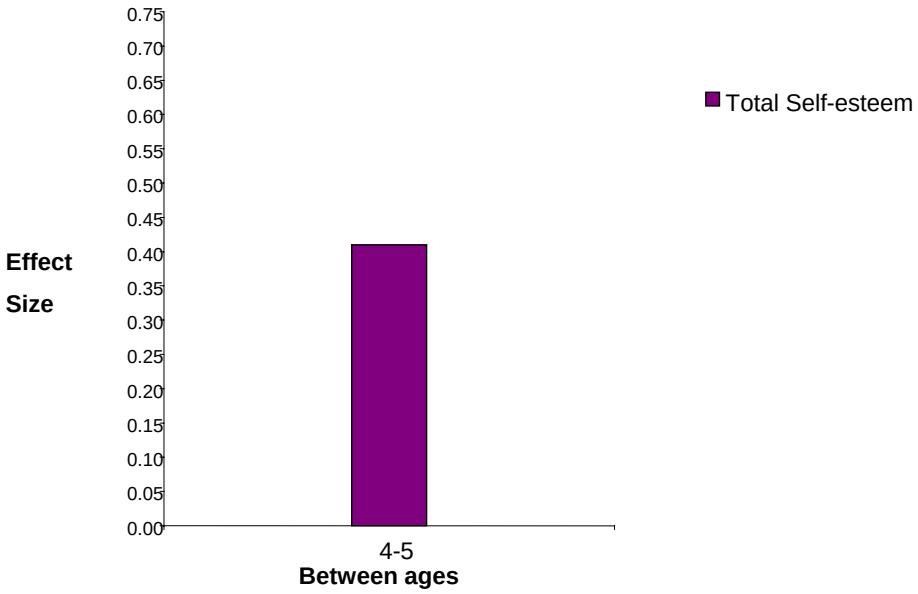


Figure 4.3: Effect size of the Significant Value-added Socio-emotional Outcome in favour of the Oxford group

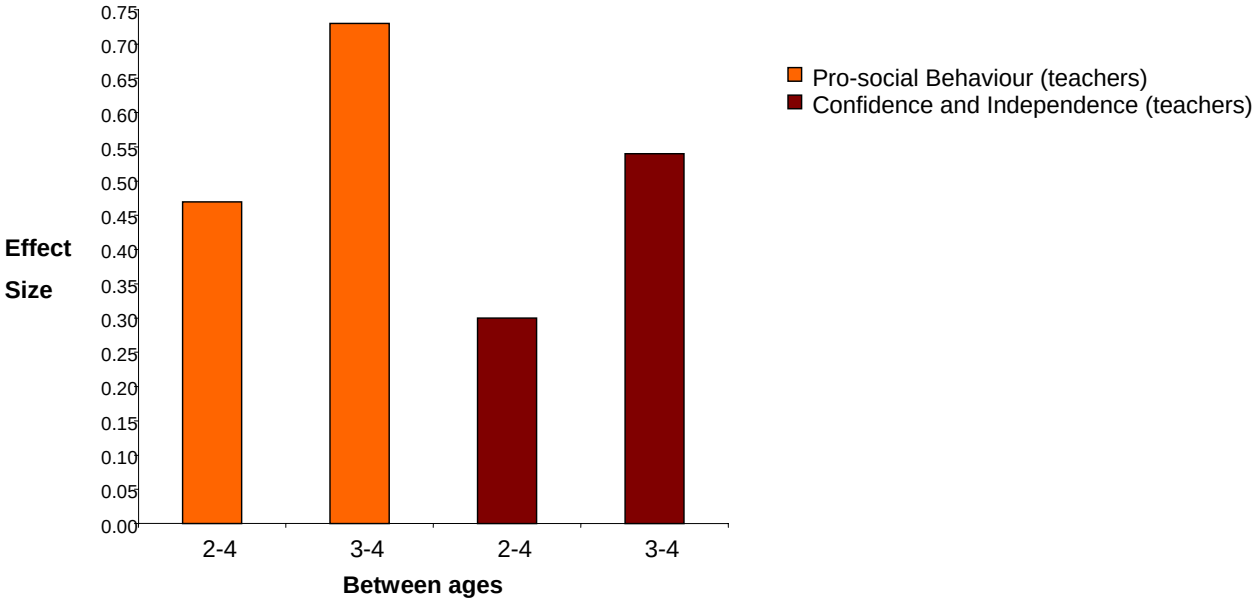


Figure 4.4: Effect sizes of the Significant Value-added Socio-emotional Outcomes in favour of the Comparison group

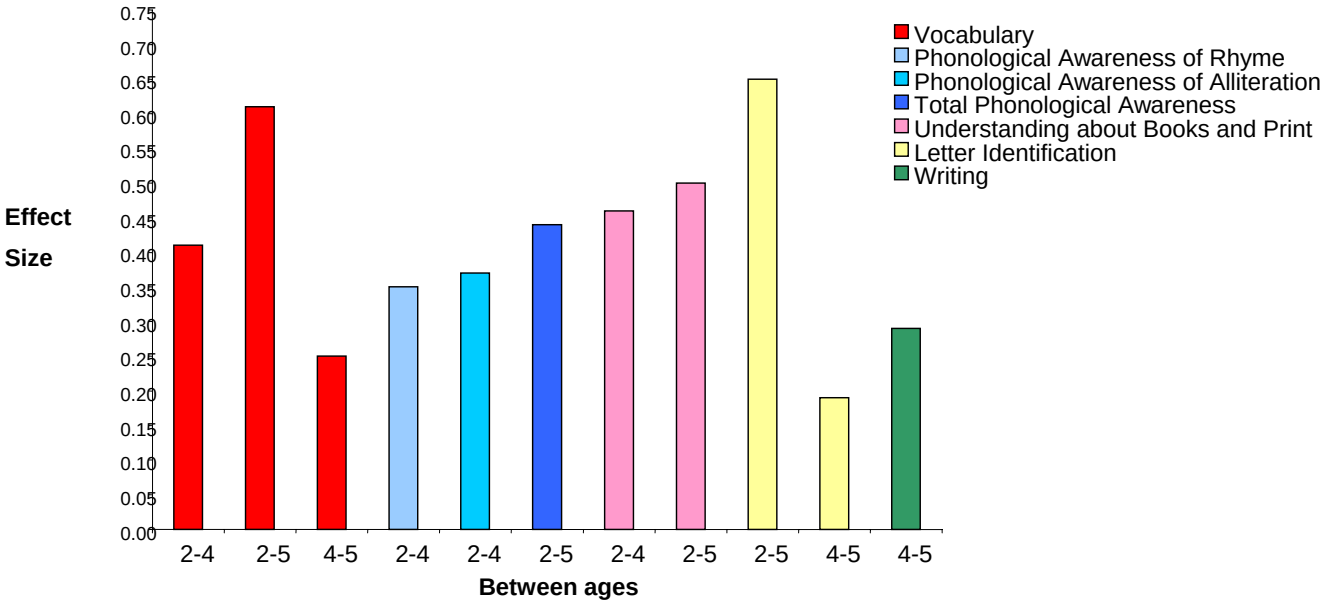


Figure 4.5: Effect sizes of the Significant Value-added Cognitive Outcomes in favour of the PEEP sub-group

Section 4: Discussion

In order to establish the efficacy of PEEP, the Birth to School Study collected parent and child data over a period of six years. As the children moved from being toddlers to pupils, a variety of measures were employed to assess their development and the rate of their progress in a number of different cognitive and social-emotional areas.

The study investigated the effect of PEEP on the whole community in which the programme operated (Oxford group) compared to a matched community who had no access to the programme (Comparison group). This gave rise to the community findings. Simultaneously, it investigated the effect of PEEP on the families who chose to participate in the weekly sessions that PEEP offered (PEEP sub-group) compared to a matched sub-group of families from the Comparison group (Comparison sub–group). This gave rise to the sub-group findings. The groups were compared on a yearly basis (annual findings) and the rate of progress between these yearly time points was measured and compared (value-added findings).

It is important to note that the families living in the comparison area attended a similar variety and number of baby and toddler groups as did the families living in the PEEP area. The difference between areas was that the families in the comparison area had no access to the PEEP curriculum and practice.

a) Summary of significant findings

Parent findings

Findings at the community level

Table 4.1: Summary of parent community findings

Outcomes	Birthday Visit			
	1st	2nd	3rd	4th
Significant		Quality of Care-giving Environment		
No. of non-sig	5	0	3	1

Key
- Oxford group
- Comparison group

Parent findings at the sub-group level

Table 4.2: Summary of parent sub-group findings

Outcomes	Birthday Visit			
	1st	2nd	3rd	4th
Significant	Positive view of Parent-child Interaction	Quality of Care-giving Environment		
No. of non-sig	4	0	3	1

Key
- PEEP sub-group
- Comparison sub-group

Child findings

Annual findings at the community level

Table 4.3: Summary of child annual community findings

Outcomes	Age			
	2	**3**	**4**	**5**
Significant Cognitive	General Cognitive Development	General Conceptual Ability	Vocabulary	Vocabulary
	Grammatical Competence	Non-verbal Ability	Verbal Comprehension	Awareness of Alliteration
		Visual Perceptual Matching	Awareness of Rhyme	Early Numeracy Skills
			Understanding about Books and Print	
			Writing	
			Early Numeracy Skills	
No. of non-sig cognitive	3	5	2	6
Significant Socio-Emotional			Confidence and Independence (parents)	Anti-social Behaviour (reduced)
			Confidence and Independence (teachers)	Independence and Concentration
			Pro-social Behaviour (teachers)	Confidence
			Compliance and Conformity (teachers)	Peer Acceptance (self-esteem)
				Cognitive Competence (self-esteem)
				General Competence (Self-esteem)
No. of non-sig socio-emo	1	2	4	7

Key

Oxford group

Comparison group

Annual findings at the sub-group level

Table 4.4: Summary of child annual sub-group findings

Outcomes	**Age**			
	2	**3**	**4**	**5**
Significant Cognitive	General Cognitive Development		Vocabulary	
	Vocabulary		Awareness of Rhyme	
	Grammatical Competence		Writing	
	Sentence Complexity			
No. of non-sig cognitive	1	8	5	9
Socio-emotional				Peer Acceptance (self-esteem)
				Cognitive Competence (self-esteem)
				Physical Competence (self-esteem)
				General Competence (self-esteem)
				Total Self-esteem
No. of non-sig socio-emo	1	2	8	8

Key

▒ PEEP sub-group

□ Comparison sub-group

Value-added findings at the community level

Table 4.5: Summary of child value-added community findings

Outcome	Between Ages					
	2-3	**2-4**	**2-5**	**3-4**	**3-5**	**4-5**
Significant Cognitive	Early Numeracy Skills		Vocabulary	Early Numeracy Skills		Vocabulary
			Total Phonological Awareness			Letter Identification
			Awareness of Rhyme			Writing
			Letter Identification			
			Writing			
No. of non-sig cognitive	2	8	7	7	9	6
Significant Socio-emotional	N/A	Pro-social Behaviour (teachers)		Pro-social Behaviour (teachers)		Total Self-esteem
		Confidence and Independence (teachers)		Confidence and Independence (teachers)		
No. of non-sig socio-emo	N/A	4	6	3	3	9

Key

Oxford group

Comparison group

Value-added results at the sub-group level

Table 4.6: Summary of child value-added sub-group findings

Outcomes	Between Ages					
	2-3	**2-4**	**2-5**	**3-4**	**3-5**	**4-5**
Significant Cognitive		Vocabulary	Vocabulary			Vocabulary
		Awareness of Rhyme	Total Phonological Awareness			Letter Identification
		Awareness of Alliteration	Letter Identification			Writing
		Understanding about Books and Print	Understanding about Books and Print			
No. of non-sig cognitive	3	4	5	8	9	6
Significant Socio-emotional	N/A					
No. of non-sig socio-emo	N/A	6	6	5	3	10

Key

PEEP sub-group

Comparison sub-group

b) Discussion of significant findings

The effect of PEEP on Parents who attended the weekly sessions

The BTSS findings demonstrate that parents who attended PEEP sessions, reported a significantly enhanced view of their parent-child interaction when the children were one year of age. When the children were aged two, they were also rated significantly higher on the quality of their care-giving environment. These parental outcomes emerged before any of the child outcomes related to progress in language, the foundations of literacy or in self-esteem, became apparent.

The findings are consistent with evidence from evaluations of other interventions which suggest that parental outcomes related to enhanced parenting skills anticipate improved child outcomes in subsequent years. For example, in the United States, the Early Head Start evaluation established that the intervention had resulted in significant impacts on a range of parenting outcomes (Love et al., 2002). The authors linked these findings to the cognitive gains that became apparent a year later:

"Consistent with programs' theories of change, we found evidence that the impacts on children when they were 3 years old were associated with impacts on parenting when children were 2. For example, higher scores on the cognitive development measure at age 3 were associated with higher levels of parent supportiveness in play and a more supportive cognitive and literacy environment when the children were 2" (ibid. p.5).[e]

A similar pattern of outcomes was found in the evaluation of the Parents as Teachers (PAT) evaluation (Parents as Teachers National Centre, 2000).

This sequence can be understood in the context of current research in child development (comprehensively summarised in Birth to Three Matters literature review, DfES, 2003b) which emphasises that:

- Babies and young children are innately social beings and are competent learners from birth;

[e] The results from the Early Head Start evaluation are based on correlations. Similar correlations have been found between parent and child outcomes in the BTSS (Appendix J).

- Early relationships matter, they set the scene for later cognitive and social development;
- Interaction is fundamental to learning;
- Learning takes place most effectively when children are supported by knowledgeable, trusted adults and when they are actively involved and interested.

Understanding how PEEP embodies these principles is a key to understanding how parents are encouraged to have the enhanced relationship with their children that has been demonstrated by the findings of this study. It also explains why these parental findings should have led to cognitive benefits for the children as they moved into the world of more formal learning.

PEEP is an intervention that works with families from their child's earliest weeks, and the curriculum makes explicit the notion that babies are active social beings and learners from the outset. It supports 'parents as parents', encouraging them in their role as their child's first and most important educator, not by 'teaching' their child, but by 'communicating' with them. The curriculum is distilled into a series of folders known as "Learning Together" which emphasise the interactive and nurturing qualities associated with learning. Literacy flowing from interpersonal relationships is central to their philosophy (Box 4.1).

Box 4.1: Extract A from the *Learning Together with Babies* folder

It's never too soon to start reading to your baby! Babies will quickly discover that looking at books can be a fun cuddly time.

Watch your baby as you read a story – even small babies have ways of making their feelings known! If you start to read books to your baby when she is very tiny, she will begin to associate books with a happy relaxed time. Before long, she'll respond by:

- ❖ Waving her arms and kicking
- ❖ Smiling
- ❖ Staring at the pictures
- ❖ Watching the person holding her
- ❖ Babbling and squealing
- ❖ Pointing and reaching for the books

PEEP's aims and practice put the adult/child relationship at the heart of learning. They foster specific aspects of parenting that are about learning and having a positive and communicative bond with the child (Box 4.2).

Box 4.2: Extract B from the *Learning Together with Babies* folder

> Babies will talk more and more when adults respond, and talking helps to bring them the closeness and security that they want. Talking to babies is easier for some people than for others. By watching a baby very closely, you can tune in to the tiny gestures with which a baby talks.
>
> If we can talk back to babies so that conversations can develop, they will not only talk more, but will also learn to make more and more complex sounds.
>
> You could try chatting to the baby as if she were an older child. You could tell her what you are doing. Tell her what is coming next and give her a chance to answer. When you speak, she will listen intently to your voice. When you pause, she will answer you. Even when babies are practicing talking on their own, their talk ebbs and flows as if in an imaginary conversation.
>
> (PEEP, 2000b)

The findings from the BTSS suggest that the promotion of better quality relationships between parents and children is an effective strategy which can lead to enhanced learning.

The effect of PEEP on the cognitive development of children whose parents attended the weekly sessions

PEEP is an early learning programme which aims to contribute towards improving the life chances of children, particularly in disadvantaged areas. More specifically, it endeavours to foster reading readiness thus allowing each child to maximise their potential within an education system that requires (and assumes) a certain level of literacy skill. The Learning Together curriculum has a clear literacy focus which promotes book sharing and activities related to literacy from birth (Box 4.3).

Box 4.3: Extract from the *Learning Together with Fours* folder

Sharing books regularly at home can give everyone a lot of pleasure. The more time that children spend with books and other sorts of writing, the easier it will be for them to learn to read.

Being able to hear the different sounds in words helps children when they start to read. Children learn a lot about letter sounds from stories like "Winnie the Witch", "Postman Pat" and "Meg and Mog", especially if you point out that the letter shapes are the same.

