

# The Effects of the Peers Early Educational Partnership (PEEP) on Children's Developmental Progress

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**Research Report  
No 489**

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ISBN 1 84478 118 6

## **Executive Summary**

This short-term longitudinal study investigates the effects of the ‘Peers Early Education Partnership’ (PEEP), a pre-school intervention in Oxfordshire, which aims to increase the educational achievement (especially literacy skills) of disadvantaged children from infancy to 5 years. PEEP strives to form partnerships with parents and carers by recognising and supporting their contribution to children’s learning during the formative pre-school years.

The study evaluated the effects of the PEEP Project over two years following children’s entry at age 3. The study aimed to observe closely, at a micro level, what effects the PEEP parental education programme had upon children’s development. Based on a comparison with children without PEEP experience, the study looked particularly, at how the PEEP parental education programme affected children’s developmental progress in literacy, numeracy development and self-esteem.

The method was a quasi-experimental design, which included pre- and post-testing measures. In order to assess the outcomes of the PEEP intervention on children’s cognitive, language and social-emotional development, standardised tests and educational tasks were administered to the children at entry to the intervention (at age 3) and after one and two years (at age 4 and 5). The same assessments were applied to the ‘intervention’ and ‘comparison’ children. For a detailed description of the instruments used, please see Section 3 and Appendix 2.

The sample consisted of 156 children and their families. Parents of seventy of these children attended the intervention in the PEEP catchment area in Oxfordshire. A comparison group of 86 children and families were recruited from five playgroups in a nearby town also in Oxfordshire, matched for age and social characteristics with their Oxford counterparts. During the second year of the study children were visited in their nursery classes. Neither the children in the comparison group, nor their parents, attended any PEEP group sessions.

Results showed that children in the PEEP group had made significantly greater gains in the following areas of development after one year (4 years old): Language and Literacy (Verbal Comprehension, Vocabulary, Phonological Awareness, Concepts about Print, Writing), Numeracy (Early Number Concepts) and Self-esteem (Maternal Acceptance).

After two years of parental participation, children in the PEEP group were ahead of their matched (non-PEEP) peers in the following areas: Language and Literacy (Verbal

Comprehension, Vocabulary and Concepts about print); Numeracy (Early Number Concepts) and Self-esteem (Cognitive and Physical Competence). Children in the PEEP group made gains in several areas between 4 and 5 years of age when compared to similar children whose parents had not participated in PEEP. The gains were: Language and Literacy (Verbal Comprehension, Vocabulary and knowledge of upper case letters) and Self-esteem (Cognitive and Physical Competence).

## **ACKNOWLEDGEMENTS**

The authors are grateful to the Department for Education and Skills (DfES) for supporting the second phase of this study. We are appreciative of the Economic and Social Research Council (ESRC) for funding the first phase of this study.

Special thanks are due to all the children, families and pre-school settings involved in this study. They were generous with their time and added sparkle to our work. The support provided by the Steering Committee members of the study was invaluable. We are also grateful to Rebecca Goldman for her critical appraisal of previous versions. Vaso Totsika, Jo Hazell and David Lubans at the Department of Educational Studies (OUDES) for their time and support. Last but not least we are indebted to the entire PEEP staff, who provided us with information about the project and supported us during the research.

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## LIST OF ABBREVIATIONS

APL	Adult Performance Level
ASBI	Adaptive Social Behaviour Inventory
B	Statistic Value, Effect size B
BAS	British Ability Scales
BERA	British Educational Research Association
BPVS	British Picture Vocabulary Scale
C.A.P.	Concepts about Print
CAPER	Children and Parents Enjoying Reading
CGFS	Curriculum Guidance for the Foundation Stage
c.l.	Confidence limits
CEM	Curriculum, Evaluation and Management Centre
CMPS	Centre for Management and Policy Studies
df	Degrees of freedom
DfEE	Department for Education and Employment
DfES	Department for Education and Skills
DLO	Desirable Learning Outcomes
DSS	Department of Social Security
ECEC	Early Childhood Education and Care
EPPE	Effective Provision of Pre-school Education project
ESRC	Economic & Social Research Council
et al. (Lat et alii)	And other people
etc (Lat et cetera)	And so on
HIPPY	Home Instruction Programme for Preschool Youngsters
Ibid (Lat ibidem)	In the same place
ID	Identification
i.e. (Lat id est)	That is
IQ	Intelligence Quotient comparative measure of intelligence
KS	Key Stage
Lat	Latin
N / n	Number
NFER	National Foundation for Educational Research
ns	Non-significant
OECD	Organisation for Economic Co-operation and Development
OEO	Office of Economic Opportunity
ORIM	Opportunities, Recognition, Interaction and Modelling

p	p Value (probability)
PACT	Parents and Children and Teachers
PEEP	Peers Early Education Partnership
PLA	Pre-school Learning Alliance
PPVT	Peabody Picture Vocabulary Test
R	Correlation Coefficient
R <sup>2</sup>	Regression Coefficient (binominal correlation (R) Squared)
RCTs	Randomised Controlled Trials
REAL	Raising Early Achievement in Literacy Project
SES	Socio-economic Status
t	Statistical value t statistic
U	Mann-Whitney Test Value
$\chi^2$	Statistical value chi-square

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## SECTION 1: INTRODUCTION

### 1.1 An Overview of the Report

Research evidence has accumulated over a number of years which suggests that early intervention is more successful than later intervention in combating disadvantage and social exclusion (e.g. Snow, Burns and Griffin, 1998).

The Policy Action Team in the Social Exclusion Unit reported on research focusing on young people and argued that better local coordination is needed in identifying the needs of young people, together with a shift of resources into prevention activities. *One area would be to promote effective crosscutting interventions for children and young people facing the most acute risks* (Cabinet Office, 2000, p.15). The PEEP programme is one example of an early childhood intervention aimed at parents of young children living in a disadvantaged community.

Although there are many examples of evaluation of early childhood interventions in the US literature (e.g. Schweinhart, Barnes and Weikart, 1993), there has been less research of this kind in the UK. This research aims to contribute to what is referred to as ‘evidence-based practice’ in the UK by carrying out an evaluation of one such intervention.

‘Peers Early Education Partnership’ (PEEP), is a pre-school intervention in Oxfordshire, which aims to increase the educational achievement (especially literacy skills) of disadvantaged children from infancy to 5 years. PEEP strives to form partnerships with parents and carers by recognising and supporting their contribution to children’s learning during their formative pre-school years.

This is a short-term longitudinal study investigating the impact of Foundation PEEP (called at the period of the study PEEP for 3 year olds and PEEP for 4 year olds) on the children’s development from age 3 to age 5 when the children entered school. The aim of the study was to discover whether the structured programme of the PEEP curriculum for 3 year olds and 4 year olds when implemented in the playgroups and nursery classes of the targeted schools in the catchment area of the project and compared to a group of children with no PEEP experience would lead to:

- Improvement in children’s educational achievement, especially in literacy and numeracy;
- Improvement in children’s pro-social behaviour and self-esteem.

The study has been funded in two phases. The first phase of the study (children's development between the ages of 3 and 4) had received funding from the Economic and Social Research Council (ESRC). The second phase of the study (children's development between the ages of 4 and 5) received funding from the Department for Education and Skills (DfES).

The specific research questions for the ESRC-funded phase of the study were as follows:

1. What is the impact of the PEEP for 3s intervention on the literacy development of children assessed after a period of one year (children enter at age 3) compared with children with no PEEP experience?
2. What is the impact of the PEEP for 3s intervention on the numeracy development of children assessed after a period of one year (children enter at age 3) compared with children with no PEEP experience?
3. What is the impact of the PEEP for 3s intervention on the cognitive development of children assessed after a period of one year (children enter at age 3) compared with children with no PEEP experience?
4. What is the impact of the PEEP for 3s intervention on the social-emotional development and self-esteem of children assessed after a period of one year (children enter at age 3) compared with children with no PEEP experience?

The specific research questions for the DfES-funded continuation of the study were as follows:

1. What is the impact of the PEEP for 4s intervention on the literacy development of children assessed after a period of one year (children enter at age 4) compared with children with no PEEP experience?
2. What is the impact of the PEEP for 4s intervention on the numeracy development of children assessed after a period of one year (children enter at age 4) compared with children with no PEEP experience?
3. What is the impact of the PEEP for 4s intervention on the development of children's self-esteem and their social-emotional development assessed after a period of one year (children enter at age 4) compared with children with no PEEP experience?
4. What are the effects of 2 years of PEEP (for 3s and 4s) on children's development at school entry compared with children with no PEEP experience?

The report is organised in five sections. Section One is the introduction, which describes the PEEP Project in brief, thus setting out the background to the research and describing the

intervention being evaluated. Section Two contains a summary of the study's literature review, which explores early childhood interventions, and discusses the need to evaluate such interventions with rigorous research designs. As a recent trend in educational research, evidence-based practices form the starting point for examining evaluations.

The third section describes the aims, methods and design of the study. The research strategy is presented. Sampling procedure, access to nurseries and ethical considerations of the study are described. Finally, the instruments used to assess the children are presented in Appendix 1.

Section Four presents the findings of children's developmental progress between the pre-and post-assessments. Both cognitive and behavioural/ self-esteem assessments are presented. The data were analysed using a multivariate model of statistical analysis. A summary of the findings is presented at the end of the section. Section Five discusses the findings and draws conclusions, including implications for policy.

## 1.2 The PEEP Project

### 1.2.1 Background to the Project

The Peers Early Education Partnership (PEEP) Project is a pre-school intervention that works with the adults (parents, carers and pre-school staff) who live and work with 0-5 year olds. PEEP is a voluntary body with a charitable status. The intervention began in an area of low socio-economic status in Oxford in 1995. Between then and the end of 2001, approximately 2000 children and their families participated in the intervention. In 1996 PEEP set out its aims as being 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 intended 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. The Project also aims to develop a successful, sustainable, and transferable model which complements existing pre-school and school provision. Finally, PEEP aims to establish a model of parental/carer interaction which ensures a child is given the best possible educational support, and also ensures that parents and educators are in close communication about 'what works' for the child* (PEEP, 1996, pp.3, 6).

### 1.2.2 Principles of the PEEP Project

PEEP holds the views that parents are not only highly influential in the development of their children's learning, but are also committed to seeing them succeed in school. PEEP therefore utilises the **O**pportunities, **R**ecognition, **I**nteraction and **M**odelling (ORIM) framework developed at the University of Sheffield (Hannon, 1995) to ensure that children are provided with:

- Opportunities to learn;
- Recognition and valuing of their early achievements;
- Interaction with adults in learning situations;
- Models of literacy and numeracy behaviours, learning strategies and dispositions from adults.

The intervention has a national and a regional director, who work closely with an advisory group of practitioners and academics to develop a programme that incorporates the ideas and concerns of PEEP and the families. Table 1.1 shows how PEEP uses the ORIM framework for every aspect of the curriculum it addresses. An example of how PEEP uses the ORIM

framework can be found in Appendix 2 where the PEEP Curricula for 3s and 4s are presented.

Table 1.1: Ways Adults Support Children’s Learning

Curriculum	OPPORTUNITIES	RECOGNITION	INTERACTION	MODELLING
Self-esteem				
Disposition				
Listening				
Talking				
Reading				
Writing				
Numeracy				

PEEP considers positive self-esteem and positive dispositions to learn (perseverance, curiosity and confidence) as essential pre-conditions for successful long-term learning (Roberts, 2001). The programme focuses on child development, and regards listening, talking and playing as skills essential to the development of emotional stability, good social skills and satisfactory cognitive growth (PEEP, 1997). There are a number of intended outcomes by PEEP for children before they begin Key Stage 1:

- Feeling good about themselves;
- Listening carefully;
- Talking about their thoughts and feelings;
- Knowing many stories, songs and rhymes;
- Having a good vocabulary;
- Recognising their own written name;
- Recognising numbers and letters, and knowing both letter names and letter sounds;
- Knowing about the different reasons for reading and writing;
- Wanting to learn how to read and write.

The PEEP Director and senior members of staff chose the above outcomes as they believe them to be associated with long-term gains, especially in literacy.

### ***1.2.3 Levels of PEEP***

There are currently five different 'levels' of PEEP, each of which is tailored to the age of the children involved. Each has distinctive curriculum and materials. The levels are Baby PEEP (0-12 months), 1s, 2s, 3s and PEEP for 4s. Each level has its own co-ordinator responsible

for the operation of all groups and sessions during term-time. During 2001, PEEP has been divided into Early PEEP for 0s, 1s and 2s and Foundation PEEP for 3- and 4-year olds. A new series of publications has been developed matching the programme levels: *Learning together* in five levels: Babies, Ones, Twos, Threes and Fours.

## **Foundation PEEP**

### **Freestanding Groups**

With the introduction of the new Foundation Stage it was felt important to extend the age range of the freestanding groups for 3s and to invite families to remain with their group once their child reached 4. Link visitors were also picking up families with 4s who did not have a place in a setting, particularly those families new to the area and needing support, e.g. refugee families. Catering for families with children aged from just 3 to 5 has, of course, implications for group management, curriculum and the play activities offered to the children.

Parents, children and siblings attend weekly group sessions that run for 33 weeks a year, during school term-time. Two staff members work co-operatively to manage each group. The first is the group leader, responsible for the dissemination of the programme to parents. The second is the group assistant, responsible for the group registers, supporting the play of the children and running the borrowing at the end of each session.

Each session is divided into two half-hour parts. One part is devoted to talking time when parents discuss the pre-arranged theme of the week according to the PEEP curriculum for 3s. This curriculum focuses on three distinctive areas: self-concept and disposition, oral language and numeracy. Extension ideas from the 4s curriculum are offered to families with 4-year-olds. There is a certain amount of flexibility in talking time so that parents who wish can discuss things that concern them. A copy of the current PEEP curriculum for 3s and 4s can be found in Appendix 2. During this time the children remain in the room supported in their play by the group assistant. For the second part, families come together for circle time when songs, rhymes and stories, often linked with the theme discussed earlier, are shared. At the end of each session, families can borrow play packs and books to use at home. Recycled scrap materials are also offered.

Although PEEP follows a set procedure, the programme has been designed to be flexible to facilitate the schedules of parents and carers and their various needs. The Project encourages group experiences for children during the group sessions and has numerous home activities to

offer to parents and carers. It is hoped that the one-hour a week session will improve children's home experiences, so supporting early language and literacy development.