Using words which *rhyme* with each other also helps. Children learn a lot about rhyme from stories with a chorus that they can join in with:

- 'Run, run as fast as you can, you can't catch me I'm the gingerbread man!'
- 'I'm a troll, Fol di rol'
- 'I'll huff and I'll puff'

(PEEP, 2000c)

The findings from the BTSS demonstrate that the children, whose families had participated in the weekly sessions PEEP offered, made significantly greater progress over time, compared to a matched group of children with no access to the sessions, in:

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

These findings reflect the progress made over time and take into account the 'level' at which each group started. It is important to understand these value-added findings in context; the annual findings showed that children, from the matched group of families who lived in the comparison area and who had no access to the sessions, had significant cognitive advantages when they were assessed annually at both the ages of two and four.

The cluster of literacy-related skills, demonstrated in the progress of children whose families had attended PEEP sessions, is a strong indication of reading readiness (Bryant

and Bradley, 1985; Riley, 1996), specifically the ability to read by the end of the reception year (Riley, 1996).

There is a wealth of evidence from the evaluations of other pre-school interventions indicating that early interventions lead to enhanced outcomes for children, particularly those at risk of low educational achievement.

The Early Access to Success in Education (EASE) project has four central goals akin to those of the PEEP project: "To give students the strongest possible start to their educational careers; to meet the individual needs of young learners; to engage parents in an integral way and to build capacities that would underpin later school success" (Project EASE, 2000). The year-long evaluation demonstrated a significant increase in language skills particularly for children at the greatest risk of having problems with reading.

In the UK, the Raising Early Achievement in Literacy (REAL) project targeted families of children likely to have difficulties in the early years of school. An evaluation demonstrated gains in literacy measures for the children taking part despite the fact that the programme did not set out to teach the children directly. Its results are relevant to the BTSS in that they are both evaluations of early interventions that promote enhanced learning opportunities for children by working primarily with parents**.**

Finally, the results of the BTSS also replicate, consolidate and extend research on PEEP itself (Evangelou and Sylva, 2003). This previous evaluation showed that children who participated in the intervention made significantly greater progress, between the ages of three and five, in measures of vocabulary, language comprehension, understanding about books and print, and early numeracy skills.

Using the argument articulated by Morris and DeShon (2002), effect sizes from the BTSS can be meaningfully compared to those from this earlier study on PEEP. This is because the two studies are directly related, using similar research designs and outcome measures. However, only one outcome is directly comparable in terms of progress measured over the same period of time and using the same instrument: the rate of progress in vocabulary between the ages of four and five. This showed an effect size of .16 in the earlier evaluation and .25 in the BTSS. Overall, the earlier study reported

effect sizes ranging from .16 to .36 while the BTSS has demonstrated greater effect sizes ranging from .19 to .65.

The effect of PEEP on the socio-emotional development of children whose parents attended the weekly sessions

The findings from the BTSS showed little significant advantage associated with attending weekly PEEP sessions until the children were five years old when self-esteem was measured for the first time. At this point, they showed a significant advantage in the total measure of self-esteem as well as in four out of six of the sub-scales.

This can be understood in terms of the PEEP curriculum of which 'self-esteem' is an integral part (Box 4.4). Within the ORIM framework, parents are encouraged to 'recognise' everything their baby/child does and to respond with affirming feedback. It is also built into the concept of 'interaction' and the positive communication which PEEP sees as fundamental in fostering a sense of personal agency in the children.

> "Children who have learned…to value their own genuine efforts and achievements are more likely to believe they *can* learn, and so to learn successfully….not only as they start school, but throughout school and for the rest of their lives" (Roberts, 2002, p.141).

Box 4.4: Extract from the *Learning Together with Ones* folder

In their first five years, children form some important views about themselves. They have a view of how they get on with other people, both children and adults. They have a view of how important they are to other people, and a view of what they can and can not do.

Parent and carers can have an important influence on what children think of themselves.

Children who feel confident about themselves are more likely to be happy and successful learners. Their confidence grows when they know that other people – especially those they love – are noticing them, thinking about them, interested in them, and wanting to be with them.

(PEEP, 2000d)

The effect of PEEP on families living in the area of Oxford where PEEP operates

One of the aims of PEEP is to achieve a "significant improvement in educational attainment by whole communities of children" (PEEP, 2005). This is regardless of whether their families choose to attend the weekly sessions on offer.

The BTSS findings for families living in the area where PEEP operates, including those who did not chose to attend, demonstrate similar effects on parents and on the rate of progress made by the children, in important outcomes related to literacy development and self-esteem, to those found for families who attended the PEEP sessions. However, these generally showed smaller effect sizes and were in a reduced number of outcomes. Notably, the advantage to the children living in the comparison area was more apparent in the annual findings as they were ahead at every birthday assessment.

Although PEEP has been evaluated in the past, the Birth to School Study afforded the first opportunity to explore the possible effects of the intervention on the whole community in which it was operating. The cognitive and self-esteem effects in favour of the children living in the PEEP area suggest that children at risk of low educational achievement, whose families chose not to participate in the weekly sessions, were still able to benefit from its existence within the community.

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 and the inclusion of PEEP activities in the Foundation Stage within pre-schools and schools in the area. It is also likely that the influence of such a programme would be disseminated by word of mouth from the participating parents.

Some comments on PEEP and the home/school relationship

One aim of the PEEP programme is to facilitate the connections between home and school in order that parents are best placed to support their children in the transition to formal education. The home/school relationship was not a direct focus of the Birth to School Study. However, it was an area that featured in the observations of PEEP groups and PEEP days in pre-schools and schools (Box 4.5 and Appendix A).

Box 4.5: Extract from *An Observation of Nursery PEEP*

The PEEP teacher explained that her stated role was to facilitate work with parents and enhance the parent partnership by complementing the existing good practice within the setting. The Nursery teacher also commented that the presence of the PEEP teacher both enriched the activities they could provide for the children and offered the opportunity to have parents spending time within the class which would not otherwise have been feasible.

Both teachers felt that a personal relationship with parents was paramount and this was clearly demonstrated in the observed session during which parents joined in with an Easter Egg Hunt. This was utilised as a prime opportunity to invite parents into the nursery in a very informal and not overtly learning-orientated manner. It was designed to appeal to parents who might not have had any previous PEEP experience and who might have felt unsure about their own literacy or educational skills. It was a conscious effort to break down the self-selection of parents willing to join in with educationally-linked activities.

(Smith and Shay, 2004)

This approach of promoting parental confidence to participate in their children's educational experiences has been widely documented as important. In a literature review entitled 'The impact of parental involvement, parental support and family education on pupil achievements and adjustment' (Desforges with Abouchaar, 2003), the authors concluded that:

> "Research shows that a form of parental involvement….has a major impact on school outcomes even after all other forces (e.g. the effect of prior attainment or of social class) have been factored out….the effect is shown to be indirect and to operate in the main through the promotion of attitudes, values and aspirations which are pro-learning" (ibid., p.10).

For example, a longitudinal evaluation of the Michigan School Readiness Program (Xiang & Schweinhart, 2002) showed that parents of participating children became

significantly more involved in their children's school activities and talked more with their children's elementary school teachers. This is linked by the authors to the significantly higher scores at age five for the participating children in cognitive and social skills and to the observation that these gains were maintained at the age of ten.

The Birth to School Study has documented the effort that PEEP has made to bridge the gap that can exist between home and school. The findings also show that PEEP had a significant effect on the cognitive development of children. Given evidence in the literature and from other evaluations, it is to be anticipated that an explanatory link exists between these two observations. However, the complexity of the relationship, which will only fully develop as the children become established as pupils, was beyond the scope of the study.

Policy Implications of the findings from the Birth to School Study

The Birth to School Study set out to evaluate possible effects of the PEEP programme in Oxford, between 1998 and 2004, on both the parents and children of the families within its catchment area. The results of the study have demonstrated that:

- PEEP had a significant impact on the quality of parents' interaction with their children when they were one and two years old;
- PEEP had a significant impact on children's rate of progress in a number of literacy-related skills, as well as in measures of their self-esteem.

The results strongly support existing evidence that good quality parenting leads to improved cognitive and social skills for the children. In addition, they support previous research that effective early interventions lead to enhanced short-term gains in cognitive and social skills, particularly for children at risk of low educational achievement.

More specifically, the evidence from the BTSS suggests that an effective intervention programme such as PEEP can disseminate effects, that filter beyond the families who choose to attend education- or parenting-based groups, into the wider community.

Whilst contributing to an existing body of evidence on the efficacy of early interventions with strong parental involvement, the BTSS findings are relevant to current policy that:

- Highlights the importance of the first five years of life on children's development;
- Emphasises the crucial role played by parents during early childhood;
- Seeks to support children by helping families to provide the 'protective factors' associated with resilience;
- Prioritises early intervention (prevention) rather than later intervention (cure).

The Birth to School Study is in a unique position to inform policy because:

- It is the most comprehensive and long-term evaluation of a UK intervention;
- It was based on a comparatively large sample which included families from ethnically diverse backgrounds;
- It was focused on an area known to be disadvantaged;
- It evaluated an intervention that fits seamlessly with current policy;
- It used a rigorous analytical strategy that allowed for the exploration of possible community effects beyond those families who chose to attend the weekly session offered by the intervention.

Whether such effective interventions will have long-lasting benefits to families is a matter for consideration. It is only through the results of longer-term evaluations that it would be possible to confirm the efficacy of the government's vision that:

> "We all stand to share the benefits of an economy and society with less educational failure, higher skills, less crime, and better health. We all share a duty to do everything we can to ensure every child has the chance to fulfil their potential" (DfES, 2003a, p.6).

c) Suggestions for future research

It would be of interest to follow the Birth to School Study children as they progress through their school career in order to monitor the continuing impacts of PEEP up to and beyond the end of Key Stage One. The greatest challenge would be to follow these children as they become parents. Such a study would contribute to the body of evidence, based on long-term evaluations of other pre-school interventions, that:

- Measurable short-term gains in child outcomes anticipate improved cognitive and social outcomes into adulthood;
- These long-term benefits are to the overall advantage of society.

The BTSS had the opportunity to comment on the role played by PEEP in facilitating communication between home and school, thus encouraging parental involvement and interest in children's education. This complements evidence that this has positive impact on child development. Establishing the effectiveness of this aspect of PEEP would inform policy which seeks to find ways to:

- Ease the transition from home to school, particularly for vulnerable children at risk of low educational achievement;
- Empower all children to benefit to their full potential from being at school.

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Appendices

Appendix A: Observation schedule and Observations of PEEP groups and PEEP in a nursery setting

Department of Educational Studies

University of Oxford

Observation Schedule and PEEP Group Observations

Sally Smith and Julia Shay

2004

PEEP observational schedule (Brooks, Gorman, Harman, Hutchison and Wilkin, 1996).

Background data

Observer:

Date:

Time:

Location:

Type of session:

Group Leader:

People present:

2. Before the session

What are you planning to do today?

What is the general purpose of the session?

What are the specific aims?

How does this relate to what the participants have done previously?

Is there anything it would be helpful for me to know about particular participants in the group?

3. Observe the session

4. After the session

How do you feel the session went today?

Did you get through what you wanted to cover?

Would you say, in terms of the group leading (and despite my presence), that it was a fairly typical session?

Were there any particularly difficult moments for you, the group leader (e.g. pressure of time/from other participants), and were there any times when things seemed to be going particularly well?

Purpose

What do you think were the most successful elements of the session?

Were there any that didn't work as well as you had hoped?

What particularly did you want the participants to learn/experience (with regard to PEEP aims)?

Do you think that happened?

Motivation

Were you pleased with the way the participants responded?

Were there any participants who found it difficult to join in/do what they were asked?

How effective do you think the session was in catering for differing abilities?

Interaction

Did the participants contribute as much to the session as you hoped? How does this compare to other sessions?

Was there anyone who didn't make a contribution?

Was there as much interaction among participants as you had intended?

Progression

How did this session follow on from previous ones?

Can you say at this stage what work might follow on from today?

How do you keep track of what the participants learn, and how they make progress?

It's difficult to gauge changes in knowledge and performance, but have you observed any changes in **attitudes** among the participants?

Are there particular participants who seem to have benefited noticeably from the programme? In what ways?

5. Thoughts on the effectiveness of the session (from the observer)

Purpose and direction

Did the objectives seem clear? Were they explained to the participants? Were they covered?

Interest and motivation

How did the activities seem to create and sustain interest and motivation? E.g. was the content introduced with skill and imagination?

Resources

What resources were used? Did they seem appropriate for the purpose? Did they seem appropriate for the participants? Were they used effectively?

Appropriateness to needs/abilities

How did the session cater for different abilities and needs? E.g. in what way did the content seem appropriate to participants' understanding? Did the group leading style seem appropriate for parents and/or children? What strategies were used to help those who did not succeed at their first attempt?

Management

How was the session managed to ensure that all involved learnt something? E.g. were any support staff effectively deployed? Did only a few individuals contribute actively?

Interaction

In what ways was there effective interaction between participants? E.g. was the session mainly tutor-led? Did those who wished to get an opportunity to contribute? Did parents communicate only with their own child?

Continuity and Progression

How did the session gear with longer-term objectives of the tutor and the course? E.g. how did the session relate to previous activities? Did the session point to or suggest further activities to reinforce or apply what was learnt?

General or Further Comments

Baby Group Session

Before the session

The PEEP curriculum is divided into blocks of three weeks (A, B and C), which are organised around a single theme. The group leader explained that because the observed session was a C week, she intended to "tie all the threads of the last three weeks together", during which the group had focused on the theme 'Babies talking'. The particular emphasis of the session was "how we respond and talk to babies and how this helps their communicating". She said that she planned to use a different format by moving 'talking time' to the end of the session when the group would also complete their diary pages. Diary pages were an integral part of the curriculum and the basis for the Open College Network qualification available to PEEP parents.

The leader intended to use the book *Baby Goz* during 'circle time' because it was a very interactive story with plenty of flaps and other features to get the babies involved. The songs she planned to use had lots of voices and pauses to give the babies a chance to respond. The group leader emphasised that communicating with babies was a constant theme in PEEP: "we talk constantly about communicating with babies but this topic has been specifically about communication, babies communicating." She said that this provided a link with all that they had done before as a group.

It was noted that two of the mothers were dyslexic and would therefore need help with the diary page and that a family with a baby, two demanding siblings and English as an additional language, may attend.

During the session

When the observer arrived shortly before 11.00am, the group leader and assistant, seven mothers, seven babies and two siblings were already assembled. Six mothers and babies were on the rugs chatting comfortably; four more mothers and babies arrived in the next few minutes. A little Punjabi-speaking boy was wandering around showing some books to the assembled babies.

When the siblings were installed in the corner with the assistant and some toys, the leader explained that the session would be done slightly differently and that they would have the singing first. The observer was introduced, then the leader asked the mothers to watch their babies' responses closely during the songs. She began with the *Welcome Song*, where the mothers and babies were all named and greeted individually, going around the circle to a clapping rhythm. The room was very quiet and all the babies were awake and attentive. They continued with *Bouncy Baby* which involved lots of tickling and then the leader announced that they would try *Ready and Up and Down*, singing the first verse as usual and the second verse really quietly. It was apparent that the babies were more restless than usual when the song was sung quietly. Some mothers thought that the babies seemed a bit puzzled by the change. The leader pointed out that this showed that different voices produce different responses. They continued with the *Grand old Duke of York* very loudly and *Row your Boat* much more peacefully.

Next they sang the *Bicycle Song* with the babies lying on their backs and the mothers cycling the babies' legs in the air. This song is generally sung with a pause before the word "Go!" On this occasion, the leader held the pause for a particularly long time. The group discussed how their babies had responded to this. The feeling was that the babies were trying to push their legs without waiting for the pause to finish. They continued with other songs, but varying the delivery and then talking about the reactions of their babies.

Next the leader announced the story, *Baby Goz*. As she read, the babies were all watching her except for two who were fighting over a plastic teapot. One older sibling climbed on to her lap and attempted to 'monopolise' the book. He was distracted by the arrival of his father who was delivering pekoras for his wife to share with the group. The leader then produced a parachute and announced that they would sing *I'm Flying, I'm Floating* after which the group played Peepo-games around the edge of the parachute. Some of the more mobile babies were hard to contain at this point. The group talked about reasons why babies are happy playing Peepo with someone they are not used to. Some of the babies became quite fretful and the leader suggested it was time to calm things down.

The leader began to sing *Rock-a-Bye-Baby*, the others joined in and the babies quickly settled. By the time they moved on to *Twinkle, Twinkle Little Star*, there was no crying and they finished off with *Star Light, Star Bright*. The leader explained that it wasn't time for the *Goodbye Song* yet as they were trying a different order this week. She produced four small wicker baskets containing various touchy-feely things which she distributed amongst the babies, who immediately began exploring their contents. This allowed the adults some time to talk.