### **Pre-school Settings**

Foundation PEEP does offer the chance for a more integrated approach to curriculum delivery, since most children by the time they are four have at least a part-time place in an educational setting. Delivery of the PEEP curriculum is, therefore, via these settings (playgroups, pre-schools and nursery classes), as well as through freestanding groups and Link home visits. Working in the pre-schools in the Peers PEEP area ensures that the programme reaches the majority of children aged three and four and their families.

Foundation PEEP in the settings represents for parents/carers a bridge into their relationship with their child's teachers in the future. PEEP believes that it supports parents who are used to talking to 'professionals' about their child's learning.

### **Foundation PEEP in Nursery Classes**

#### **Development of the Nursery Level of PEEP**

PEEP's input in nursery classes has developed over the years. The original model employed the same format as that used in freestanding groups and playgroups. PEEP Leaders ran weekly talking times on the school's premises for parents who elected to join their nursery's PEEP group. The borrowing of packs and books was restricted to these families, but circle time was extended to include every child in the class.

While this appeared to be successful for those parents who joined the PEEP group, there was concern in PEEP that the programme was not reaching those families who seemed least likely to feel positive about their role of working in partnership with the school in encouraging their child's learning. PEEP felt a need to transfer the spirit of the collaboration established between parent/carer and PEEP leader to one which fostered liaison between all parents and teaching staff throughout the child's school years. So with training and support, the role of PEEP leader was passed over to the nursery teacher and staff. Supply teachers were employed to support the nursery session while the teacher worked with parents in a variety of ways and ran the talking times and circle times. This arrangement had the potential advantage of directly strengthening the relationships between the teachers and parents in relation to their children's learning.

The use of supply teachers proved to be unreliable, however, and so from Autumn 2000 PEEP has employed a team of nursery support teachers. Nursery teachers were also given the opportunity to be more flexible in their delivery of the PEEP programme, i.e. they were no longer expected to offer a talking time if they felt this was an ineffective method for curriculum delivery.

Each nursery support teacher works in two or more nursery classes for one day a week, thus ensuring stability for the PEEP day. Their focus is very much one of creating opportunities for working with parents/carers about their children's learning. They are able to work with the nursery teacher on the development of strategies for:

- engaging with parents/carers about their child's learning (leading to increased parental confidence about talking to teachers);
- establishing a partnership with parents/carers (leading to parental understanding and acceptance of themselves as children's foremost and most important educators);
- providing ideas and support for parents/carers supporting their children's learning (through PEEP publications, talking times, workshops, displays, outside speakers, one-to-one conversations, etc.);
- breaking down the barriers between school and home through personal contact and special PEEP events for families (leading to increased parental involvement, ample possibilities for modelling, and sibling familiarity with the nursery setting at an early age);
- establishing closer links with both pre-school settings and reception/year one teachers.

A greater adjustment is needed for some nursery teachers than for others. The support of the nursery support teacher is obviously crucial here in ensuring the most effective use of the PEEP day. In negotiation, the nursery teacher and support teacher take responsibility for the various components of the day, evaluation and forward planning.

### **Components of the PEEP Nursery Day**

Underpinning the make-up of the PEEP day is the PEEP curriculum, as contained in the *Learning together with threes* and *Learning together with fours* folders. As already indicated the components of the PEEP day in each nursery class are flexible but may include:

- specific literacy activities for the children;
- one or two circle times for the children, their families and staff (lasting for 30 minutes and consisting of songs, rhymes, stories and games);
- phonics activities;

- two or more borrowing times (for borrowing PEEP packs and books);
- PEEP events, visits and workshops for families;
- curriculum delivery via a one-to-one conversation in the nursery or home, talking time or display;
- visits to other settings.

### **Circle Time**

Circle time, when songs, rhymes and stories are shared, is for all the children in the nursery, their families and staff. Nursery support teachers involve the children and model good practice for the adults. Every family receives an audiotape and songbook of *Songs and rhymes for fours* and circle time offers the chance to reinforce the content of the tape and illustrate extension ideas.

### **Borrowing Time**

Borrowing time usually takes place at the end of the session. PEEP packs and books are available for borrowing by all the families attending the nursery on PEEP day. Location is important for ensuring maximum access to the service. The PEEP nursery assistant is responsible for maintaining the borrowing resources, running the borrowing session and keeping the borrowing register.

### **Curriculum and Curriculum Delivery**

All families with children in PEEP nursery classes are offered *Learning together* materials. The 4s level concentrates on writing, reading, and self-concept and dispositions in relation to starting school. At this level, parents seem to be more sharply aware of the imminent expectations of teachers and of their own concerns for their children in relation to their learning. Much of the material at this level is focused on early reading and writing activities embedded in play situations that are essentially child-centred and interactive. The focus is also on remembering letter names and sounds through a multi-sensory approach, which uses a song and a set of images together with particular gestures as triggers to the child's memory. The nine 'subjects' in Nursery PEEP curriculum are:

1. Learning about writing through play
2. Other worlds in books
3. Making a flying start at school
4. Early writing

5. Sharing books with children
6. Helping children want to learn
7. Everyday writing
8. Playing with stories
9. Real progress, real praise

The nursery teacher uses the non-contact time released by the nursery support teacher to develop strategies for delivering the PEEP curriculum to and working in partnership with parents/carers. Strategies currently in use are:

- informal conversations
- telephone conversations
- formal appointments
- home visits
- profile writing/reporting
- parent consultations
- open days for new parents
- giving time to develop relationships with less confident or disaffected parents
- professional development in relation to working with parents
- visiting pre-schools to forge closer relations with staff and parents/carers
- letters to parents
- PEEP talking times
- special PEEP events, visits and workshops
- visiting speakers
- displays

The PEEP nursery assistant is available to support the play of younger siblings when families participate in the opportunities made available to them in the nursery.

#### ***1.2.4 The PEEP Methods***

##### **Staff Training**

As part of their induction, staff undertake training in the form of nine consecutive weekly sessions of two hours each, covering the following areas: *an Introduction to PEEP, Learning Goals, Families, Equal Opportunities, Play and Learning, Literacy and Numeracy, Child Development and Self-esteem, PEEP Groups and Resources, and PEEP Philosophy*. Ongoing

monthly training is then provided which reflects the needs of the project and staff, e.g. supporting speech and language, postnatal depression, personal safety.

### **Recruitment and Home Visits**

Recruitment of families and children to the Project is an essential feature of PEEP. Currently the Project contacts all families in the PEEP area at home soon after the birth of their baby. For families that cannot attend either a freestanding PEEP group or a PEEP session in their child's pre-school setting, PEEP Link has been developed. The purpose of this strand of the Project was to reach those families, via an annual visit, who were offered PEEP in the past but were unable or unwilling to participate in sessions, or who withdrew from the Project. It has been running since January 2001. A formative evaluation of PEEP Link is currently in progress.

#### ***1.2.5 PEEP Evaluation and Dissemination***

In 1997 a Research Consortium, chaired by Professor Kathy Sylva, was created to promote and direct the evaluation and any research relevant to PEEP. The consortium reports informally to the PEEP Trustees each year.

PEEP has plans to expand further. A rigorous evaluation would identify which components of the intervention, if any, are valuable and worth taking up more widely. From the beginning of the Project the PEEP trustees were aware of the need to commission evaluations. During 1996-97 a qualitative study provided useful formative insights and recommendations (MacIntyre, Davies and Grimes, 1996).

Since 1998 the Birth to School Study (Brooks, Shay, Cross, Davies, Hutchison and Skinner, 2001) has been evaluating one cohort of PEEP children and families from near birth to the age of 5 against a comparison group.

In 1999 the Government launched a new social programme called 'Sure Start' in response to the Treasury's review of services for young children and families. PEEP bid for the first year of funding and was one of the 60 areas that received it. Two of the four catchment areas of PEEP were the recipients of this grant. Currently PEEP has been offered in two areas outside Oxfordshire.

### **1.3 Aims of the Research**

The main aim of this research was to study the effects of Foundation PEEP, a pre-school intervention implemented in Oxfordshire over two years (children aged 3- 5). A number of aspects of children's development were assessed and compared with the development of children without the intervention experience. Differences between the children participating in the two groups (intervention and comparison) were investigated and factors within PEEP, which might explain these differences, were explored.

The aim of the study was to discover whether the structured programme of the Foundation PEEP curriculum for 3 and 4-year-olds, would lead to:

- Improvement in children's educational achievement especially in literacy and numeracy;
- Improvement in children's pro-social behaviour and self-esteem.

In addition to establishing the effects of the PEEP programme for 4-year-olds, this study aimed to identify the continuing effects of the PEEP programme for 3-year-olds on their development across the pre-school period.

### **1.4 Research Questions**

Specific research questions for the ESRC funded part of the study were as follows:

1. What is the impact of the PEEP for 3s intervention on the literacy development of children assessed after a period of one year (children enter at age 3) compared with children with no PEEP experience?
2. What is the impact of the PEEP for 3s intervention on the numeracy development of children assessed after a period of one year (children enter at age 3) compared with children with no PEEP experience?
3. What is the impact of the PEEP for 3s intervention on the cognitive development of children assessed after a period of one year (children enter at age 3) compared with children with no PEEP experience?
4. What is the impact of the PEEP for 3s intervention on the social-emotional development and self-esteem of children assessed after a period of one year (children enter at age 3) compared with children with no PEEP experience?

The specific research questions for the DfES-funded part of the study were:

1. What is the impact of the PEEP programme for 4s on the literacy development of children assessed after a period of one and two years (children at age 4)?

2. What is the impact of the PEEP programme for 4s on the numeracy development of children assessed after a period of one and two years (children at age 4)?
3. What is the impact of the PEEP programme for 4s on the development of children's self-esteem assessed after a period of one and two years (children at age 4)?
4. What are the effects of 2 years of PEEP (for 3s and 4s) on children's development at school entry?

Children and their families in a separate area of Oxfordshire with no access to PEEP, coming from matched socio-economic background, were used as the comparison group in this study. This group is referred to as the comparison and not the control group, as random assignment to groups was not possible. Therefore the research design is a quasi-experimental one.

## **SECTION 2: LITERATURE REVIEW ON EARLY CHILDHOOD INTERVENTIONS**

### **2.1 What is an Early Childhood Intervention?**

Early learning in pre-school education has a lasting impact on children's social and cognitive development (Ball, 1994; Sylva, 1994). Current research evidence suggests that early intervention is more successful than later intervention (Durlak, 1995, Snow *et al.*, 1998). The above are only a few of numerous research reviews that summarise research underpinning current social policy, research and practice.

The term 'early' refers, for the purposes of this study, to children aged between birth and eight years old. The term 'intervention' can carry several meanings. For the purposes of this study the conceptualisation offered by Shonkoff and Meisels (2000) will be adopted as it offers a comprehensive view of all the possible aspects and agencies involved in an early childhood intervention:

*Early childhood intervention consists of multidisciplinary services provided to children from birth to 5 years of age to promote child health and well-being, enhance emerging competencies, minimise developmental delays, remediate existing or emerging disabilities, prevent functional deterioration, and promote adaptive parenting and overall family functioning. These goals are accomplished by providing individualised developmental, educational, and therapeutic services for children in conjunction with mutually planned support for their families* (Shonkoff and Meisels, 2000, pp. xvii, xviii).

For the purpose of this study 'effectiveness' will be conceptualised as follows: *Effectiveness is a measure of the extent to which a specific intervention, procedure, regimen or service, when deployed in the field in routine circumstances, does what it is intended to do for a specified population* (Cochrane, 1972, p.2). Although the quote dates back to 1972, it encompasses any type of intervention and the criteria it sets are clear and simple: if there is an agreement between the intended outcomes and the research findings, then the intervention could be described as 'effective'.

### **2.2 Different Types of Early Childhood Interventions**

Interventions can be grouped in various ways. Oliver and Smith (2000) classified the interventions according to the members of the population that are being targeted (children

only, children and parents, pre-school settings and curricula) (Table 2.1). However, a different grouping is possible when the agency or agencies that provide the intervention are taken into account (non-governmental organisations, trusts, private projects, and government projects). As this study investigates an intervention for young children and their families, the focus of the following literature review will be on studies in a similar context.

Table 2.1: Tiers of Early Childhood Interventions

Targets	Venues	Providers
Child/children in a family (cognitive or/and social development) *	Home only	Government projects
Maternal Health (pregnancy, depression and health)	Pre-school/school settings only	Non-governmental organisations
The parents/child in the family (parental support, social services) *	Home and pre-school/school settings *	Trusts *
Local environment (schools, pre-schools, houses)	Clinics	International agencies
National context and policies (tax and benefit systems, funding for families, provision of facilities)	Projects' work site *	

\* Areas relevant to PEEP

\*\*Source adapted and expanded from Oliver and Smith, 2000, p.24.

Another way of presenting programme variation is to split them into programmes that differ in: the location of the intervention (home, centre, parenting group); the time when the intervention takes place (prenatal, in infancy, in pre-school); the intensity of the programme (full day programmes, to weekly or monthly visits); the extensiveness (birth to five years interventions); and the curriculum (skills-based education, parental sensitivity training, coping skills) (Brooks-Gunn, 2000).

### 2.3 Evolution of Early Childhood Interventions in the UK

The DfEE commissioned the Worcester Centre for Research in Early Childhood to undertake a review on the Early Childhood Education and Care (ECEC) in the UK, to be presented to the thematic review of the Organisation for Economic Co-operation and Development (OECD) on Early Childhood. The section on the evolution of ECEC in the UK (Bertram and Pascal, 1999; 2000, pp.8, 10) provides valuable information on the history of early years provision in the UK. Provision has evolved from separate systems of care and education from 1649 to date. The role of mothers has changed according to the needs of the economy, women's roles and social values, from a position where a minority of mothers worked outside the home to the present position where 55% of mothers with at least one child under 5 years of age are in paid work (HM Treasury, 2002). Approximately one in three children lives in relative poverty in the UK (2.7 million children), the highest proportion in the European Union (HM Treasury, 1999). Poverty here is defined as living on less than half the average income in the UK, according to a recent Treasury review (HM Treasury, 2000). According to a Department of Social Security (DSS) review *Poverty affects different aspects of people's lives, existing when people are denied opportunities to work, to learn, to live healthy and fulfilling lives, and to live out their retirement years in security. Lack of income, access to good-quality health, education and housing, and the quality of the local environment all affect people's wellbeing* (DSS, 1999, p.2).

Why is the issue of poverty important here? As early childhood interventions aim (among other things) to help children overcome poverty, it is essential to address the effects of low income. *One of the goals of early childhood intervention programmes is to diminish 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). Brooks-Gunn (ibid) explains how low income affects children's development. The first issue is that *income is associated with children's cognitive development, achievement and behaviour* during the pre-school period. The second issue is that *these effects do not diminish during the primary school years. On the contrary they increase*. The third point is that *low income in pre-school years has an effect on rates of completed schooling* (ibid, pp.6, 7). One hypothesis is that since low income has such diverse effects on children's later life, it is important to invest in studies that will allow a clearer understanding of the consequences of low income and how they can be overcome.