The mothers were encouraged to notice all their babies' sounds and gestures, as this involved the **R**ecognition part of the ORIM framework, and also to notice how their babies had changed. One mother said that her baby was beginning to understand about "Hello" and "Goodbye", and was now waving at the telephone when her parents said goodbye to someone. The leader asked the mothers when they thought would be a good opportunity to talk to their babies. One mother said, "She doesn't talk unless I stop. When it's quiet she talks." The leader pointed out that this was an example of **M**odelling. The discussion continued as the leader encouraged the group to think of how different interactions with their babies provided a variety of opportunities for talking with them.

At 11.55am the assistant asked who wanted tea and coffee. A wallet was passed round with paper and pens for the mothers to complete their diary pages and the leader spread books out on the floor. It was very quiet; most of the mothers were writing and the leader talked to the Punjabi-speaking mother who then left the room. The writing continued, with the leader spending time individually with a number of the mothers.

At midday the leader announced that it was time to say goodbye and the Punjabi family returned to the room with a plate of pekoras to share with the group. Some of the mothers were still writing and the leader handed the pekoras round and the *Goodbye Song* was sung. Borrowing packs were available and a number of the group began to look through these and return packs from the previous week. This was organised by the assistant. Some mothers began to leave whilst other stayed for a drink. As they left, they handed their diary pages to the leader who chatted to the mothers whilst rocking one of the babies in her arms.

By 12.15pm the group was definitely packing up although four of the mothers remained, talking between themselves and to the leader and her assistant. When the leader established that they had all taken what they wanted to borrow, all the books and packs were tidied away and by 12.30pm all the mothers had left.

After the session

When asked to reflect on the group, the leader said that she felt that the session had gone really well and that shifting the order of things had been successful in coping with the demands of a C week. Usually after the *Hello Song,* she would go round the circle and ask each mother in sequence to respond to the topic. She and the group felt happy with this pattern but it did not work so well when they needed to synthesise three weeks discussion for the diary pages. It seems that having the discussion, followed immediately by the opportunity to write to it down, was helpful for some of the participants. Otherwise she said, it had been a fairly typical group and that they had covered all that she had intended, though perhaps not in as great a depth as she would have liked.

The leader said that the difficult moments had been nothing out of the ordinary, just the usual challenge of managing the needs of the adults, babies and the older siblings who could sometimes be quite demanding. She said that she had been very pleased with some of the responses during 'talking time' and that the two dyslexic mothers had made some very valid contributions. She felt that, as usual, the singing had gone very well: "the parents keep their babies focussed. I didn't stick to the songs, went with the flow, tuning into the babies' moods…"

The leader said that she felt that the group, who were then in their second term, were coming to grips with the ORIM framework and that she hoped this would be reflected in their diary entries which were specifically about ORIM. She said that she had particularly wanted the group to experience a variety of ways of **I**nteracting with the babies during the songs and to witness how this would elicit different responses from the babies. She felt that this had happened to a noticeable degree and that "The babies did respond, in almost all cases. It made people very aware of how capable their babies are of responding and communicating."

Overall, the leader said that, she was very pleased with the way the mothers had participated in the group but that one of the Asian mothers always had 'cultural' reservations about the more vigorous movements with her baby during some of the songs. She did note however, that changing her usual format of asking for a response in turn from each of the mothers had made it more difficult to ensure that everyone had an opportunity to participate. She said that, because she had come to know them so well as a group, she was very conscious of their different abilities and was confident in encouraging them individually to gain as much from the session as possible. She was also aware who would need a bit of extra support with the diary pages. Overall she felt that during the session "we did a good job of summarising the whole guideline" and that the group was ready to move on to a new topic in the following week.

When the leader was asked "have you observed any changes in attitudes among the participants?" she replied with emphasis: "Yes! Absolutely! A great deal more confidence in talking about their children and what their needs are…. several arrive very early and are usually there for 20 minutes before the session starts. The conversation used to be about clothes and bottles and feeds but now it's like they're wearing a PEEP hat – what they've been doing with them – what they've noticed and also confidence with book-sharing, responding to the child and encouraging the child." Also, eight out of the twelve mothers were currently undertaking courses with Learning Bridge (the PEEP adult education scheme). This included the two dyslexic mothers who the leader said had taken particular advantage of the opportunity. She added that the Asian mother felt able to take a full part in the group and was secure enough to manage without extra language support. She noted that two mothers "who were suffering moderate postnatal depression, have hung on in the group and I've seen them come right out of it".

Thoughts on the effectiveness of the session

This seemed a very cohesive group with a gentle and supportive atmosphere. The group leader was able to orchestrate a big group with all its attendant distractions without seeming to dominate the proceedings. 'Circle time' was clearly a pleasure for everyone and in the 'talking time' there was a clear focus on the importance of giving babies opportunities to communicate and on noticing how their communication develops.

This was done in such a way that the mothers were able to think about the topic and to contribute to the discussion. The content was so directly related to early interaction and communication between mothers and babies that there was something every mother could understand and relate to. There were frequent references to ORIM ideas, with an emphasis on talking and listening. The babies experienced interaction with their mothers in songs and games, as well as the treasure baskets and story. The mothers were encouraged to notice and value their babies' interactions and responses, and to think about activities and observations that they could make at home.

Although everyone did participate in the discussion, some were more vocal than others. The leader explained that she would have preferred to involve everyone more directly in the discussion but that there was too much material this particular week for her to do this. All the usual PEEP resources (treasure-basket, books etc) were used most appropriately, with clear distinctions made between the different parts of the session when different resources were available.

The leader and her assistant worked well together as a team and the assistant was particularly helpful with the siblings, freeing the leader to attend to the mothers and their babies. The leader moved about within the group, drawing mothers and babies into the activities and conversation. She seemed especially successful in enabling the Punjabi-speaking mother to become a full member of the group and valuing her contribution of the pekoras. At the end of the session, help was available for those who were less confident about writing their diary page. The main management challenge involved the mobile babies, but this was openly acknowledged and the assistant did her best to minimise this problem.

Beyond any 'intellectual learning' on the mothers' part, the session provided a very secure and welcoming experience. The leader was very experienced and she had learned to value the structure of the session and the containing effect that this had on the mothers and the babies. She was careful to delineate when they were moving from one activity to another and to draw everyone into the group process in a calm and unhurried way. Her awareness, and valuing of, the different members of the group encouraged the group members to behave in an accepting way towards each other.

PEEP for Twos Session

Before the session

The leader explained that as the session to be observed was an A week, she would be introducing a new topic of "Favourite Stories". The purpose of this theme was to encourage parents to talk about the children's favourite stories, to understand why children love to have the same story read over and over again and to think about why this was important for their learning. She said that she intended to use all of 'talking time' to 'unpack' why children want to hear the same story repeated many times. She suggested that there are numerous different reasons for this; for example, they could feel empowered by elements in the story such as lifting the flaps or reassured when the story offers a satisfactory resolution to a difficult or frightening situation. The particular ORIM focus for the session was on **I**nteraction and **M**odelling; the interaction between the reader and child and the manner in which the carer models an involved and expressive reading of a story.

The previous focus had been about television and video watching with children and similarly, why the children enjoyed watching certain things over and over again. They had concluded the topic with a discussion about stories on television. The leader felt that this was the link into the new subject.

The leader planned to begin the session with 'circle time' which would include songs and rhymes that tell a story and which emphasised language that was repetitive and easy to remember. She had chosen *Kipper and the Favourite Blanket* as an ideal story to facilitate the discussion on favourite books.

During the session

At 10.50am the group members started to arrive. Several arrived together and there was a lot of informal chatting between the mothers and the group leader. There were books laid out on blankets on the floor and mothers and children soon gravitated to these and began looking through them. Some of the mothers read to their children whilst others continued to talk while the children looked at a book by themselves. The group

consisted of nine mothers, nine toddlers and one sibling. One of the mothers was new to the group. They arranged themselves automatically into a circle and were obviously very familiar with the format of the session. The assistant had prepared name labels for everyone. She passed these around and encouraged the children to pick out their names from the list. The new mother to the group, an experienced PEEP parent, knew one of the regular participants and the observer, so she quickly fell into conversation and seemed very relaxed. At 11.00am the leader began by introducing the new mother and child and the observer. The observer explained why she was there.

The group then sang the *Hello Song* and continued with several more rhymes and songs. These had been chosen because they contained an element of story telling. For example, when they sang *Five Little Ducks*, the children were each given a cardboard duck mounted on a lolly stick. A 'pond' was created using a blue plastic wallet in the centre of the circle and after each "quack quack quack", the children were invited to 'swim' their ducks into the 'pond'. There was a lot of laughter and most children joined in. Two seemed more reticent and stayed sitting with their mothers. The younger sibling was very keen to participate and was welcomed into the game. They also sang *The Tractor Song* and when the leader asked for suggestions in the different verses for what the tractor was carrying, ideas included pumpkins and strawberries.

After the singing, the assistant handed a biscuit to each child and the leader prepared to read *Kipper and the Old Blanket*. Five of the children immediately sat ready in front of the leader, three sat with their mothers and one hid under the blanket that the others were sitting on and wanted to play Peepo with his mother. The hiding child was successfully drawn back into the group when the leader said that he was "tucking up in his blanket, just like Kipper". She continued to include him as she read and talked about the story and he became gradually more attentive and involved. After the story, the mothers swapped anecdotes of the familiar things loved by their children; one explained how her son had rejected his comfort blanket after it had been washed because it "didn't smell right". The assistant gave drinks to the children and began to encourage them to play with the playdoh and threading materials that she had prepared for them.

After five minutes, all but one of the children had settled playing and the mothers began to discuss their child's favourite books. Some talked to each other and some with the

leader who soon widened her 'conversation' to include the entire group. When different books were mentioned, the leader pointed out why they were appealing and what the children were learning from them. The book *Harry and the Dinosaur* was mention as an example. It was a little bit scary and this allowed the children the feel the emotion in a very safe context and to enjoy the happy resolution of the story. It taught the children the structure of a good story, introduced them to long and complex words and contained a lot of repetition allowing the children to anticipate what was coming next. The leader made a chart of the ideas supplied by the group. Two of the children rejoined the mothers and were given good quality paper and pens, similar to those used by the leader, to draw or write with. These were well received and eagerly used by the children.

The leader mentioned the similarity between stories and videos and this was discussed for a few minutes. Three of the mums were much quieter than the others and the leader asked one of these directly which was her son's favourite book. She seemed happy to reply and her contribution was included with the rest on the poster that the leader was compiling. Another of the mums, who had been more reticent before, mentioned that her son enjoyed books without a text and this led into a discussion of how children liked to generate their own stories. This mother also mentioned talking books and games on the computer. The children, most of who had played very quietly, started to drift back into the circle and two mums went to play along side the children. The mums remaining in the circle began to talk more between themselves while the children and the assistant tidied the play materials away. The leader pinned her poster on the wall.

When the circle of mums and children had reformed, the group sang *The Blue Boat* which was a very gentle and relaxing song to end the session with. Most of the group tucked their legs under the blanket as they swayed in time with the music. The session closed with the *Goodbye Song.*

As the leader and assistant tidied the room, the mums chose new borrowing packs and books and continued to chat between themselves. The atmosphere was very relaxed and indicative of an established group who knew each other well and felt comfortable together. By 12.15pm all the participants had left and the leader and assistant had finished clearing the room.

After the session

The leader said that she felt it had been a very typical session except that there had been no latecomers. She was pleased with the way that it had gone, both because the new mum and child had fitted in so easily and because the discussion had "really got to 'the why' behind favourite books". She was particularly happy with the way the children had participated in *The Tractor* and *Duck* songs and by the attention they had paid to the session book. She also felt that the choice of story had flowed very naturally into talking about favourite books.

Her only concern about the session was that three of the mums had been less involved with the discussion that the others. She noted that the tendency of some of the participants to talk between themselves occasionally made it difficult to hear what else was being said or to notice when someone was silent. The leader pointed to the challenge of encouraging everyone to participate whilst respecting that some may have chosen to be quiet and to the balance between directly addressing a question to someone without embarrassing them or 'putting them on the spot'. She said that two of these mothers were not usually as quiet as they had been during the observed session, but that she needed to think about how best to encourage the inclusion of the third mother who is generally less involved than the others.

With regard to specific PEEP aims, the leader said that she had wanted to emphasise the ORIM focus within different aspects of book sharing. She went on to explain this further. First, by giving children the option to choose their favourite books, it gives them the **O**pportunity to join in with the story. This is how children become readers themselves. Then there is importance of **R**ecognising when a child is referring to a story; for example, when a child whose favourite book character is Thomas, makes trains out of playdoh, this can by used to give him the confidence to make up his own stories. **I**nteraction with the children is vital in allowing the children choice in what is read and in encouraging their active involvement as the story is read and **M**odelling an exciting and imaginative reading of a book encourages these qualities when a child looks at a book.

The leader felt that this session had followed on well from the previous week when they had focused on video and television watching, and why children are so eager to watch the same things over and over again. In the next session she intended to talk about 'playing with' familiar stories to widen both their appeal and to see what could be learnt from them. She used the example of encouraging role-play using ideas from a book. She also wanted the group to think about using books with no text to allow children to make up their own stories. This was in direct response to one of the comments during the observed session.

When asked to consider any changes in attitude amongst the participants, the leader noted out that most of the group were "experienced PEEPers" whom she had known for a number of years. She said that generally they had more confidence. Also they were more accepting of their child's needs and behaviour and more 'allowing' of their child to make choices and explore. This extended to being much less judgmental of their child's behaviour being 'right' or 'wrong' and less apologetic for their child. She noted that they now had raised expectations of childcare and that they felt empowered to make choices about their child's education. The leader said that, as a group, they seemed more knowledgeable about what they wanted to see provided by a nursery and about the quality of staff who would be caring for their children.

Thoughts on the effectiveness of the session

This seemed a very relaxed, happy and cohesive group. This was partly because they were all experienced PEEP-ers and also there was a definite homogeneity between the members. The session was well led and the discussion wide-ranging and thought provoking. Both adults and children seemed to love the singing and rhymes and the book was a perfect choice for introducing the topic for the session. Some individuals were clearly keener to voice their ideas than others, but the leader was aware of this and attempted to be as inclusive as possible. During 'talking time', the children were well catered for by the assistant, who seemed really gifted in interacting with them, and by the activities that had been prepared for them.

The session remained focused on its aims and it was very clear how the following session would link with this one. The overall impression was of everyone talking, playing and sharing books and ideas in a very genial and relaxed atmosphere. It was not surprising to learn that several of the participants had attended PEEP with previous children but felt that they continued to benefit from being part of a group.

Nursery PEEP Session

The delivery of PEEP in Nursery settings is very different from that in the free standing groups. In Nursery PEEP, a qualified nursery teacher, who has also been trained by PEEP, works in each of the selected nurseries for one day per week. Her role on this day varies significantly with the requirements of each individual nursery and in response to their day to day demands. Consequently, how the Nursery PEEP curriculum is interpreted in each setting is developed between the teacher responsible for the class and the PEEP teacher.

Before the session

The PEEP teacher explained that her stated role within any setting was to facilitate work with parents and enhance the parent-partnership. However, she emphasised that her role within the nursery in which the observation took place, was to create a model of PEEP to fit in with the needs of the setting and to build on what was already good practice. In order to achieve this, she acknowledged that she had to be "fluid and flexible" both in her session planning, which was done in conjunction with the nursery teacher, and in response to the day to day demands of the class.

Consequently, the role of the PEEP teacher varied on a weekly basis. On some occasions she covered for the nursery teacher who was herself then able to spend time engaging with the parents or, as another trained teacher, she extended what the nursery class was able to offer on any particular day. The nursery teacher emphasised that having another experienced teacher on hand was very supportive professionally. She noted that the nursery class was 'really stretched' by its staffing levels and that the presence of the PEEP teacher both enriched the activities they can provide for the children and offered the opportunity to have parents spend time within the class. The nursery teacher noted that the latter would just not be feasible without this support.

The nursery PEEP curriculum is divided into three sections: early writing, early reading, and 'self-esteem'. In the autumn term, when all the children were new to the nursery, it was agreed that their focus should be on self-esteem in order to help the children settle in and make the most of their new surroundings. It was also an opportunity to foster the links with a challenging parent-partnership.

The observation took place during the spring term when the focus was on early writing. This has been implemented through activities for the children and open days when the parents were invited to spend a morning in the school, often in a workshop style session. Events had included an open session with the focus on modelling 'how to help your child with writing', a book-making workshop and a visit from the mobile library. Attendance for these sessions was usually around six parents. However, all the children were given the materials from the sessions and encouraged to use them at home. For example, following the book-making workshop, all children were offered an 'empty' book with incentives for filling it in and returning it to school. This proved a popular activity and a display of completed books including scrap books, photo albums and diaries, was on one of the walls. Children who had returned their book were given a certificate and lots of similar empty books were available for them to use within the classroom.