## **2.4 Evolution of Early Childhood Interventions in the USA**

The evolution of early childhood interventions in the UK described above followed the same path as similar interventions in the USA. Dating back to 1960 in the USA there was a concern about the quality of maternal care, especially of the type provided by low-income mothers in the preparation of their children for school. Another cause of concern came from the development of basic research in psychology focusing on early years. Research findings were highlighting the importance of early experiences in later development and abilities, as intelligence was no longer perceived as something fixed but as something that can be improved and built upon (Halpern, 2000).

Halpern (2000) commented that the overwhelming majority of families targeted and served by these intervention “*programmes were African Americans, leading some observers to suggest they reflected little more than “institutional racism” (ibid, p.363)*. Early childhood interventions have been building upon the theories and the assumptions of the parent education interventions of the 1960s. They included programmes for infants, toddlers and pre-schoolers. They were targeting mothers from low-income families and they were trying to teach them games and activities that they could share with their children, or activities that would enhance the cognitive development of the children as well as basic parenting skills e.g. feeding, bathing, hygiene rules. The final intention of these programmes was, and still is, to promote school readiness. This is also the main aim of PEEP.

### ***2.4.1 Well-established Early Childhood Interventions***

The Head Start and Perry Pre-school (High/Scope) projects in the USA are the two most frequently cited early childhood intervention projects; the latter has been subjected to cost-benefit analysis and has the most widely quoted research. There is much confusion about Head Start and High/Scope research and this section will attempt to cast light on the field.

#### **Head Start**

Head Start is an American country-wide project which has received government funding for three decades and continues to do so. Head Start is a comprehensive child development programme, serving children primarily three and four years old, pregnant women and their families. The main focus of the programme is on increasing the overall school readiness of young children living in low-income families. The Head Start programme has a long tradition of delivering comprehensive and high quality services to foster healthy development

in low-income children. Its inception dates back to 1965 when the Head of the Office of Economic Opportunity (OEO) of the USA government thought that *a programme that would focus on pre-school children could be attractive and beneficial to all members of the community* (Halpern, 2000, p.364). *The result was a comprehensive programme, an ambitious collection of health services (including screening and immunisation,) nutrition, family social services and community development activities, surrounding a core of pre-school education for 3 and 4 year old children. Parents were to have a significant role in the programme, but not as targets of parent education, but as partners with professionals (ibid, p.364).*

The concept of involving the parents in a partnership other than as a target population is relevant to current research on planning and evaluating interventions. One could argue nonetheless that regardless of the scope of the interventions and of the principles (then and now) the majority of the programmes hope to have an effect on adults' lives as well. In fact nowadays it is more difficult to find interventions that target only the child in the family, and not also the family and the community as a whole, as *research evidence suggests that whole interventions are more effective* (Halpern, 2000, p.361).

### **High/Scope**

One of the most frequently cited US pre-school interventions is the Perry Pre-school Project run by the High/Scope Educational Research Foundation. The foundation is an independent non-profit research, development, training and public policy organisation. David Weikart established High/Scope in 1970. The approach originated from research and programme activities in the Ypsilanti Public School for which he was responsible in this school at the time. The approach involves training trainers to use the High/Scope approach, who in turn train teachers in different countries.

As described by Schweinhart, Barnes and Weikart (1993) the High Scope approach is explicitly Piagetian, as it views children as active learners. The well-known sequence 'plan-do-review' approach is the way that children are engaged in their daily activities. The approach recognises and supports the unique differences in children and claims to develop their self-confidence by building on what they can do. Children are encouraged to become decision-makers and problem-solvers, who can plan, initiate and reflect on their work; work effectively on their own, with other children or adults; and develop skills that will enable them to learn successfully in different educational settings and experiences (High/Scope UK,

1996). An emphasis is also placed on adult training, and increasing the expectations of children, parents, carers and teachers.

The High/Scope approach has been proven transferable as its curriculum model has been used in over twenty different countries and training initiatives have been implemented in five different countries. The approach therefore claims to be relevant across cultures and economic backgrounds but this would require rigorous evaluation designs in other countries besides the USA. The results of such a study will be discussed in the following section. The two evaluative studies on the High/Scope approach will be presented there as well.

It is important to state the main difference between Head Start and High/Scope at this point. While Head Start was conceived as an intervention to enhance cognitive and social development of children living in low-income families, High/Scope was an effort to improve the life chances of children and youth by promoting a high-quality educational curriculum based on psychological theory and addressing all aspects of children's development (High/Scope Educational Research Foundation, 2001). However, High/Scope from the beginning had an evaluation strand.

It is of interest to explore whether the High/Scope educational approach is compatible with the Head Start intervention. Epstein (2001) provided a critical review of all aspects of the two programmes. Epstein compared particularly the revised Head Start Performance Standards and the materials offered by High/Scope and concluded that *the two programmes are partners in promoting high quality programmes to children and their families by supporting the workforce who serves them (ibid, p.8)*. Additionally, Epstein states that High/Scope can be of service to Head Start programmes by delineating the characteristics of a curriculum model for children, the elements needed to involve parents in their children's education, and strategies for promoting staff development and training. The evaluation of these programmes will be discussed later.

### **Sure Start**

In 1999 the UK government announced the beginning of a new national intervention called Sure Start. The intervention arose from work on social exclusion and research *evidence which shows that early intervention and support can help to reduce family breakdown; strengthen children's readiness for school; and benefit society in the longer term by preventing social exclusion, regenerating communities and reducing crime* (DfEE, 1999, p.1). The aim of Sure Start is to *work with parents and children to promote the intellectual*

*and social development of pre-school children – particularly those who are disadvantaged – to ensure they are ready to flourish when they get to school* (Sure Start UK, 2001a, p.1).

Sure Start was planned as a cross-departmental programme, targeting children under four and their families in areas of need. It aimed to improve the health and wellbeing of families and children before and from birth, so that they will be able to succeed when they go to school. In order to achieve its goals Sure Start sets up local Sure Start programmes, which ensure family support, advice on nurturing, health services and early learning for all communities involved. The programme has five objectives: to improve social and emotional development, to improve health, to improve the ability to learn, to strengthen families and communities and finally to increase the productivity of operations (Sure Start UK, 2001a). Evaluations of Sure Start had not begun at the time of the Foundation Study.

#### ***2.4.2 Family/home -Based Programmes: Parents as Primary Educators***

Research suggested that families are powerful influences on children's literacy achievement (Douglas, 1964). It took some time for researchers to prove how much learning took place at home. Heath (1983) found that what children learn at home depends on the culture and values of their communities. In this section a 'parent focused' family literacy programme known to have been successful will be described.

#### **Home Instruction Programme for Preschool Youngsters (HIPPY)**

HIPPY is a home-based, parent involvement, school readiness programme. It aims to help the parents of three- and four -year old children raise their educational achievement for later success in school and beyond. It does so by providing a variety of literacy experiences in the home. The programme started in Israel in 1969 and has since been replicated in Turkey, Mexico, Chile, New Zealand, South Africa and the United States. While the four basic elements of the programme remain the same in each country, the countries adapt the HIPPY model to cultural and linguistic needs of the communities they serve. The implementation of the model and the curriculum are updated and improved, based on research findings. The HIPPY programme is made up of four basic elements:

1. The curriculum, which includes thirty weeks of activities (five days each week) for parents to do with their children, nine storybooks and twenty manipulative shapes.
2. The home visitors who are paraprofessional staff and themselves parents in the programme, and are supervised by a professional co-ordinator.