When they first join the nursery, many of the children have very limited skills in emergent writing. The class teacher said that, on average, the children were a year below their chronological age in achievement and that the framework and structure offered by PEEP for early writing has proved an ideal way to give impetus to work on early writing development.

The activity, organised by the PEEP teacher on the day of the observation, was decorating and labelling cut out Easter egg shapes. These had been prepared in advance. She had some examples decorated with patterns consistent with early writing practice (zigzags, circles etc) and she intended to encourage the children to decorate their own eggs and then add their name. These were to be kept until the following week when they would be hidden in the nursery garden and the children would go on an Easter egg hunt. This was planned as one of the open events to which all parents would be invited.

The PEEP teacher explained a number of different aims related to this apparently simple task. The first was directly related to the focus of the term; it offered the children an opportunity to practice their writing, drawing and hand-eye co-ordination skills. In order to write their names, the children would be encouraged to select their laminated name-card from a pile and to then to copy their name onto the egg. The preparation of these cards had been the focus of previous work, with both parents and children. The PEEP teacher also emphasised that this was intended as a fun activity, suited to the end of term.

In addition, the egg hunt would be another opportunity to invite parents into the nursery. Both the PEEP teacher and the Nursery teacher were very aware that many of the children at the nursery have not had any PEEP experience before and they were consciously trying to break down the self-selection of parents willing to join in with group activities. An informal and not overtly learning-orientated event such as an egg hunt may appeal to some parents who would not otherwise attend. All parents received written invitations to these kinds of events. However, both teachers felt that a personal relationship with the parents was paramount, and were aware of "a huge issue of literacy levels with parents". Therefore, the PEEP teacher said that she intended to spend time greeting each family as they dropped off their children, and asking them, on a one-to-one basis, if they would like to come along. This was part of her ongoing work with the families: to facilitate communication and to support them in encouraging learning and self-esteem with their children.

After the morning's activities, the PEEP teacher explained that she would run a 'circle time' with all the morning children. She would do this again in the afternoon with the full-time and afternoon children. She intended to encourage their listening and attention by singing some familiar songs and also having fun along an Easter theme. She noted that she would be using the story, S*pot's First Easter.* This book has a very simple text. She explained that some parents can be discouraged from sharing books with their children because of feelings of inadequacy about their own literacy levels. This was something that she tried to overcome by modelling the positive use of a book without necessarily 'reading' the text. All parents were invited to 'circle time' and she and the nursery teacher encouraged as many parents as possible to do so.

After 'circle time' there is usually 'borrowing time', though as it was the end of term, no new packs were to be lent. PEEP and the Nursery were very keen to encourage borrowing and were pleased that about 80% of the families did so. The nursery does not have the facilities to lend books itself, so PEEP borrowing is a really important way of getting books into homes, some of which may otherwise have very few. It was another method by which they attempted to break down the PEEP versus non-PEEP distinction between families. In place of borrowing time, the PEEP teacher explained that she intended to prepare a variety of scrap materials for families to take home. Again, it was to be available for everyone, not just those whose parents attended circle time and she

noted that parents were now much more willing to take these materials rather than seeing them simply as 'rubbish'. She interpreted this very positively, as a sign that they were being made use of at home.

During the session

When the observer arrived at 8.45am, the staff had prepared various activities in different areas of the Nursery. These included a card making table, a puzzle table, and sand and water play. As it was a lovely day, there were also activities outside.

At 9am, the doors were opened and the families welcomed into the nursery. The PEEP teacher spent the first half an hour in the entrance area greeting families and speaking individually to parents and carers. Over the year, each family was given the PEEP for Four's folder, though they were given it in sections to make it seem less 'overwhelming'. Initially they were given the tapes and rhymes, then the alphabet section and finally, the seasonal inserts. The PEEP teacher said she often used this opportunity at the start of the day to pass on the folders to families in a very informal way and to talk about how they could be used. On the day of the observation she reminded everyone of the Easter family session that would take place the following week.

At 9.30am, the PEEP teacher moved to 'her' table with the egg decorating material. As she showed an interest, so did a number of the children and they gravitated to her and the activity. Once the egg had been decorated, the PEEP teacher encouraged each child to locate his or her name from a pile of laminated name cards. Each child was given assistance at an appropriate level in attempting to copy his or her name correctly. Some children were able to do this, but others needed a lot more help. They were often encouraged to 'have another go' with a second egg.

At 9.50am, the children divided up for a group time, each led by a different member of staff. Sometimes the PEEP teacher would take the group usually led by the nursery teacher. The nursery teacher would often use this opportunity to make links with parents. On this occasion, the PEEP teacher used the time to speak to the observer.

When the children returned, she continued with the egg decorating activity, this time encouraging different children to participate. As it was a beautiful spring day, many of

the children were playing outside so she specifically asked a few children if they would like to come and join in. At times, she undertook a more general role in the nursery such as calming down the play at the water table or helping at the other activity tables. She also discussed with the nursery teacher where the decorated eggs could be displayed until next week and asked the PEEP assistant to prepare the scrap material for taking home. Several of the displays around the classroom were of PEEP based activities.

At 10.55am all the staff and children began to tidy up in readiness for 'circle time'. The children, under supervision from the PEEP teacher, cleared the mat area that was covered in construction toys and one little boy very conscientiously wiped down the egg activity table. The teacher rewarded him with a PEEP sticker. She also arranged some chairs for parents around the edge of the circle. The PEEP assistant prepared a table with the scrap material and assembled some carrier bags to take the 'booty' home. A few parents arrived, were greeted enthusiastically by their children, and sat down to join the group.

The PEEP teacher settled the group, welcomed the parents, (two fathers, four mothers and two siblings had arrived) and they began with a song; *PEEP Time is Here.* Then they sang the *Hello Song* with a lot of different themes and a finger counting song. The children joined in very enthusiastically and were encouraged to do the appropriate counting before each verse of the song. Two of the parents joined their children on the floor, as did the PEEP assistant. During this song, the teacher varied the words in unexpected ways, 'catching out' the children, causing gales of laughter and helping them to anticipate words with the use of rhyme and alliteration. The nursery teacher joined the group, first sitting on the floor and helping to focus the attention of one little boy who was quite distracted and then by welcoming parents as they arrived. She encouraged them to become part of the group that was focused on 'circle time'. By doing so, she was again breaking down the distinction between those parents who attended circle time and those who did not.

After the songs, the PEEP teacher introduced the PEEP story. She first produced a box in which the children 'found' six cream eggs. These were counted out very carefully. The box also contained two wicker baskets. She then 'read' the story: *Spots First Easter,* but she embellished the text and used the eggs and baskets to 'act out' the story. A lot of emphasis was placed on the counting and simple maths that the children

performed in advance of 'the answer' that was in the text. The children took it in turns to open the flaps and were very eager and attentive.

After the story, the PEEP teacher explained that there would be no pack borrowing but that the scrap material was available to take home. Then they sung the *Goodbye Song* and all the children were given a copy of the PEEP newsletter. Then she and the PEEP assistant handed out the carrier bags and helped the children choose their scrap. The children were all very involved in this and also selected card and instructions for making a lion mask. The PEEP teacher chatted to parents as they arrived and all were given the chance tolook through the scrap materials. By 11.45am, the morning children had put on their coats, collected their things and had left. The full-time children had been taken into the main part of the school to eat their lunch.

Thoughts on the effectiveness of the session

The good practice of the school was clearly enhanced by the opportunities afforded by the weekly presence of the PEEP teacher. The support and expertise of the PEEP teacher was clearly very highly valued by the nursery and the nursery teacher emphasised that her presence facilitated a further dimension to their existing relationship with the parents as well as affording an extended range of learning activities and attention for the children.

Appendix B: Instruments used per year

Instruments to measure Parental Outcomes

Age 1

At the first birthday interview parent outcomes were collected using:

I. Parenting Stress Index

II. ORIM questionnaire.

I. Parenting Stress Index (PSI) -Short Form

The Parenting Stress Index (PSI) (Abidin, 1983) is a product of approximately three decades of research, study and development. It was developed as a screening and diagnostic tool to assess parental stress based on the assumption that, in a parent-child relationship, the amount of stress a parent experiences is determined by parent characteristics, child characteristics, and their interactions. The PSI-short form has thirty-six items derived from the PSI which comprise three scales: Parental Distress, Difficult Child Characteristics, and Dysfunctional Parent-Child Interaction. Each scale has twelve items. Parents were asked to rate on a five-point scale how much they agreed, (strongly agree, agree, not sure, disagree, strongly disagree), with each item (ibid.).

The instrument has been widely used in both research and clinical settings. Abadin writes "the PSI/SF does not, by itself, possess a body of independent research that supports its validity. However, because it is a direct derivative of the full length PSI, it is likely that it will share in the validity of the full length PSI" (ibid., p.61). This validity has been fully documented (ibid., pp.53-60).

In a review of the instrument by the Culturally & Linguistically Appropriate Services Institute (CLAS), http://clas.uiuc.edu, they note that PSI scores have been found to be related to involvement in parent education, marital satisfaction, parental role satisfaction, behavioural observations, Bayley Scales of Infant Development scores, and the Achenbach Child Behaviour Checklist.

The PSI was included in the BTSS first birthday interviews in an attempt to explore whether attending a Baby PEEP group helped reduce maternal stress levels. However, it was felt that the questionnaire in its original form seemed very bleak and may have

caused undue stress for the respondents when completing it. The research team therefore adapted the questionnaire by writing twelve positive items and interweaving them with the original items.

Average scores on the response scale were calculated for each of the original, negative items separately, then for the negative items overall, and then for each of three sub-scales within the negative items, this being the method used by the authors of the original instrument. Average scores were also calculated for the positive items, both individually and overall.

II. ORIM Questionnaire

PEEP is based is the ORIM framework which was developed by Hannon (1995) of the University of Sheffield. The framework highlights the crucial role of parents in providing children with:

- **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, learning strategies and dispositions from adults.

Ways to facilitate this model in day to day interactions with children are made explicit during PEEP groups and in their resources.

The first-birthday questionnaire included a set of twelve items intended to assess parent's use of the ORIM framework in their daily interactions with their children. It included such questions as "How often do you (or someone else) read to (your child)?" and "How often do you read for pleasure or to find information about something (book, magazine, newspaper)?" The response scale was "Never, Occasionally, Once a week, Several times a week or Every day".

Age 2

At the second birthday interview, parent outcomes were collected using:

I. The Observational Record of the Care-giving Environment (ORCE).

I. The Observational Record of the Care-giving Environment (ORCE)

The Observational Record of the Care-giving Environment (ORCE) was developed by the Early Child Care Research Network from the (US) National Institute of Child Health and Human Development (NICHD). It was created to evaluate a range of childcare options in a major study addressing variations in childcare as they relate to a child's development (NICHD, 1996). Its purpose was to '*record caregivers' behaviours, identified in the research literature as contributing to children's social and intellectual development*" (ibid, p.271).

Although designed to evaluate non-maternal settings ranging from fathers and grandparents, through childminders and nannies to institutionalised day care, the ORCE operates by focusing on a caregiver's interaction with a specific child. It was therefore suitable for use during the second birthday home visit to assess the quality of interaction between the study child and their primary caregiver. In addition, because it measures interactions, not contexts or qualifications, it is unrelated to economic or educational values. Altogether the ORCE provided the best assessment of the contentious notion of "good parenting" that is so clear when it happens, but can prove illusive to describe or measure.

The ORCE, as used in the NICHD (1996) study, provided a quantitative record of the occurrence of defined acts (behaviour scales) plus a qualitative assessment of the subtlety of the caregiver's behaviour in relation to the child's behaviours (qualitative ratings), with observations lasting approximately three hours.

However, such a sustained period of observation would not have been either feasible or appropriate within the Birth to School Study. It was therefore decided to adapt the extent of the instrument as well as amending the observation procedure in order to facilitate its use. Consequently, only the qualitative caregiver ratings were used, the child ratings were omitted and the timed observation periods were replaced by general observation throughout the interview.

The qualitative caregiver ratings were divided into eight sections as outlined below.

- Sensitivity to distress;
- Sensitivity to non-distress;

- Intrusiveness;
- Detachment/disengagement;
- Stimulation of development;
- Positive regard for child;
- Negative regard for child;
- Flatness of affect.

Each of the above sections includes comprehensive guidelines as to the aspects of behaviour that are relevant. All were developed "following an extensive review that identified these domains as being important to infant development" (ibid, p.279).

Each section was rated by the researcher according to the following four-point scale: not at all characteristic; minimally characteristic; moderately characteristic; and highly characteristic. The ORCE was completed by a Research Officers as soon as the visit had been completed.

Age 3

At the third birthday interview parent outcomes were collected using:

I. Pleasure in Parenting Scale (PPS);

II. Parent-Child Joint Activity Scale (PJAS);

III. Edinburgh Postnatal Depression Scale (EPDS).

I. Pleasure in Parenting Scale (PPS)

Two aspects of parenting: warmth and control have been identified as important influences on children's development. Maccoby and Martin (1983) used Sears' formulation and Baumrind's (1971) emphasis on style of control to attempt to reformulate parenting taking into account demandingness and responsiveness. Broad-based studies consistently find both to be important factors in successful parenting (Maccoby and Martin, 1983). A greater understanding of how demandingness or control contributes to the parenting process is known than of how responsiveness contributes. There are few large-scale studies examining how responsiveness affects parenting processes that might influence child outcomes.

A lack of positive interaction has been found in families of problem children (Gardner, 1994), and Pettit and Bates (1989) found that early absence of positive interactions predicted more problem behaviours in the children. Pettit and Bates suggest one reason for the lack of studies of responsiveness is that positive events may be less salient and varied than negative events. Fagot (1994) points out that responsiveness has two major aspects: instruction and positive support, which are very often confused in studies.

Attachment assessment, home observations and parent questionnaires were used to develop a construct of positive parent support, but one aspect of parenting that was missing from existing measures was the pleasure that parents received from routine care-taking activities.

The Pleasure in Parenting Scale is a 10 item self-report instrument developed by Fagot in 1994. She developed the scale, measuring parents' pleasure in carrying out routine care-taking acts with their children, as part of an attempt to develop better measures of parental warmth.

Measures of parenting, such as in Abidin (1983), are scored in terms of parent stress and are more appropriate for younger children. The Pleasure in Parenting Scale adds a valuable component to the measure of positive support by parents. It is a good screening instrument because it is quick and easy for parents to answer. This questionnaire consists of ten behaviours, some care-taking and some pleasurable, and the mother circled her response from a five-point scale (1=dislike; 5=enjoy very much).

II. Parent-child Joint Activity Scale (PJAS)

The Parent-child Activity Scale is a self-report instrument for the assessment of parent - pre-school child joint activities and was developed by Chandani, Prince and Scott (1999).

The impact of parental behaviour on child adjustment has led to a considerable amount of research which has shown a strong association between negative parenting and behaviour disorders among young children (i.e. Williams & Forehand, 1984; Dumas & Wahler, 1985; McFadyen-Ketchum, Bates, Dodge & Pettit, 1996). However, little research has been conducted on the effects of positive parenting on pre-school children's behaviour particularly in population-based samples.

Parent-child joint activities are occasions when the mother and child are engaged in the same task and can range from play activities, such as singing, to educational activities such as reading. Observational research suggests that a lack of mother-child joint activities is connected with behaviour problems in pre-school children (Dunn & Kendrick, 1982; Pettit & Bates, 1989) and that quality of the joint activity is also important in promoting sociable behaviour in children (Gardner, 1987, 1994). However, there are three methodological limitations in observational studies. Firstly, usually the observation is for a limited period (Gardner, 1987). Secondly, it is labour-intensive therefore only small samples have been studied (Gardner, 1987; Pettit and Bates, 1989). Finally, direct observation is too cumbersome to be used for screening populations.

Existing questionnaires and self-report instruments which included items on positive parenting tended to assess attitudes rather than actual parenting practices (Holden & Edwards, 1989). Most items in the Child Rearing Practices Report (CRPR, Block, 1981) connected with parenting style measure nurturing attitudes and values rather than actual behaviours.

The PJAS was therefore specifically designed as a brief, convenient measure suitable for use in large-scale population-based epidemiological studies. It could prove valuable for investigations looking at the impact of parent – pre-school child joint activities on socio-cognitive development of the child: peer interaction, social skills development, language and cognitive development and protective effect on emotional/behavioural problems, using both cross sectional and longitudinal study designs. The PJAS consists of 22 items and the mother circled one response from a choice of five, 'seldom or never', 'once or twice a month', 'once or twice a week', 'about every other day', and 'on most days'.

III. Edinburgh Postnatal Depression Scale (EPDS)

The Edinburgh Postnatal Depression Scale (EPDS), a self-rating scale was developed by Cox et al. (1987) to help primary health care professionals detect mothers suffering from postnatal depression. Several studies have shown that postnatal depression affects at least 10% of women (i.e. Paykel et al, 1980; Cox et al, 1987). These mothers may cope with their baby and with household tasks, but their enjoyment of life is seriously affected and it is possible that there are long-term effects on the family.