3. Role-play that is used as the method of teaching the curriculum.
4. Home visits as the primary method of delivery and group meetings that allow parents to meet and discuss/learn about common issues and children to interact with other children in a supervised environment (HIPPI, 2001, p.1).

The programme is unique in its efforts to address children's school readiness and school success while still not addressing directly the children but their mothers. The programme also aims to raise parental expectations of their children's achievements and to increase the frequency of the type of parent-child activities that are associated with school success (*i.e.* shared book reading, listening skills, asking and answering questions and picture reading). Also it offers pre-mathematical activities, problem solving, critical thinking and creative activities.

### ***2.4.3 Early Childhood Interventions with a Special Focus on Literacy in the UK***

A number of projects have been established in the UK on home-school early partnerships that aim to support parents as children's first educators and give children a good start (Table 2.2). Most of these studies were based on findings from research on parent/child interaction at home that showed how important the parents are in children's early learning. These programmes aimed to provide the necessary skills to low-income, poorly qualified mothers, to enable them to help their children's later academic achievement.

Below are described briefly two research findings that evolved from UK research and have influenced the evolution of literacy interventions. Tizard and Hughes (1984) carried out a study in London. They analysed 30 recorded conversations between four-year-old children and their parents/carers. The language experiences at home were compared to those in the nursery they attended. They found that the correlation between mother's education and child's literacy achievements was very strong. They also found examples of very rich linguistic interactions between mothers and daughters in working class homes – richer than similar interactions in nursery settings.

Wells' (1985) longitudinal study suggested that the best predictor of children's early reading attainment in school was a measure of 'knowledge of literacy' at school entry. He reviewed his data on children's language experiences at home, looking for interactions which might have prepared children for school. These experiences were listening to stories, sharing picture books, drawing and colouring, and early writing.

## **Bookstart**

Bookstart was a project initiated and developed by the Book Trust in 1992 (Wade and Moore, 1993). The project was based on the belief that it is important to introduce books to children as early as possible. It is an inter-agency project involving local libraries and health authorities, developed in co-operation with the University of Birmingham, the South Birmingham Health Authority and the Birmingham Library Service. The initial phase of the project targeted 300 parents and carers of babies, and the families were monitored. The project is introduced at health clinics, usually at the time of the baby's 7 to 9 months check. The parent is offered a pack containing two free baby books, advice, information and an invitation to join the local library. In case of parents with reading difficulties the health visitor explains the content of the pack to the parent.

## **Raising Early Achievement in Literacy (REAL)**

Raising Early Achievement in Literacy (REAL) was initially a pilot collaborative project, which recognised the knowledge of literacy on entry to school as a strong predictor of later literacy attainment and was based on the pre-school period (Weinberger, Hannon, and Nutbrown, 1990). The project is described in detail because of its strong links with the PEEP project.

The aims of the REAL pilot project in its inception were to develop methods of working with parents to promote early literacy development and to meet some of the literacy and educational needs of the parents involved. This second aim presents one fundamental difference between the REAL and the PEEP projects, as PEEP did not have a similar aim (until recently). They also wanted to disseminate effective means of parental involvement to practitioners and to inform policy makers about the effectiveness and implications of new practices. The project managers tried to ensure the feasibility of the methods developed and planned to assess the effectiveness of the methods in improving children's literacy development from school entry onwards.

Their research suggested that there were four ways in which parents can help their children's literacy development. Parents can offer children learning **O**pportunities for literacy development, **R**ecognition of their early achievements, **I**nteractions with adults in learning situations and **M**odels of literacy and numeracy. These four concepts were called the ORIM framework and they can be used as ways to summarise how parents can help children's learning. The REAL project uses the ORIM framework in relation to literacy activities only.

In PEEP the ORIM framework has been utilised across the curriculum. Two programmes were run, with and without home visits. The programme developed methods of working with parents, based on provision of literacy materials, home visits, and meetings. Although the methods were home focused, they were located both at home and at school.

Books were provided for children and parents to borrow. They were also provided with literacy materials, aiming especially to encourage recognition of environmental print. The first seven families were offered the home visits programme and the remainder were not. During the home visit, a 'review-input-plan' structure was used based on the needs of the individual children (influenced by the High/Scope 'plan-do-review' approach). Children's work saved by parents was reviewed to look for literacy development.

Finally, a series of five meetings during the year took place in the school. It was an opportunity for the parents to share experiences and for the research team to give a formal input on literacy development.

Based on the above pilot work the Raising Early Achievement in Literacy (REAL) Project has developed and brought together the University of Sheffield, Sheffield Local Education Authority and schools in the city in an initiative to promote young children's and adults' literacy through work with families. They are currently aiming to explore further the role of parents in children's literacy development, especially in the early years. By addressing literacy issues they are bringing early childhood and adult education together. The current aims of the REAL project address three different areas: the programme continuity and implementation (aims 1 and 2), the evaluation of the programme (aim 3) and the dissemination of the findings (aims 4 and 5):

1. *Developing methods of working with parents to promote the literacy development of children before school.*
2. *Meeting some of the literacy and educational needs of the parents involved, so ensuring the feasibility of the methods developed.*
3. *Assessing the effectiveness of the methods in improving children's literacy development at school entry and afterwards.*
4. *Disseminating effective methods to practitioners.*
5. *Informing policy makers about the effectiveness and implications of new practice.*

(Hannon and Nutbrown, 2001, p.1)

Table 2.2: Parenting Programmes in the UK which are Targeting Literacy

Name of Programme	Target group	Style of Intervention	Objectives	Theoretical Base	Evaluation
<u>PACT</u> Hancock and Gale (1996)	Children aged between 5 and 9 years old	At school	Promote reading practice between child and parent	Eclectic	None
<u>CAPER</u> Branston (1996)	Children aged 6 to 11 and later in time targeting children 3 and 4 years old	At school	Promote reading practice between child and parent (non-reading schemes)	Eclectic	Qualitative and controlled quantitative evaluations run by non independent evaluators
<u>BOOKSTART</u> Wade and Moore (1993)	Babies 8 and 9 months old	At libraries and Health Visitors centres	Promote early engagement with books	Eclectic	Qualitative evaluation by the University of Birmingham shows positive results
Raising Early Achievement in Literacy (REAL) Hannon (1995)	Working with parents of 2 ½ to 3 yr. olds to promote early literacy development	At-home work and in-school work, provision of literacy materials, meetings in school	Promote early literacy development	Eclectic	Uncontrolled evaluations shows promising results; controlled evaluation shows positive results
Peers Early Education Project (PEEP) Roberts (2001)	All parents of 0–5 yr. olds in disadvantaged communities	Parent group, led by non-specialist but trained staff, community based School based, led by trained staff	Improving literacy	Eclectic	Uncontrolled, small scale to date shows positive results Controlled evaluations run by independent evaluators under way

### ***2.4.5 Characteristics of Effective Early Childhood Interventions***

Sure Start (2001a) reviewed the research evidence on effective interventions and they concluded that the characteristics shown by most successful programmes were:

- *Two generational: include parents as well as children;*
- *Non-stigmatising: avoid labelling 'problem families';*
- *Multifaceted: target a number of factors, not just education, or health or parenting (Department of Health Promotion and Education, 2001);*
- *Locally driven: based on consultation and involvement of parents and local communities;*
- *Culturally appropriate and sensitive to the needs of children and parents (Sure Start UK, 2001, p.3). And finally:*
- *Centre-based programmes have reported positive results compared to home-based programmes (Brooks-Gunn, 2000, p.10).*

## **2.5 Evaluating Early Childhood Interventions**

How can one assess whether any particular intervention is 'effective'? In order to answer the question, a systematic evaluation of a given intervention should take place and this section will explore briefly different approaches to evaluation.

What is an evaluation? An evaluation is a distinct study that has a purpose; it is not a method or a research strategy (Robson, 1993). An evaluative study differs from other forms of social study because it has a different purpose and it is action oriented (Clarke, 1999). An evaluation is conducted to determine the value or impact of a policy, programme, practice, intervention, or service, with a view to making recommendations for change (Clarke, 1999). Finally, most evaluations refer to the measurement of the value of interventions or programmes (Sylva, personal communication, 2000). Different motivations for carrying out evaluations of early childhood interventions will be explored next.

### ***2.5.1 Reasons for Evaluations***

Sylva (1990a) argued that there have been four motivations for evaluation: *to improve quality, to improve efficiency, to demonstrate effectiveness and to justify allocation of funds (ibid, p.97)*. In recent years, increased attention has been paid to the need for careful planning of project evaluations that aim to demonstrate whether interventions are effective and cost-effective.

Hannon (1995) argued that *innovation in education ought to be accompanied by evaluation - without it, we are at the mercy of prejudice or educational fashion (ibid, p.109).*

According to Hannon there are four essential themes in evaluation: the first is that evaluation has to do with values that underlie different goals in education. The second is that evaluation can help us choose between options, but one needs to know the value of opting for one option over another. The third is that evaluation ought to be concerned with the costs as well as the benefits of innovation. Fourthly he argues that evaluative research should not be confused with theoretical research (Hannon, 1995, pp. 109-110).

At a more abstract level interventions or programmes funded by charities, trusts or government funds need to produce a design for the programme evaluation prior to funding. They need to provide evidence to make sure that the programme will be established successfully and according to its initial design. Also, they need to evaluate the implementation of the key objectives of the programme; and to contribute to the knowledge base on the effectiveness of early childhood interventions in different aspects of child development (Sure Start UK, 2001b).

The evaluation of an intervention is of paramount importance and there are different aspects of the intervention that need to be taken into account when planning such an evaluation. The first aspect would be to measure the nature of the population that has been recruited to the intervention; has it targeted socially disadvantaged areas, low-income families, poor housing, low education attainment to name but a few? A rigorous evaluation will need to begin by analysing the demographics of the population targeted and then question whether the intervention is actually targeting the intended population.

A second aspect for investigation is how the intervention has evolved and been implemented at the local level (if applicable) or national level. Important issues are the origin of the intervention, whether it was based on what was already available in the community and whether it focused on the community's real needs.

A third point when planning a rigorous evaluation is to assess the immediate impact of an intervention locally and/or nationally. According to the Sure Start Evaluation Development project, *there are three questions to consider when evaluating the impact of an intervention: have there been changes in the outcomes of interest, what is the precise definition of the population to which the results apply and crucially, can these changes be attributed to the intervention itself?* (Bynner, Ferri, Plewis, Kelly, Marmot, Pickering, Smith and Smith, 1999, p.23). In other words one needs to know whether the children

and families participating in any intervention would have been better off without the intervention, and one way to assess this, is to include in the evaluation study a control group (in the case of experiments) or comparison group (in the case of quasi-experiments). In order to address the first question, whether there are any changes in outcomes, careful measurement of children's performance, usually pre and post the intervention, will suffice. For the last question, the design of the evaluation will constrain and shape claims about causality and effects.

In an era when governments and policy agents are investing heavily in early childhood interventions, it is crucial to assess these interventions with rigorous designs so as to identify the ones that have the best pay-off for society.

Interventions that seek funding by the government or charities and trusts need to demonstrate some level of programme evaluation. Especially for complex interventions that have more than one focus, there are certain aspects that must be covered in evaluation methodology. Robertson (2001) suggests a few relevant areas: cultural context, the goals of the intervention, the community context, the expected short- and long-term outcomes, a reasonable timeframe, whether directly addresses parental education as well as parental participation, and finally sustainability.

One could add to the above list the cost analysis and the cost-benefit analysis of the intervention as well as the ability to replicate the programme and the scope for further implementation. It becomes clearer that planning and implementing evaluation of an intervention requires specific knowledge and skills.

### ***2.5.2 Strategies of Evaluations***

Hannon (1995) argues that two different approaches to evaluation of educational interventions are possible. The first one is looking solely at children's performance in tests, while the second one is more holistic and uses the different aspects of children's interaction with their environment for their literacy development. The latter may include studying all the participants *i.e.* parents, teachers and children, as well as using different methods of data collection *e.g.* interviews, tests, record keeping. This study followed the more holistic view of evaluation, although its main emphasis was on child assessments.

There is an ongoing debate about the best method for evaluating an intervention. The debate is between those who believe that the experimental design where a Randomised Control Trial (RCT) with a randomly allocated control group and a reasonable sample size is the best model (Oakley, 1999) and those who are questioning the appropriateness

of the randomised control trial in social sciences (as a method RCTs were brought to social sciences from the medical sciences). As Statham explains, perhaps the most appropriate approach is a combination of methods to *provide evidence of effectiveness at different levels* (Statham, 2000, p.5). Or in the words of Berk and Rossi (1990) *all social science fields have contributed to the development of evaluation research methods. It is not surprising, therefore, that the best evaluation research and the best evaluators draw on a number of disciplines, using an eclectic repertoire of concepts and methods* (1990, p.12).

### **Research using Experimental or Quasi-experimental Designs**

The research literature (Schweinhart, Barnes and Weikart, 1993; Schweinhart and Weikart, 1997 and Shonkoff and Meisels, 2000) shows that the best research design used to evaluate an intervention is the experimental design (Randomised Control Trials), where half of the population is randomly assigned to follow the intervention and the other half is not.

Another frequently used design is a quasi-experiment, as in this report; usually applicable when the evaluation is designed after the beginning of the implementation of the intervention (therefore random assignment to groups is neither possible nor ethical). In the latter case, half of the participants of the study attend the intervention while the other half do not, but the differences in the groups' characteristics at the start of the study are controlled for statistically. While there is a common acceptance that experimental designs are preferable, it is also important to develop different techniques that will allow rigorous evaluations of more complex interventions.

*In addition researchers need to continue to develop and employ appropriate statistical econometric techniques that allow evaluation of quasi-experimental and non-experimental designs. It may not always be possible or desirable to implement randomised control trials when evaluating new, possibly larger-scale intervention programmes. Ethical concerns or resource constraints may pose barriers to implementing the number of Randomised Control Trials necessary to investigate the range of design questions that need to be answered* (Rand Corporation, 1998, p.17).