The EPDS consists of ten short statements. The mother underlined which of the four possible responses was closest to how she had been feeling during the past week. Most mothers completed this task without difficulty in less than 5 minutes.

The original validation exercise for the 10-item EPDS in 1987 was carried out on 84 mothers using the Research Diagnostic Criteria for depressive illness obtained from Goldberg's Standardised Psychiatric Interview (SPI) (Goldberg, Cooper, Eastwood, Kedward & Shepherd, 1970). The EPDS was found to have satisfactory sensitivity and specificity, and was also sensitive to change in the severity of depression over time. A review of eighteen validation studies in 2001 by Eberhard-Gran, Eskild , Tambs , Opjordsmoen and Samuelsen confirm this conclusion.

All of the above questionnaires were completed by the mother during the BTSS third birthday visit. If necessary, the Research Officer provided help by reading the questions and writing down the responses.

Age 4

At the fourth birthday interview parent outcomes were collected using:

I. Shared Activities Questionnaire.

I. Shared Activities Questionnaire

The Shared Activities Questionnaire was created by the Birth to School Study team based on the Parent-child Joint Activity Scale (PJAS) and the Effective Pre-school and Primary Education (EPPE) questionnaire on home activities. It was adapted to reflect the age of the children

The Shared Activities Questionnaire consisted of 23 items and the mother circled one response from a choice of five, 'seldom or never', 'once or twice a month', 'once or twice a week', 'about every other day', and 'on most days'.

Instruments to measure Child Outcomes

Age 2

At age two, the instruments used to measure child outcomes were:

I. The Bayley Scales of Infant Development-II (BSDI-II)

- Bayley Mental Index (MDI)
- Bayley Behaviour

II. MacArthur Communicative Development (MCDI).

I. The Bayley Scales of Infant development –II (Mental and Behaviour)

The Bayley Scales of Infant Development (BSID, 1993) were the result of fifty years of work by Bayley at Berkeley, California. The scales were revised in 1993 to accommodate '*changes in theory and research, psychometrics and even graphic art*' (ibid., p.1) which had taken place since the scales were first published.

The Bayley Scales of Infant Development – second edition (BSID-II) are "an individually administered examination that assesses the current developmental functioning of infants and children" (ibid., p.1). It has become the "most widely used measure of cognitive developmental status for children in the first two years of life" (NICHD, 1999, p.14).

The BSID-II consists of three scales, the Mental Scale, the Motor Scale and the Behaviour Rating Scale. The latter scale assesses the child's behaviour during the testing session; the former two scales assess their current level of cognitive, language, personal-social development, and their fine and gross motor development.

The BSID-II is used extensively in a clinical context to diagnose developmental delay and to plan intervention strategies. The normative data from the BSID-II (which reflects the US population in terms of race/ethnicity, gender, parental education and demographic location) allow the clinician to compare an individual child's performance with same-age peers.

Two parts of the BSID-II were used during the second birthday visit of the Birth to School Study to generate two child outcomes. These were the Mental Scale and the Behaviour Scale. To accommodate the age categories given by the BSID-II, the children were seen either between 25 and 27 months or between 26 and 28 months. Each category uses slightly different elements of the scale. The majority of the children were seen in the latter age range. Age was adjusted to compensate for pre-maturity. If the

visit could not take place within this window (25 –28 months) the mother was still interviewed and asked to fill in the MacArthur CDI but neither the BSID–II or the Observational Rating of the Childcare Environment (ORCE) were completed. It was not administered to children who had English as an additional language.

The BSID-II was chosen primarily because it is recognised by both clinicians and researchers as the foremost measure of cognitive development in two year old children. Further, it was necessary to use a test that could be satisfactorily administered within the home. Families had been recruited into the study on the understanding that participation would necessitate only a minimal level of disruption/inconvenience to themselves and reassured that the 'games' that were to be played should be enjoyable and non-anxiety-provoking for the child. Asking the families to bring their child to a clinical or controlled environment would have discouraged many families from taking part.

However, it is suggested that the home is not the ideal environment in which to administer the BSID-II (1993, p36). Nevertheless, in order to "facilitate the child's typical performance" (ibid, p35), the manual suggests that the caregiver should be present during the administration and that a flexible format should be used in presenting the items to the child. It specifies: "Depending upon the temperament of the child, the child's interests in some materials and tasks and not in others, and the level of rapport that you have established with the child, items presented initially in the evaluation may have to be administered at a later time" (ibid, p35). These two qualities ensured that it was suitable, if not ideal, to be used at home and that its administration was unlikely to give rise to undue concern amongst parents.

The BTSS attempted to reduce the problems of home administration by explaining, both on the telephone and in a letter, that it would be preferable if the 'games' could be played in a quiet room without toys or other distractions. It was also suggested that it would be better if other siblings were not present. The Research Officers all carried with them a child-sized table and a small stool at which the child was invited to sit. These were very popular with the children and ensured a degree of conformity in the conditions of administration. However, although many families tried their best to comply with the above requests, it was not always feasible for them to do so. Some families, whose contact details were no longer current, were cold-called by the Research Officer. If it was convenient, the visit then took place without the family having the opportunity to

arrange childcare for other siblings or even just to tidy up. Inevitably, some visits took place in conditions that were less than ideal.

The Behaviour Scale was completed by the research officer shortly after the visit and at the same time as the ORCE.

The Research Officers on the BTSS were trained in the use of the BSID-II by a paediatrician with many years of experience in administering the test, who then observed each research officer on two separate occasions to facilitate reliability between the Research officers. A fourth Research Officer who joined the team in April 2001 was trained by the existing staff and observed by them for reliability.

II. MacArthur Communicative Development Inventory: Toddlers (MCDI)

The MacArthur Communicative Development Inventory (MCDI) (Fenson et al, 1993) is a parent-completed instrument designed for use with toddlers between 16 and 30 months. It comprises a 'vocabulary production checklist and a section designed to assess syntactic and morphological development as well as nominal/pronominal style' (NICHD, 1999). It contains approximately 700 words that might appear in a young child's expressive vocabulary. The version of the MCDI used in the BTSS was adapted from the original American version by MacPherson (2002) to minimise culture-bound words or phrases; for example, 'cookie' was changed to 'biscuit' and 'yard' to 'garden'.

Using an instrument that relies on parental reports has the obvious advantage that it is both a financial and labour efficient method of collecting such information. However, there are arguments against the reliability of parental reports. It has been suggested both that, because parents lack training in language development, they may fail to notice certain constructions, and that parents are more likely to overestimate their child's score. Feldman, Dollaghan, Campbell, Kus-Lasky, Janosky, and Paradise (2000) noted that the different sub-scales are subject to reporting biases, with those scales that require a greater degree of subjective interpretation, being the most vulnerable.

These limitations should be considered in the context of the benefits of using parental report. Most importantly, it is the parents who are most likely to be exposed to the full range of their child's vocabulary. Reznick and Goldsmith (1989) reported on the validity of parental report instruments for the assessment of early language. They found

that un-abbreviated lists were more likely to form precise views of produced language and that their research supports the reliability of parent-completed vocabulary checklists.

Dockrell (2001, p79), reports that the MCDI is 'one of the most widely used parental questionnaires' and furthermore suggests that it 'has proved to be a very powerful tool for both research and clinical work. The original measures are reliable and valid with typically developing children'.

A study by Dale (1991) deals specifically with the validity of the MCDI. It compared the vocabulary and syntactic development of children as reported by parents using the MCDI with instruments using direct observation of the same children. It was found that the MCDI assessed with "substantial validity" a broader range of vocabulary and that the syntactic items as assessed by the MCDI also had high validity. Dale concludes that although the validity of the parental report *might* be affected by individual variables such as parental education or the sex of the child, the MCDI still remains a useful and valuable tool.

Also of note are the findings of Dale, Bates, Reznick and Morrisset (1989) who found little relationship between the results of the measures of a parent-completed vocabulary checklist (which contributed to the development of the MCDI) and parental variables such as social class and education.

When a Research Officer from the BTSS telephoned the mother to arrange the visit, the MCDI and how it should be filled in were explained. It was emphasised that only words that the child actually *said* should be ticked, rather than words that the child was known to *understand.* The MCDI booklet was then sent to each mother before the visit. The same instructions as had been given orally were also included in a covering letter.
The MCDI takes between 15 and 45 minutes to complete. In some cases, it had not been filled in at the time of the visit and if this was the case, a freepost envelope was left. The return rate for the MCDI was 83%. If the child was bilingual, the families were asked to differentiate the words spoken in each language. The four outcomes generated from the MCDI were:

- Vocabulary (total);
- Decontextualised Language;

- Sentence Complexity;
- Grammatical Competence.

Age 3

At age three, the instruments used to measure child outcomes were:

I. British Ability Scale II (BAS)

- Picture Similarities;
- Verbal Comprehension;
- Vocabulary;
- Block Building;
- Early Number Concepts.

II. Emotional Activity and Sociability (EAS) Temperament

I. British Ability Scales Second Edition (BAS II)

The BAS II (Elliot et al., 1996) is a battery of individually administered tests of cognitive abilities and educational achievement. It was designed to be used with children as young as two years, six months (2:6) to adolescents aged seventeen years, eleven months (17:11). The BAS II consists of two different batteries, which are geared towards the different age groups. In the Birth to School Study, the Early Years Battery was used.

The core scales and combination scales of the Early Years Battery are detailed in Table 3.6.

Those who administer, score and interpret the BAS II should have formal training to establish and maintain rapport, elicit optimum performance, follow standard procedures, probe responses and maintain test security. The Birth to School researchers received team training and were assessed individually by an external consultant on the accurate use of the BAS.

Sub scales

a) Picture Similarities

Picture Similarities contributes to the General Conceptual Ability score (GCA) or Core Scales and measures non-verbal reasoning.

Scores on the Picture Similarities sub-scale may reflect the child's: non-verbal problem-solving (inductive reasoning); visual perception and analysis; ability to attach meaning to pictures; ability to develop and test hypotheses; use of verbal mediation and general knowledge. Low scores may reflect impulsiveness.

b) Verbal Comprehension

Verbal Comprehension is a sub-scale of the Early Years Core Scales from the British Ability Scales II, and it contributes to the measurement of General Conceptual Ability (GCA) for children aged 2:6 to 7:11 and to the Verbal Ability cluster for children 3:6 to 7:11.

The verbal sub-scale assesses understanding of language which measures language comprehension through a receptive mode. Verbal Comprehension scores may reflect the child's: understanding of spoken language, including syntax, prepositional, relational concepts and vocabulary; ability to develop and test hypotheses; ability to follow verbal instructions and short-term auditory memory for sentences. Low scores on this sub-scale may reflect: egocentricity; distractibility and impulsiveness.

c) Vocabulary

Naming Vocabulary contributes to the Verbal Ability component of the Core Scales. The Naming Vocabulary scale measures expressive language and knowledge of names. Scores may reflect the child's: expressive language skills; vocabulary knowledge of nouns; ability to attach verbal labels to pictures; general knowledge; general language development; retrieval of names from long-term memory and level of language stimulation. Low scores may reflect reluctance to speak.

d) Block Building

Block Building contributes to the General Conceptual Ability (GCA) score. The Block Building sub-scale measures visual-perceptual matching, especially that of spatial orientation, in copying block patterns, using eight wooden blocks to copy a two- or three-dimensional design.

Block Building scores may reflect the child's: spatial problem-solving; visual-perceptual matching; eye-hand coordination; perception of relative orientation (the preservation of relative position and angles in different aspects of the design); use of verbal mediation and ability to follow verbal instructions and visual cues. Low scores may also reflect egocentricity, i.e. paying insufficient attention to the administrator's instructions.

The two non-verbal scales, Picture Similarities and Block Building were used on the BTSS for children who did not have English as a first language.

e) Early Number Concepts

Early Number Concepts is a scale with verbal, pictorial and quantitative content.

Early Number Concepts Scores may reflect the child's: knowledge of numerical and pre-numerical concepts; verbal comprehension; knowledge of basic language concepts; visual perception and analysis of pictures; integration of visual and verbal conceptual information. Low scores may reflect expressive language difficulties, including the reluctance to speak.

II. Emotionality, Activity and Sociability (EAS) Temperament Scale

The EAS Scale (Buss & Plomin, 1984) questionnaire was used to explore three aspects of a child's temperament:

- Emotionality;
- Activity;
- Sociability.

Buss and Plomin (1984) developed the EAS scale, which, after several modifications, now consists of 20 items split into four subsets: emotionality, activity, sociability and

shyness. Each item is rated on five-point category scale from 'not at all characteristic' to 'very characteristic'. The suitability of the EAS scale as a cross-cultural instrument has been well established (Gasman, Purper-Ouakil, Michel, Mouren-Simeoni, Bouvard, Perez-Diaz & Jouvent, 2002). Mathiesen and Tambs (1999) reported favourably on the reliability and stability of the EAS scale with children at various ages between 18 and 50 months.

In the Birth to School Study, only the ten items relevant to sociability and shyness were selected for use in the EAS questionnaire as presented to parents. These particular aspects of temperament were thought to be most relevant in the exploration of potential effects of the PEEP intervention.

Age 4

At age four, the instruments used to measure child outcomes were:

I. British Ability Scale II (BAS)

- Verbal Comprehension
- Early Number Concepts

II. Phonological Awareness

- Rhyme
- Alliteration

III. Concepts about Print (CAP)

IV. Writing sample

V. The British Picture Vocabulary Scales (BPVS)

VI. Adaptive Social Behaviour Inventory (ASBI) (Hogan et al., 1982)

I. British Ability Scales Second Edition (BAS II)

- Verbal Comprehension
- Early Number Concepts

For a description of the BAS and these sub scales see Age 3 (I).

II. Phonological Awareness

The Phonological Awareness test (Bryant & Bradley, 1985) consists of two different sub-scales: rhyme and alliteration.

In both tests the child is presented with three words at a time, illustrated on three picture cards. The administrator names the pictures on the cards and asks the child to repeat them.

- Rhyme: The child is then asked to identify the words that sound the same or pick the odd one out (i.e. bun, sun, and tap).
- Alliteration: The child is then asked to identify the words that have the same first sound or pick the odd one out (i.e. pin, pig, and tree).

It is a quick test to administer, and Bryant and Bradley (1985) have demonstrated that children's scores on the initial rhyming tests are a strong predictor of their later progress. Their score on the rhyme test at 4 years 7 months has been found to predict reading at 7 years 7 months.

III. Concepts about Print

The Concepts about Print (C.A.P.) test is designed to assess children's knowledge of the nature and function of written text (Clay, 1991). This test takes 5 to 10 minutes to administer and assesses various aspects of print. It requests the child to recognise and identify the front of the book, to ensure understanding that the text and not the pictures tell the story, and to recognise elements of print such as lower and upper case letters, punctuation marks, *etc*.

Clay, the author of the Concepts about Print booklet entitled 'Stones' (1979), explains that the test can also be used with non-readers, as the child is asked to help locate certain features as the researcher reads the book. As the story progresses the text and the pictures lose their regularity, pictures and text are printed upside down and the children are asked to observe any changes.

It has been used widely in similar evaluation studies (Hurry, Sylva and Riley, 1999; Evangelou and Sylva, 2003).

IV. Writing Sample

Gorman and Brooks (1996) developed the Young Children's Writing Test. The final guide they produced can help researchers, teachers and parents to score and thus identify what stage in writing a child has achieved, and also to anticipate the next stage of development:

Stage 1 = Drawing and sign writing;
Stage 2 = Letter like forms;
Stage 3 = Copied Letters;
Stage 4 = Child's name and strings of letters;
Stage 5 = Words;
Stage 6 = Sentences;
Stage 7 = Text.

The child's ability to write his/her own name has been reported in different studies. The Longitudinal Infant School Study (Tizard et al, 1988) reported a correlation between handwriting skills on school entry and reading achievement at age seven on the Young Reading Test. Also, Riley (1996) reported a correlation between children's ability to write their own name and their scores on reading tests by the end of the school year.

The 600 writing samples from the Birth to School Study were scored blind by Gorman. Based on this sample, he refined the stages of writing from 7 to 15.

V. British Picture Vocabulary Scale II (BPVS)

The BPVS II (Dunn, Dunn and Whetton, 1997) measures a child's receptive vocabulary for Standard English. It is based on the Peabody Picture Vocabulary Test (PPVT), but it has been modified and standardised for use on a British population. The test is simple to use even with very young children and it is widely used in research for four reasons:

- It offers an indication of verbal comprehension and can be regarded as being important to early reading;
- It is not time-consuming to administer and score;
- It can provide an easily obtainable source of data;
- Its wide range of features reduces the possibility of floor and ceiling effects.

It is very important to establish rapport with the child being assessed, especially in the case of very young children. It is also necessary to know the children's chronological age before beginning the test.

The reliability of this test has been documented in over 100 published studies on the reliability of PPVT and this second edition of the BPVS was tested again for reliability and validity. Studies show that it correlates with other vocabulary tests and individual intelligence tests (e.g. British Ability Scales Word Reading Test, Elliot et al, 1996), and with the Reynell Comprehension Scale.

VI. Adaptive Social Behaviour Inventory (ASBI)

Hogan, Scott and Bauer (1992) developed an inventory for pre-school social competence in high-risk children based on a sample of 545 three year olds. Hogan et al. (ibid.) state that the measure was based on a notion of social competence multi-faceted and separated from behaviour problems.

The ASBI has three sub-scales (based on an American sample) which are Express, Comply and Disrupt. The Effective Provision of Pre-school Education (EPPE) study used the ASBI on almost 3000 British children and established the use of four sub scales which are: compliance/conformity, pro-social, confidence/independence and anti-social behaviour. Factor analysis on the ASBI items was carried out by the EPPE study on 2129 children's scores (see Sammons et al., 1999 for a detailed analysis). The BTSS used the four sub scales established by EPPE.

The thirty item inventory takes about five minutes to complete and is a rating scale measure where one of three points must be selected: rarely or never; sometimes; or almost always. It was completed by the nursery teachers, where applicable, and also by the mothers.

Age 5

At age five, the instruments used to measure child outcomes were:

I. British Ability Scale II (BAS);

- Picture Similarities

- Early Number Concepts

II. Phonological Awareness;

- Rhyme
- Alliteration

III. Concepts about Print (CAP);

IV. Writing sample;

V. The British Picture Vocabulary Scales (BPVS);

VI. Letter Identification;

VII. Adaptive Social Behaviour Inventory - Revised (ASBI-R);

VIII. The Pictorial Scale of Perceived Competence and Social Acceptance for Young Children (PSPCSA).

I. British Ability Scales Second Edition (BAS II)

- Picture Similarities
- Early Number Concepts

For a description of BAS II, and the sub-scales used, see Age 3 (I).

II. Phonological Awareness

For a description see Age 4 (II).

III. Concepts about Print

For a description of Concepts about Print, see Age 4 (III).

IV. Writing Sample

For a description of the Writing Sample, see Age 4 (IV).

V. The British Picture Vocabulary Scale II (BPVS)

For a description of the BPVS, see Age 4 (V)

VI. Letter Identification

The Letter Identification test is designed to assess which letters the child knows (Clay, 1972). It takes between 5 to 10 minutes to administer. Lower-case letters are presented to the child in random order. Children score if they know the name, an acceptable sound for that letter, or a word that begins with that letter.

VII. Adaptive Social Behaviour Inventory (ASBI) R

Based on the ASBI as detailed at 4 (VI) but with 45 items reflecting age appropriate items. In the BTSS, this was completed by the child's teacher.

VIII. The Pictorial Scale of Perceived Competence and Acceptance for Young Children (PSPCSA)

The Pictorial Scale of Perceived Competence and Acceptance for Young Children (PSPCSA) aims to assess the young child's perception of his/her competence and acceptance by others (Harter & Pike, 1983). Perceived competence is viewed as an important correlate and mediator of the child's motivation to be effective. Harter and Pike (ibid.) believe that the scale can be used in both educational and clinical assessments, and also in evaluation programmes, where the aim is to discover changes over time in a child's perceived competence and acceptance. This test has been used in evaluative research into early years (Nabuco, 1997; Evangelou and Sylva, 2003).

The scale is divided into two domains (General Competence and Social Acceptance) and into four sub-scales. The General Competence domain is divided into Cognitive Competence and Physical Competence, reflecting children's perception of their performance in academic and physical domains. The Social Acceptance domain is divided into Peer Acceptance and Maternal Acceptance, reflecting children's perception about the way their friends and their mother view them. Each of the four sub-scales consists of six items. There are two booklets of pictures consisting of 24 items, one for boys and one for girls.

Appendix C: Ethics

The BTSS has considered whether the research is in line with what is referred to as 'research ethics'. Research ethics *is the making of moral judgements about the aims and methods of a study* (Aubrey et al., 2000, p.156). Issues such as the personal and professional honesty of the researcher, the responsibility of the researcher towards the participants in the study (children, families, pre-school and school settings), and the relationships of the researcher with the participants, the Project and the University have all been taken into account.

Ethical permission was granted by the Oxfordshire Nursing and Allied Professions Ethics Committee (NAPREC) in 1996 for the Foundation Study on PEEP. NAPREC has since been re-organised, and the relevant committee is now the Oxfordshire Applied and Qualitative Research Ethics Committee (AQREC). In 1998, PEEP and NFER applied for an extension of the original permission to cover both the Comparison area and the period up to 2005, and this was approved. Annual updates on the study have been provided to the ethics committee. The study meets with the guidelines as stated by the British Psychological Society (BPS), (Robson, 1993); and the British Educational Research Association's (BERA) (2004) Ethical Guidelines for Educational Research:

1. The parents of all 604 families were informed of the aims and methods via letter and personal contact if requested.
2. All staff were informed via letter/leaflet and meetings with the researchers (Appendix K).
3. A letter of 'informed consent' was obtained from every participating family before the child joined the study. A second letter of 'informed consent' was obtained giving permission to see the child at school, to obtain information from the school about the child and to obtain information from PEEP regarding attendance (Appendix L).
4. All records from children, parents and staff were confidential. No names were used in the computer records. Information collected from staff was available to those individuals who provided it. Names and settings have been altered into numbers on the database. Pseudonyms were used. The names were kept in a locked file following BERA's guidelines for educational research.

Appendix D: Demographic characteristic prior to propensity score matching (PSM)

In order to investigate whether children's scores were influenced by more favourable home circumstances, a range of demographic information was collected during parents' interviews at recruitment and annually thereafter. The information collected at the birth interview, formed the basis on which Propensity Score Matching was later carried out.

The statistics reported are for the Oxford group, the PEEP sub-group and the Comparison group. It was not possible to report the demographic statistics for the Comparison sub-group as this was re-created for the analysis of every individual outcome. For normally distributed measures t-tests were applied. For non-normally distributed measures Mann Whitney tests were used. For categorical data chi square (χ^2) tests were used.

Mother characteristics

Age at recruitment

The average age of the mothers at the birth interview in the Oxford group was 28.02 years, that of the PEEP sub-group was 28.49 years, and that of the Comparison group was 27.70 years. Neither the difference in ages between the Oxford group and the Comparison group, nor that between the PEEP sub-group and the Comparison group, was significant.

Ethnicity

The proportion of mothers of white ethnicity was significantly higher in the Comparison group than both the Oxford group ($p < .01$) and the PEEP sub-group ($p < .05$). Table D.1 shows the ethnicity of the mothers.

Table D.1: Ethnic origin of mothers

Ethnic origin	Oxford group		PEEP sub-group		Comparison group	
	n	%	n	%	n	%
White	241	82.3	141	83.4	269	90
Black – Caribbean	2	.7	2	1.2	2	.7
Black – African	4	1.4	4	2.4	4	1.3
Black – British	8	2.7	5	3	1	.3
Indian	3	1	1	.6	2	.7
Pakistani	14	4.8	8	4.7	19	6.4
Bangladeshi	8	2.7	1	.6	1	.3
Mixed race	13	4.4	7	4.1	1	.3
Total	293	100	169	100	299	100
Not stated	7		5		3	

Level of Qualifications

As can be seen from Figure D.1, there was a significant difference between the Oxford and the Comparison groups in the level of maternal qualifications ($p<.01$). The Comparison group had a smaller proportion of mothers with no qualifications and a much higher proportion of those with CSE/GCSE and O- Levels. However, the Oxford group had higher levels of Further and Higher education.

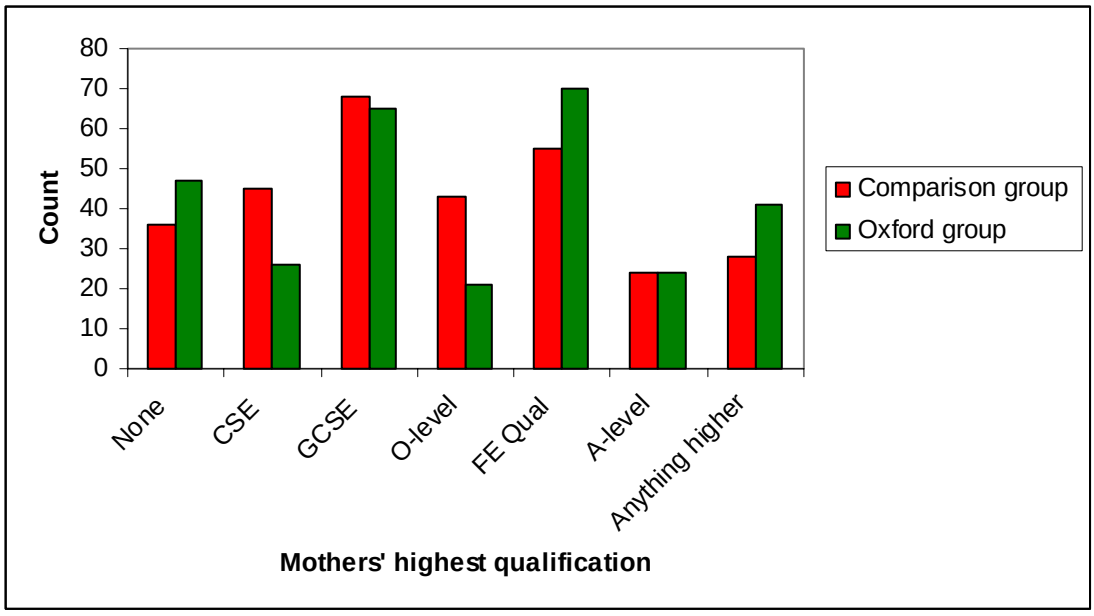


Figure D.1: Mothers' highest qualification

Family characteristics

Father/partner present

Table D.2: Father/partner present

Status of father/ partner	**Oxford group**		**PEEP sub-group**		**Comparison group**	
	n	%	n	%	n	%
Present	236	78.9	135	78	268	88.7
Absent	63	21.1	38	22	34	11.3
Total	299	100	173	100	302	100
Missing	1		1		0	

There were significantly more single mothers in the Oxford group ($p<.01$) and the PEEP sub-group ($p<.01$) than in the Comparison group.

Benefits

Figure D.2: Benefits received by the Oxford group

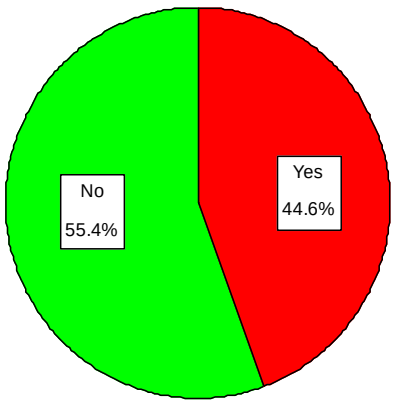
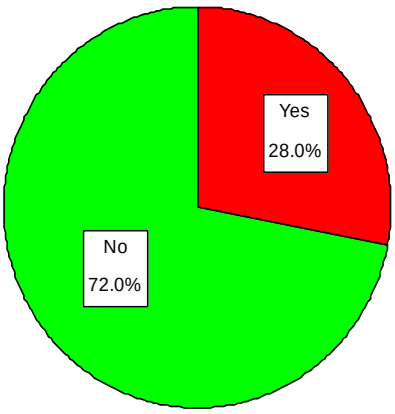


Figure D.3: Benefits received by the Comparison group



Figures D.2 and D.3 show the benefits received by the Oxford and the Comparison groups. Significantly more families in the Oxford group received benefits than in the Comparison group ($p< .001$). There was no statistically significant difference in the number of families receiving benefits in the PEEP sub-group and the Comparison group.

Car Ownership

There were no significant differences in the number of families who owned a car between the Oxford and Comparison groups, as well as between the PEEP sub-group and the Comparison group.

Family size

Table D.3: Family size

Number of older siblings in the family	**Oxford group**		**PEEP Sub-group**		**Comparison group**	
	n	%	n	%	n	%
0	97	32.8	76	44.7	120	40
1	112	37.8	63	37.1	107	35.7
2	50	16.9	19	11.2	51	17
3	19	6.4	5	2.9	13	4.3
4	10	3.4	4	2.4	6	2
5	6	2	2	1.2	3	1
6	1	.3	1	0.6	0	0
7	1	.3	0		0	
Total	296	100	170	100	300	100
Missing	4		4		2	

The average family size was significantly larger in the Oxford group than in the Comparison group ($p<.05$). There was no significant difference in the average family size between the PEEP sub-group and the Comparison group.

Child characteristics

Gender

There was no significant difference in the number of boys and girls between the Oxford and the Comparison group and between the PEEP sub-group and the Comparison group. In the Oxford Group 49% were boys and 51% girls. In the PEEP sub-group 47% were

boys and 53% girls. Finally, in the Comparison group 52% were boys and 48% were girls.

Age in days

Table D.4: Child's age at recruitment

Child's age in days	**Oxford group**		**PEEP sub-group**		**Comparison group**	
	n	%	n	%	n	%
0-30	3	1	0	0	7	2.3
31-60	97	32.7	53	30.9	178	58.2
61-90	140	47.1	86	50.3	112	37.2
91-120	40	13.4	24	14	4	1.3
121-150	11	3.7	4	2.3	0	0
151+	6	2	4	2.3	0	0
Total	297	100	171	99.8	301	100
Missing	3		3		1	

The age of the Oxford group children at recruitment and of the PEEP sub-group children was significantly higher than the Comparison group ($p < .001$).

Birth weight in grams

The average birth weights for each group are as follows: Oxford group, 3310 grams; PEEP sub-group, 3341 grams; and Comparison group, 3339 grams. There were no differences in the birth weights between either the Oxford and the Comparison groups, or the PEEP sub-group and the Comparison group.

Appendix E: Maternal socio-economic status (SES)

The Computer Assisted Standard Occupational Coding (CASOC) (Elias, Halstead & Prandy, 1993) system was used to allocate a social class to both mothers and resident males (husband/partner or, in the absence of a husband/partner, the mother's father).

Many factors relating to a person's current or most recent job (in cases of mothers who have not return to work for more than a year following child birth) are taken into account to generate a score from 1-14. The BTSS uses a five-point version of the scale, and the classes can be summarised as follows:

- Class 1 – Employers in large organisations, managers, professionals and associate professionals as well as higher level supervisors. These people generally manage one or more people, or are a professional. A large organisation is defined as one employing 25 or more people.
- Class 2 – Intermediate occupations, such as clerical or administrative jobs. These positions involve planning or supervision to a much lesser extent. This class also includes lower technical occupations.
- Class 3 – Employers in small organisations (less than 25 people) and own account workers. They are self-employed with either no employees, or they only employ family members.
- Class 4 – Lower supervisors (covering positions other than managerial) as well as craft and related occupations.
- Class 5 – Employees in routine, or semi-routine occupations, and those who are long-term unemployed.

Table E. 1: Social Class Classification of Mothers

Class type	Oxford group		PEEP sub-group		Comparison group	
	n	%	n	%	n	%
1 Managerial / Professional	61	22.5	51	31.5	39	14.5
2 Intermediate	54	19.9	33	20.4	62	23
3 Small employers & own account workers	1	0.36	1	0.6	7	2.6
4 Supervisors / craft related	11	4	3	1.9	15	5.6
5 Working class	144	53	74	45.7	145	54
Total	271	100	162	100	268	100

There was no significant difference in the maternal SES classification between the Oxford and the Comparison groups. This was also the case for the father/partner SES classifications in both groups.

Appendix F: Quality of mothers' writing

The mothers' writing samples offered another indicator of the differences between the two groups at birth.

During the birth interview, mothers were asked to write their name and address, and a few lines on how their baby was different now from when s/he was born. Fifteen mothers did not provide a writing sample, 568 wrote in English, and eight wrote in another language. These eight scripts were translated and included in the analysis of content but not in the ratings of quality. Some mothers wrote about more than one child so the total number of writing samples in English was 574.

Many of the resulting scripts were quite short (the longest was 244 words), but most provided rich material for analysis. The names and addresses were given a general rating for accuracy and intelligibility on a five-point scale (1 = low, 5 = high). What the mothers wrote about their babies was also rated on a five-point scale both for overall impression and for each of the analytic categories of vocabulary, structure and handwriting. The number of words written about the babies was noted, and the number of errors per 10 words was calculated (but repeat errors were not included in the count)[f]. Table F.1 shows the results of the mothers' writing samples with reference to the overall impression and vocabulary. Frequencies of errors per 10 words are given in Table F.2.

Most of the mothers were at least reasonably competent writers, especially of their names and addresses. The average number of words written was good for the limited time available, and the average number of errors per 10 words was small. There was a small number (about 12) whose writing was very poor, namely those who were rated 1 in any of the four categories.

The differences between the two groups on average ratings were statistically significant for every category ($p<0.05$), and all in favour of the Comparison group. The difference in average length of script was not statistically significant, but the difference in average number of errors per 10 words was significant ($p<0.001$) – mothers in the Comparison group made fewer errors. This confirms the impression from the rating data that the

[f] For further information on the analysis of the writing samples please contact the team for a copy of the 1st Birthday data report.

Comparison group mothers had on average better writing skills than those in the Oxford group. This finding seems rather at odds with the fact that the mothers in the Oxford group were on average better qualified.

Table F.1: Rating of mothers' writing samples about their babies

Overall impression					**Vocabulary**				
Rating	**Oxford group**		**Comparison group**		**Rating**	**Oxford group**		**Comparison group**	
	n	%	n	%		N	%	n	%
Very good	16	6	20	7	Elaborate	21	8	22	8
Good	58	22	81	28	Selected	55	20	86	30
Average	120	45	128	44	Suitable	121	45	138	47
Below average	71	26	56	19	Barely appropriate	67	25	22	8
Basic	4	1	6	2	Basic	5	2	1	<1
Average score	**2.9**		**3.1**		**Average score**	**2.9**		**3.2**	
Total	269	100	291	100	Total	269	100	291	100

Table F.2: Frequency of errors per 10 words

No. of errors	**Oxford group**		**Comparison group**	
	n	%	n	%
0	47	17	93	32
0.1-1	73	27	79	27
1.1-2	54	20	53	18
2.1-3	47	17	42	14
3.1-4	23	9	13	4
4.1-5	18	7	8	3
5.1-10	7	3	3	1
Average score	**1.9**		**1.5**	
Total	269	100	291	100

Appendix G: ECERS Results

Department of Educational Studies

University of Oxford

Exploring the quality of pre-school provision in settings involved in the Birth to School Study

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February 2004

1.1 Introduction

The purpose of this particular task within the Birth to School Study was to explore any potential differences in quality between the pre-school settings in Oxford and the Comparison area. This information needed to be collected in order to rule out the possibility of greater developmental progress in children due to favourable pre-school characteristics in either group. It compared the profiles of the two groups of pre-schools in order to investigate whether the pre-school quality is different in the two communities. If the answer was negative then any difference in children's outcomes would most likely be due to PEEP.

The Early Childhood Environment Rating Scale – Revised Edition (ECERS-R) was selected (Harms et al., 1998) as a reliable and well-established instrument to assess quality within pre-school settings. This instrument has been used in a number of different ways during its development both as a training tool for early years' staff and in research for example as a pre- and post- measure of policy change within a setting. One of many possible examples is the study to assess the impact of a quality assurance scheme on childcare settings (Whitebook, Sakai & Howes, 1997). Confidence in the choice of this particular instrument was also based on its well-tried and tested use in the Effective Provision of Pre-School Education (EPPE) Project (Sylva et al, 1999). In this study ECERS-R was used in 141 pre-school settings across five regional areas of England. The information collected provided a useful way of comparing both overall quality of a setting and of particular aspects of pre-school provision. The EPPE Project was conducted at a time when there was a great deal of interest in the curriculum being offered to pre-school children and an extension to the original ECERS-R scale was developed to reflect this. This extension, referred to as ECERS-E (Sylva et al., 2003) focuses on particular aspects of the curriculum relevant to the Foundation Stage. ECERS-E was therefore also used in the Birth to School Study to provide the best possible assessment of the range in quality of pre-school settings across two areas.

1.2 Description of ECERS-R and ECERS-E

The rating scales provide a carefully designed way to collect information about the pre-school environment using observational assessments. This goes way beyond the physical surroundings in which the children find themselves, by taking into account the processes which occur to build up the whole pre-school experience. An overview of the sub-scales for both ECERS-R and ECERS-E is shown in the accompanying tables G.1 and G.2.

Each sub-scale is made up of differing numbers of items. The way in which a pre-school setting may potentially provide for each of these items is described in detail in the administrator's handbook and are referred to as 'indicators'. A numerical rating scale (from 1 to 7) is used to determine the level of quality of any particular item, with a score of 1 indicating 'inadequate', 3 indicating 'minimal' and 7 indicating 'excellent'. Table G.3 illustrates one of the items entitled 'Child-related display' as an example. The administrator has access to notes and suggestions to aid the reliable collection of information, along with suggested questions to staff when an item is not easily observable, for example, how often staff meetings take place. The information collected during a visit is recorded on individual scoring sheets and final mean scores are calculated for each sub-scale.

1.3 Training and Inter-rater Reliability

A Research Officer, with experience of using observational assessments in the pre-school environment, was chosen to collect the information. Delegating the task to one person was thought to be the most efficient use of time and resources given the other pressing matters, such as collecting data from children in schools.

Training in the use of ECERS-R and ECERS-E was conducted using several approaches. Training video and written materials were used for a general introduction to the use of the rating scales. A total of five visits then took place to local nurseries in order to pilot the use of the instrument. Colleagues with previous experience of its use were valuable sources of information and discussion.

Inter-rater reliability tests were then conducted following a visit in the presence of a Research Officer experienced in the use of ECERS-R and ECERS-E. Calculations revealed an average weighted Kappa score of 0.89.

Table G.1: Sub-scales and items of ECERS-R (Harms, Clifford & Cryer 1998)

Space and Furnishings

1. Indoor Space
2. Furniture for routine care, play and learning
3. Furnishings for relaxation and comfort
4. Room arrangement for play
5. Space for privacy
6. Child-related display
7. Space for gross motor play
8. Gross motor equipment

Personal Care Routines

9. Greeting / departing
10. Meals / snacks
11. Nap / rest
12. Toileting / diapering
13. Health practices
14. Safety practices

Language-Reasoning

15. Books and pictures
16. Encouraging children to communicate
17. Using language to develop reasoning skills
18. Informal use of language

Activities

19. Fine motor
20. Art
21. Music / movement
22. Blocks
23. Sand / water
24. Dramatic play
25. Nature / science
26. Math / number
27. Use of TV, video and/or computers
28. Promoting acceptance of diversity

Interaction

29. Supervision of gross motor
30. General supervision
31. Discipline
32. Staff-child interaction
33. Interactions among children

Program Structure

34. Schedule
35. Free play
36. Group time
37. Provision for disability

Parents and Staff

38. Provision for parents
39. Provision personal needs staff
40. Provision profess. needs staff
41. Staff interaction and co-op
42. Supervision and eval. staff
43. Opps for profess. growth

Table G.2: Sub-scales and Items of ECERS-E (Sylva et al, 2003)

Literacy

1. 'Environmental print: letters and words
2. Books and literacy areas

3. Adult reading with the children
4. Sounds in words
5. Emergent writing/mark making
6. Talking and listening

Mathematics

7. Counting and the application of counting
8. Reading and writing simple numbers

9a. Mathematical Activities: Shape and space (choose 9a or 9b)

9b. Mathematical Activities: Sorting, matching and comparing

Science and Environment

10. Natural materials
11. Areas featuring science/science resources

12a. Science Activities: Science Processes – Non living (choose a, b or c)

12b. Science Activities: Living processes and the world around us

12c. Science Activities: Food preparation

Diversity

13. Individual learning needs
14. Gender equity
15. Multicultural Education

Table G.3: Example from ECERS-R: Child-related Display

Item	Inadequate		Minimal		Good		Excellent
	1	2	3	4	5	6	7
ECERS-R							
Child-related display							
	1.1 No materials displayed for children		3.1 Appropriate materials for predominant age group		5.1 Much of the display relates closely to current activities		7.1 Individualised children's work predominates
	1.2 Inappropriate materials for predominant age group		3.2 Some children's work displayed		5.2 Most of the display done by the children		7.2 Three-dimensional child created work displayed as well as flat work
					5.3 Many items displayed on child's eye level		

1.4 Selection of the Pre-school Settings to be Assessed

At age four, the Birth to School Study children attended at least 114 different settings across the two areas. The Steering Committee of the study advised that ECERS assessments should be limited to those settings attended by approximately 70% of the children in each town. The type of pre-school chosen by the study parents fell into three categories, namely:

- Maintained sector settings – a nursery class within a primary school funded by the local education authority.
- Voluntary sector settings – registered with Ofsted to provide full day or sessional care. Managed by a voluntary committee and usually operated with charitable status.
- Private sector settings – registered with Ofsted to provide full day or sessional care. Run as a profit-making business by an individual or group of people.

One hundred and twenty seven children represented 70% of a total of 181 Adaptive Social Behaviour Inventories sent to Oxford settings. The 127 children attended 13 different settings in the Oxford area. One hundred and fifty six children represented 70% of a total of 223 Adaptive Social Behaviour Inventories sent to comparison settings. The 156 children attended 15 different settings in this area.

Table G.4: Pre-school settings attended by 70% (Oxford and Comparison)

Type of settings	Oxford		Comparison	
	Estimated no. of study children attending	**No. attending expressed as a percentag**	**Estimated no. of study children attending**	**No. attending expressed as a percentag**
Maintained	**93**	**73%**	**72**	**46%**
Voluntary	**34**	**27%**	**43**	**28%**
Private	**0**	**0**	**41**	**26%**

Research officers were reasonably confident that the information obtained from parents was accurate as to the name of the setting that their child either attended or hoped to attend. This was also indicated by the good level of return rate (89% Oxford and 81% Comparison) of the Adaptive Social Behaviour Inventory sent directly to the pre-school settings. The total number of children used to collect this information was slightly lower than the whole study cohort as the task begun before all the 4th birthday data was

collected. It should be noted that approximately 20 families in each area did not use any form of childcare setting when the children were aged four. Therefore, caution was exercised in the way this information was used in the analysis since there was no absolute verification from the pre-school settings as to how many sessions any individual child actually attended or if they moved away from that setting during the term. What the information about the settings did provide was a good indication of the *range* of pre-schools attended by the Birth to School Study children across the two areas. It provided a good base for the research team to begin the ECERS assessments.

An interesting trend did seem to appear when looking at the settings attended by 70% of the children, namely that the Oxford sample attend a greater percentage of nursery settings within the maintained sector. However, if the remaining 30% of settings were taken into consideration then the range of types of setting across the two areas wass very similar. Table G.5 shows the similarities of pre-school attendance across the two towns.

Table G.5: Pre-school settings attended by the remaining 30% (Oxford and Comparison)

	Oxford		Comparison	
Type of settings	**Estimated number of BTSS children attending**	**Number attending Expressed as a percentage**	**Estimated number of BTSS children attending**	**Number attending Expressed as a percentage**
Maintained	**24**	**40%**	**22**	**41%**
Voluntary	**21**	**35%**	**19**	**35%**
Private	**15**	**25%**	**13**	**24%**
Total	**60**	**100%**	**54**	**100%**

The visits to settings took place over the Summer and Autumn terms of 2003. Each visit followed a similar pattern with introductory telephone and mail contact. Assessments took between 3.5 and 5 hours and included time spent in conversation with the adult in charge of the setting. Gift vouchers of £10 were sent to settings as a gesture of courtesy for their time and co-operation. There were no reported problems with obtaining information from the setting or in observing the daily routine of the group.

2.0 Analysis of Results

The results from the visits to each setting were analysed in a number of ways beginning with an overall view of the quality of provision in Oxford compared to the comparison

area. Individual sub-scales of both the ECERS-R and the ECERS-E were investigated to see whether any significant differences were apparent between the groups.

2.1 Analysis of the Total ECERS-R and ECERS-E Scores

A total ECERS-R score was calculated for each pre-school setting using the information from the seven individual sub-scales of the instrument. These individual scores were used to create an average score for both the Oxford and the comparison areas. Similar calculations took place for the four sub-scales of the ECERS-E assessment for each setting and then for each area.

Both ECERS-R and ECERS-E total scores showed a normal distribution. The ECERS instrument is designed to give a final numerical score of between 1 (indicating inadequate) and 7 (indicating excellent).

Table G.6: Total ECERS-R & ECERS-E scores

Area	n	Mean ECERS-R	Standard Deviation	Mean ECERS-E	Standard Deviation
Oxford	13	3.975	1.012	2.743	0.898
Comparison	15	3.542	0.749	2.261	0.888

n= number of settings visited in each area

The distribution of results for both ECERS-R and ECERS-E showed a normal distribution, allowing parametric tests (t-test) to be applied.

Table G.7: Comparing means of ECERS-R and ECERS-E scores

Total Scores	t	df	Sig. (2-tailed)
ECERS-R	1.301	26	0.205
ECERS-E	1.425	26	0.166

No significant differences were found between the two groups both for the total ECERS-R and ECERS-E scores.

2.2 Analysis of the Individual Sub-scales of ECERS-R and ECERS-E

Analysis was carried out on the individual sub-scales in order to explore whether there were any significant differences between Oxford and the Comparison area. For ease of reporting the sub-scales from the ECERS-R was combined with the sub-scales from ECERS-E making a total of 11 sub-scales for analysis.

From the combined eleven sub-scales, there were six showing a normal distribution and parametric tests were carried out on these results and are tabulated in Table G.8:

Table G.8: Means of sub-scales showing normal distribution

	Sub-scale	Area	n	Mean	Standard Deviation
ECERS-R	Space and furnishings	Comparison Oxford	15 13	3.870 4.646	1.195 1.151
	Language Reasoning	Comparison Oxford	15 13	3.300 3.769	0.867 1.054
	Activities	Comparison Oxford	15 13	2.971 3.5231	0.822 1.201
	Programme structure	Comparison Oxford	15 13	3.999 4.385	1.142 1.386
ECERS -E	Mathematics	Comparison Oxford	15 13	2.001 2.230	0.918 1.029
	Diversity	Comparison Oxford	15 13	2.244 2.667	0.885 1.036

n = the number of settings visited in each area.

Table G.9: Comparing means of normally distributed sub-scales

	Sub-scale	t	Df	Sig. (2-tailed)
ECERS-R	Space and furnishings	-1.743	26	0.093
	Language Reasoning	-1.293	26	0.207
	Activities	-1.437	26	0.163
	Programme Structure	-0.807	26	0.427
ECERS- E	Mathematics	-0.624	26	0.538
	Diversity	-1.165	26	0.255

Table G.9 shows there were no significant differences between the groups in all sub-scales. For the remaining five sub-scales Mann-Whitney was applied as these were not normally distributed.

Table G.10: Comparing means of non- normally distributed sub-scales

	Sub-scale	Mann-Whitney U	Asymp.Sig. (2-tailed)
ECERS-R	Personal care routines	75.000	0.298
	Interaction	66.000	0.145
	Parents and staff	85.000	0.564
ECERS-E	Literacy	57.000	0.061
	Science and environment	61.500	0.089

There were no significant differences found between the two areas for any of the individual sub-scales for either ECERS-R or ECERS-E.

3.0 Analysis of Results by Type of Pre-school Setting

To provide a complete picture of the analysis, comparisons were also made between different types of pre-school provision within the two areas. As stated earlier, there were three types of pre-school in this sample, represented by nursery classes in the maintained primary sector, the voluntary groups and privately owned establishments. Total ECERS-R and ECERS-E scores were compared for each *type* of provision across the two areas (Tables G.11, G.12 and G.13).

Table G.11: Total ECERS-R and ECERS-E scores in the maintained sector

	n	Mean	Standard Deviatio
ECERS-R Comparison	5	4.119	0.688
ECERS-R Oxford	8	4.665	0.239
ECERS-E Comparison	5	3.007	0.866
ECERS-E Oxford	8	3.307	0.4682

n= number of settings in the maintained sector in each area.

To provide a workable sample size for this task, the private and voluntary group results were combined.

Table G.12: Total ECERS-R and ECERS-E scores in the private and voluntary sector

	n	Mean	Standard Deviatio
ECERS-R Comparison	10	3.254	0.606
ECERS-R Oxford	5	2.869	0.701
ECERS-E Comparison	10	1.888	0.656
ECERS-E Oxford	5	1.841	0.617

n= the total number of settings in the private and voluntary sector in each area.

Analyses revealed that the data were normally distributed in both sets of results when comparing the maintained sector settings, and the combined private and voluntary groups across the two areas. Independent Samples t-tests indicated that there are no significant differences in the total ECERS-R and ECERS-E scores across the two areas even when comparing types of setting.

Table G.13: Comparing means of ECERS-R and ECERS-E scores by pre-school type

Instrument	Pre-school type		
	Maintained		
	t	**df**	**Sig. (2-tailed)**
ECERS-R scores	**2.095**	**11**	**0.060**
ECERS-E scores	**0.818**	**11**	**0.431**
	Private and voluntary		
	t	**df**	**Sig. (2-tailed)**
ECERS-R scores	**-1.103**	**13**	**0.290**
ECERS-E scores	**-0.132**	**13**	**0.897**

4.0 Conclusions

The purpose was to explore if there were any significant differences in the quality of the pre-school provision at a range of settings within the Oxford and the comparison areas of the Birth to School Study.

A well used instrument was selected to provide a measure of the quality of pre-school care and education. The results of the analysis revealed no significant differences in the quality of pre-school provision between the two areas. This remained the case when comparing overall scores and when looking in more detail at individual aspects of early years' provision. If any significant differences were discovered then these would have to be controlled for in the statistical analysis of the Birth to School Study data. The findings suggested that the scores on the ECERS-R and –E did not need to be taken into account in the analyses of children's outcomes at 4th Birthday.

Appendix H: Unmatched Means for Significant Findings

Parent Findings

1st Birthday

Sub-group findings

Table H.1: Significant sub-group finding for the parents at the 1st birthday

Outcome	PEEP sub-group	Comparison sub-group	Difference between means
Parent-child Interaction n= 393	**46.81**	45.75	1.06

2nd Birthday

Community findings

Table H.2: Significant community finding for the parents at the 2nd birthday

Outcome	Oxford group	Comparison group	Difference between means
ORCE n=390	**27.31**	25.94	1.37

Sub-group findings

Table H.3: Significant sub-group finding for the parents at the 2nd birthday

Outcome	PEEP sub-group	Comparison sub-group	Difference between means
ORCE n=327	**27.84**	25.93	1.89

Child Outcomes

i Child Annual Community Findings

Age 2

Cognitive development

Community findings

Table H.4: Significant cognitive community findings at age 2

Outcomes	Oxford group	Comparison group	Difference between means
Bayley Mental n=342	88.75	**95.55**	6.80
Grammatical Competence n=383	81.04	**102.43**	21.39

Sub-group findings

Table H.5: Significant cognitive sub-group findings at age 2

Outcomes	PEEP sub-group	Comparison sub-group	Difference between means
Bayley Mental n = 282	91.38	**95.55**	4.18
Vocabulary n = 334	284.61	**337.18**	52.58
Grammatical Competence n = 328	74.20	**102.43**	28.23
Sentence Complexity n = 298	17.92	**22.22**	4.30

Age 3

Cognitive development

Community findings

Table H.6: Significant cognitive community findings at age 3

Outcomes	Oxford group	Comparison group	Difference between means
Visual Perceptual Matching n=429	3.29	**4.00**	.72
Total Non-verbal Score (BAS) n=434	17.14	**18.70**	1.57
Total BAS n=412	48.56	**51.75**	3.19

Age 4

Cognitive development

Community findings

Table H.7: Significant cognitive community findings at age 4

Outcomes	Oxford group	Comparison group	Difference between means
Vocabulary n = 426	37.49	**39.75**	2.26
Verbal Comprehension n = 427	18.31	**19.30**	.99
Phonological Awareness of Rhyme n = 407	2.58	**3.38**	.80
Understanding about Books and Print n = 412	3.02	**3.34**	.33
Writing Level n = 401	5.79	**7.33**	1.54
Early Numeracy Skills n = 427	12.18	**12.87**	.69

Sub-group findings

Table H.8: Significant cognitive sub-group findings at age 4

Outcomes	PEEP sub-group	Comparison sub-group	Difference between means
Vocabulary n = 351	39.73	**39.75**	.02
Phonological Awareness of Rhyme n = 341	3.08	**3.38**	.30
Writing Level n = 329	6.38	**7.33**	.95

Socio-emotional development

Community findings

Table H.9: Significant socio-emotional community findings at age 4

Outcomes	Oxford group	Comparison group	Difference between means
Confidence and Independence (parents) n = 383	**14.09**	13.99	.10
Confidence and Independence (teachers) n = 336	12.31	**12.77**	.46
Pro-social Behaviour (teachers) n = 337	20.36	**21.78**	1.42
Compliance and Conformity (teachers) n = 337	17.61	**18.24**	.63

Age 5

Cognitive development

Community findings

Table H.10: Significant cognitive community findings at age 5

Outcomes	Oxford group	Comparison group	Difference between means
Vocabulary n = 393	50.61	**51.67**	.06
Early Numeracy Skills n = 383	21.39	**21.68**	.29
Phonological Awareness of Alliteration n = 367	6.10	**6.46**	.36

Socio-emotional development

Community findings

Table H.11: Significant socio-emotional community findings at age 5

Outcomes	Oxford group	Comparison group	Difference between means
Anti-social Behaviour n = 341	23.87	24.37	.50
Independence and Concentration n = 341	28.19	27.98	.21
Confidence n = 341	15.69	15.88	.19
Peer Acceptance n = 349	15.91	15.91	.00
Cognitive Competence n = 351	21.11	20.93	.18
Cognitive and Physical Competence n = 350	37.99	37.83	.16

Sub-group findings

Table H.12: Significant socio-emotional sub-group findings at age 5

Outcomes	PEEP sub-group	Comparison sub-group	Difference between means
Peer Acceptance n = 287	**16.10**	15.91	.19
Cognitive Competence n = 289	**21.19**	20.93	.26
Physical Competence n = 288	**16.95**	6.90	.05
Cognitive and Physical Competence n = 288	**38.13**	37.83	.30
Total Self-esteem n = 286	**72.88**	72.37	.51

ii. Value–added Findings

Between the ages of 2 and 3

Cognitive development

Community findings

Table H.13: Significant cognitive community finding between the ages of 2 and 3

Outcome	Oxford change	Comparison change	Effect Size
Early Number Skills n = 311	**.18**	-.17	.35

Between the ages of 2 and 4

Cognitive development

Sub-group findings

Table H.14: Significant cognitive sub-group findings between the ages of 2 and 4

Outcomes	PEEP sub-group change	Comparison sub-group change	Effect Size
Vocabulary n = 304	**.30**	.07	.23
Phonological Awareness of Rhyme n = 298	**.23**	.03	.20
Phonological Awareness of Alliteration n = 274	**.20**	-.03	.23
Understanding about Books and Print n = 299	**.24**	-.02	.26

Socio-emotional development

Community findings

Table H.15: Significant socio-emotional community changes between the ages of 2 and 4

Outcomes	Oxford change	Comparison change	Effect Size
Pro-social Behaviour (teachers) n = 248	-.17	**.27**	.44
Confidence and Independence (teachers) n = 284	-.10	**.08**	.17

Between the ages of 2 and 5

Cognitive development

Community findings

Table H.16: Significant cognitive community findings between the ages of 2 and 5

Outcomes	Oxford change	Comparison change	Effect Size
Vocabulary n = 332	**.13**	-.02	.16
Phonological Awareness n = 325	**.08**	-.05	.13
Letter Identification n = 327	**.07**	-.03	.10
Writing n = 315	**.05**	-.02	.07
Phonological Awareness of Rhyme n = 325	**.07**	-.03	.10

Sub-group findings

Table H.17: Significant cognitive sub-group findings between the ages of 2 and 5

Outcomes	PEEP sub-group change	Comparison sub-group change	Effect Size
Vocabulary n = 279	**.29**	-.02	.31
Total Phonological Awareness n = 275	**.15**	-.05	.20
Letter Identification n = 276	**.21**	-.03	.24
Understanding about Books and Print n = 274	**.20**	-.00	.21

Between the ages of 3 and 4

Cognitive development

Community findings

Table H.18: Significant cognitive community finding between the ages of 3 and 4

Outcome	Oxford change	Comparison change	Effect Size
Early Numeracy Skills n = 399	6.32[g]	**6.82[g]**	.50

Socio-emotional development

Community findings

Table H.19: Significant socio-emotional community findings between the ages of 3 and 4

Outcomes	Oxford group	Comparison group	Effect Size
Pro-social Behaviour (teachers) n = 320	-.24	**.31**	.55
Confidence and Independence (teachers) n = 319	-.16	**.21**	.36

Between the ages of 4 and 5

Cognitive development

Community findings

Table H.20: Significant cognitive community findings between the ages of 4 and 5

Outcomes	Oxford change	Comparison change	Effect Size
Vocabulary n = 388	**13.22[g]**	12.28[g]	.94
Letter Identification n = 383	-.02	-.03	.00
Writing n = 347	**7.69 [g]**	6.94[g]	.74

[g] These numbers are based on raw scores as the instruments used were the same at both points in time.

Sub-group findings

Table H.21: Significant cognitive sub-group findings between the ages of 4 and 5

Outcomes	PEEP sub-group change	Comparison sub-group change	Effect Size
Vocabulary n = 319	**13.15**[h]	12.28[h]	.86
Letter Identification n = 315	-.07	**-.03**	.04
Writing n = 284	**7.50**[h]	6.94[h]	.58

Socio-emotional development

Community findings

Table H.22: Significant socio-emotional community finding between the ages of 4 and 5

Outcome	Oxford change	Comparison change	Effect Size
Total Self-esteem n = 272	**.07**	-.12	.19

[h] These numbers are based on raw scores as the instruments used were the same at both points in time

Appendix I: Combinations of instruments used for each value-added analysis

BTSS Data analysis

When the same instruments were used to assess children's development at two different years, the earlier mean score was deducted from the latter one in order to measure the child's rate of progress. When the instruments were not the same, correlations were performed to find the most compatible instruments from each year, in order to look at the rate of progress between the two points (Appendix J). In these cases z scores were used, and the rate of progress was measured in the same way as above, i.e. deducting one mean from the other.

Value-added analyses: Repeat mean comparisons by taking into account prior attainment, the combination of scores appears below.

Table I.1: Outcomes between 2 and 3 years of age

Data collected at 2 years of age	**Data collected at 3 years of age**
Bayley Mental	BAS Total (4 sub-scales)
MCDI	Vocabulary BAS
Bayley Mental	Early Number Concepts

Table I.2: Outcomes between 2 and 4 years of age

Data collected at 2 years of age	**Data collected at 4 years of age**
Bayley Mental	Verbal Comprehension
Bayley Mental	Early Number Concepts
MCDI	Vocabulary BPVS
MCDI	Phonological Awareness Rhyme
MCDI	Phonological Awareness Alliteration
MCDI	Total Phonological Awareness
MCDI	Concepts about print
MCDI	Writing scores

Table I.3: Outcomes between 2 and 4 years of age continued (ASBI)

Data collected at 2 years of age	**Data collected at 4 years of age**
Bayley Behaviour	Compliance and Conformity (Parents)
Bayley Behaviour	Pro-social (Parents)
Bayley Behaviour	Confidence + Independence (Parents)
Bayley Behaviour	Compliance and Conformity (Teachers)
Bayley Behaviour	Pro-social (Teachers)
Bayley Behaviour	Confidence + Independence (Teachers)

Table I.4: Outcomes between 2 and 5 years of age

Data collected at 2 years of age	**Data collected at 5 years of age**
MCDI	BPVS
Bayley Mental	Pictures Similarities
MCDI	Phonological Awareness: Rhyme
MCDI	Phonological Awareness: Alliteration
MCDI	Phonological Awareness: Total
MCDI	Letter Identification
MCDI	Writing Score
Bayley Mental	Early Number Concepts
MCDI	Concepts about Print
Bayley Behaviour	Independence and Concentration
Bayley Behaviour	Co-operation and Conformity
Bayley Behaviour	Anti-social
Bayley Behaviour	Peer sociability
Bayley Behaviour	Peer empathy
Bayley Behaviour	Confidence

Table I.5: Outcomes between 3 and 4 years of age

Data collected at 3 years of age	**Data collected at 4 years of age**
Verbal Comprehension	Verbal Comprehension
Early Number Concepts	Early Number Concepts
Total BAS verbal score @ 3	Vocabulary BPVS
Total BAS score @ 3	Phonological Awareness Rhyme
Total BAS verbal score @ 3	Phonological Awareness Alliteration
Total BAS verbal score @ 3	Total Phonological Awareness
Total BAS score @ 3	Concepts about print
Total BAS score @	Writing scores

Table I.6: Outcomes between 3 and 4 years of age continued (ASBI)

Data collected at 3 years of age	**Data collected at 4 years of age**
Shyness	Pro-social (Parents)
Shyness	Confidence + Independence (Parents)
Shyness	Pro-social (Settings) nearly 0.52
Shyness	Confidence + Independence (Settings)
Shyness	Antisocial (Settings)

Table I.7: Outcomes between 3 and 5 years of age

Data collected at 3 years of age	**Data collected at 5 years of age**
Total BAS verbal score @ 3	BPVS
Picture Similarities @ 3	Pictures Similarities @ 5
Total BAS score @ 3	Phonological Awareness: Rhyme
Total BAS verbal score @ 3	Phonological Awareness: Alliteration
Total BAS verbal score @ 3	Phonological Awareness: Total
Total BAS verbal score @ 3	Letter Identification
Total BAS score @ 3	Writing Score
Early Number Concepts @ 3	Early Number Concepts @ 5

Total BAS score @ 3	Concepts about Print
Sociability scale	Independence and Concentration
Shyness	Anti-social
Shyness	Confidence

Table I.8: Outcomes between 4 and 5 years of age

Data collected at 4 years of age	**Data collected at 5 years of age**
BPVS @ 4	BPVS @ 5
BPVS @ 4	Pictures Similarities
Phonological Awareness: Rhyme	Phonological Awareness: Rhyme
Phonological Awareness: Alliteration	Phonological Awareness: Alliteration
Phonological Awareness: Total	Phonological Awareness: Total
BPVS @ 4	Letter Identification
Writing Score	Writing Score
Early Number Concepts	Early Number Concepts
Concepts about Print	Concepts about Print
Confidence and Independence @ 4	Independence and Concentration
Compliance and conformity @ 4	Co-operation and Conformity
Pro-social @ 4	Anti-social
Compliance and conformity @ 4	Peer sociability
Pro-social @ 4	Peer empathy
Confidence and Independence @ 4	Confidence
Compliance and conformity @ 4	Maternal Acceptance
Compliance and conformity @ 4	Peer Acceptance
Compliance and conformity @ 4	Peer and Maternal Acceptance
Compliance and conformity @ 4	Total Harter and Pike score

Appendix J: Correlations between ORCE, PSI and child cognitive outcomes

		Parent Child dysfunctional interaction score from PSI	Total ORCE (Positive Care-giving)
Spearman's rho	Parent Child dysfunctional interaction score from PSI	1.000	.157(**)
	Total ORCE (Positive Care-giving)	.157(**)	1.000
	Total MDI	.234(**)	.276(**)
	Total MCDI Vocabulary Score	.107(*)	.110(*)
	Total Sentence Complexity Score	.068	.011
	BAS Block Building @ 3	.143(**)	.259(**)
	BAS Picture Similarities @ 3	.157(**)	.169(**)
	BAS Total Non-verbal @ 3	.169(**)	.215(**)
	BAS Verbal Comprehension @ 3	.200(**)	.278(**)
	BAS Naming Vocabulary @ 3	.243(**)	.256(**)
	BAS Total Verbal and Non-verbal @ 3	.251(**)	.306(**)
	BAS Total Verbal @ 3	.247(**)	.310(**)
	BAS Early Number Concepts @ 3	.232(**)	.301(**)
	British Picture Vocabulary Scale at 4	.228(**)	.261(**)
	BAS Verbal Comprehension @ 4	.169(**)	.228(**)
	BAS Early Number Concepts @ 4	.182(**)	.298(**)
	Phonological Awareness Rhyme: raw score at 4	.195(**)	.240(**)
	Phonological Awareness Alliteration: raw score at 4	.114(*)	.229(**)
	Total Phonological Awareness score at 4	.180(**)	.269(**)
	Concepts about Print score at 4	.113(*)	.153(**)
	Writing Level at 4	.066	.180(**)
	British Picture Vocabulary Scale at 5	.178(**)	.219(**)
	BAS Picture Similarities @ 5	.047	.194(**)
	BAS Early Number Concepts @ 5	.074	.284(**)
	Letter identification at 5	.188(**)	.234(**)
	Phonological Awareness Rhyme: raw score at 5	.181(**)	.218(**)
	Phonological Awareness Alliteration: raw score at 5	.134(**)	.218(**)
	Total Phonological Awareness score at 5	.177(**)	.241(**)
	Concepts about Print score at 5	.126(*)	.186(**)
	Writing Level at 5	.132(**)	.148(**)

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Appendix K: BTSS leaflet for schools

Appendix L: Informed consent letter to parents

UNIVERSITY OF SHEFFIELD/NFER BIRTH TO SCHOOL STUDY

FURTHER CONSENT TO RESEARCH DATA

Having had the details fully explained to me I have been asked and have given consent to gathering of the following further research data for this project:

When my child is 4 or 5 for the field worker to see my child in his or her playgroup or nursery or school and gather research data there.

Also when my child is 4 or 5 for the field worker to gather some information about him or her from the teachers and others at the playgroup or nursery or school.

Signature: ……

Name: ……

Address: ……

……

……

……

Date: ……

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