#### **2.5.3 Examples of Evaluating Interventions**

Many programmes have been shown to support the foundations of literacy but only the evaluations of the two best known will be reviewed here: the Head Start and Perry Pre-school (High/Scope) projects. These studies involved experiments and they are known as

*'impact' research because they show the effects of early childhood programmes on children's subsequent social and emotional development as well as on their academic achievement (Sylva, 2001, p.1).*

### **Design of the Head Start Project**

Head Start (see earlier) is an American project that has received government funding for three decades. The success of the project was evaluated by a comparison through IQ and other attainment test scores of children who had attended the Head Start programme and children who had not. Harell (1983) reported that children participating in Head Start programmes after 1970 were found to gain more, as measured by competence and achievement scores, than those who participated in the project earlier. The initial evaluations of the project underestimated the effects of the programme, as they focused only on measures of intelligence as the main outcome. They found that early IQ gains quickly deteriorated, thus leaving Head Start graduates no different from the control group (Sylva and Colman, 1998). A more recent evaluation of Head Start compared the outcomes of 969 disadvantaged children who had experienced three different pre-school environments in Head Start, some other pre-school programme and no pre-school (Lee, Brooks-Gunn and Schnur, 1988). Head Start children showed greater development measures of social and cognitive functioning ('readiness for school'), including literacy, compared to children in the other two groups. This was a smaller study than the previous one and it focused only on 'high quality' programmes.

Sylva (2000) explained that *the major doubts about the efficacy of Head Start do not concern short-term effects early in school but rather the long-term impact* (2000, p.123). As the Head Start programmes are so diverse within states and cities, it is difficult to show lasting positive outcomes.

### **Design of The Perry Pre-school Project**

One of the most frequently cited evaluations of pre-school interventions is the Perry Pre-school Project implemented by the High/Scope Educational Research Foundation. The intervention has been subject to evaluation for nearly 30 years. They organised a longitudinal study investigating the range of effects that pre-school experience had on the lives of 123 randomly assigned African American children from disadvantaged backgrounds, all living in the Ypsilanti, Michigan area. Children identified as being at risk of failing school were randomly assigned to early childhood education (High/Scope curriculum) or stayed at home (control group).

Initially the results were based only on IQ measurements, but eventually they were expanded to include social and educational outcomes. Differences in favour of the intervention group were found in areas such as social adjustment, academic skills, including literacy, and community participation in society and in the work force (Schweinhart, Barnes and Weikart, 1993; Schweinhart and Weikart, 1997). In the Adult Performance Level Survey (APL) children who experienced pre-school performed (High / Scope) significantly better at reading tests compared to children who did not (Berrueta–Clement, Schweinhart, Barnett and Weikart, 1984). The authors of the Perry Pre-school Project are confident that the intellectual focus of the curriculum was exclusively responsible for the higher cognitive performances that the pre-school children achieved in first grade.

This first High/Scope cohort as described above was part of a randomised control trial, with a treatment and a control group. This is reported in numerous High/Scope monographs, especially in ‘Significant Benefits: the High Scope Perry Pre-school Study through Age 27’ (Schweinhart, Barnes and Weikart, 1993).

The second major High/Scope cohort was also in a second randomised control trial. Children were randomly assigned to three curricular 'orientations': a High/Scope programme, a 'free' programme, or a very structured, instructional programme. They were followed until the age of 23 and the results are reported in ‘Lasting Differences; the High Scope Preschool Curriculum Comparison Study Through Age 23’ (Schweinhart and Weikart, 1997). Children participating in the High/Scope programme had three times less problems with the law and less social-emotional problems during their schooling years as opposed to the very structured, instructional programme.

The project was then subjected to cost-benefit analysis (Barnett, 1996; 2000). Schweinhart, Barnes and Weikart (1993) reported the most striking result that for every \$1000 that were invested in the pre-school programme; at least \$7160 have been or will be returned to society. The figure was based on expenses of juvenile delinquency, remedial education, income support, and joblessness set against the costs of implementing the programme (Barnett, 1996). The impact of the Perry Pre-school Project findings was important for policy makers as it showed that investment in high quality early childhood education, and a High / Scope style curriculum, could save government money later (Sylva, 1999).

As Sylva and Colman (1998) suggested, *there are two issues to consider before evaluating pre-school educational studies: the nature of the intervention and the methods for establishing its effectiveness (ibid, p.75)*. In the case of the Perry Pre-school Project,

the intervention was well structured and guided by developmental theory; despite the relatively small sample size, the research design was rigorous in assessment and high in internal validity.

#### ***2.5.4 Evaluations of UK Early Childhood Interventions Focusing on Literacy***

Currently evaluations are under way on a number of projects or interventions in the UK with the REAL project, the PEEP project, and the Bookstart project being the most relevant to this study. It is beyond the scope of this review to present evaluative designs that have not presented their research findings yet, as the quality of these designs, is yet to be conclusively demonstrated. The only exceptions to the above studies were the Bookstart and REAL project evaluations, a brief description follows.

##### **Bookstart Evaluation**

The evaluation of Bookstart is based mostly on qualitative findings. Initial findings from the University of Birmingham (Wade and Moore, 1993, 1996) showed that there was an increase in Bookstart children's awareness of books, sharing of books, and enrolment of babies in libraries, use of book clubs and general use of books, compared with an unmatched comparison group. By the time the Bookstart children entered school their Baseline Assessment scores were matched with children with no access to the project and their scores were better. The Tedworth and Glass-House Trusts currently sponsor the project and by summer 2000, two hundred and ten schemes were running, covering 92% of the UK.

Another study on Bookstart took place in North Tyneside where city funding was available to pilot a project called 'Babies Need Books' in 1996-97. Families and their babies were approached at health centres and baby clinics, and parent and toddler groups. It was an opportunistic sampling procedure and the babies involved were on average between 7 and 9 months, while there were a number of four-year-old children and this is part of the limitation of the evaluative study, namely the range of the participants. The study had three aims: *to explore family use of the library services; to explore how parents and children were using books together; and to examine the impact of the Babies Need Books scheme* (Hall, 2001, p.59). From the initial 147 pilot families, 101 responded to the first questionnaire and only 44 to the second. Some positive findings were drawn from the meta-analysis of the questionnaires but the sample size was too small to infer causal relationships. *Parents were positive and able to describe book sharing with their children under three different headings: calming and routine activity special time with special people and promoting children's attainment* (*ibid*, p.62). An interesting point is

Hall's concluding remark that there seems to be little awareness of parents' expertise in schools.

In a follow-up of the study a very small sample (n=13 families) were revisited and the parents felt that their knowledge of their children's reading habits was not appreciated or taken into account. This parental remark makes it even more interesting for practitioners and academics to explore the role of parents as children's first educators, a view held by PEEP from the inception of the project.

The latest report from Wade and Moore (2002) presented the views of four groups of professionals working with Bookstart in one Borough. Those involved librarians who ran clubs for parents; health visitors who introduced the reading packs to parents; nursery teachers who observed the children and the Bookstart project co-ordinator. They reported that Bookstart benefited not only the children but also other members of the family. Wade and Moore also stated that Bookstart is a simple and effective way that works with all situations and with a wide range of families; that it increases the enthusiasm of parents for books and finally that it increases the parents' abilities in sharing book with their children.

### **REAL Project Evaluation**

The REAL pilot project involved an exploratory evaluation study, which included seventeen families from low SES backgrounds; all the children had English as their first language. It was an exploratory study with a small sample of twenty children, two and a half to three years old. The only selection criterion was that their homes were within walking distance of the project school. The conclusion of the evaluation of the pilot study was that the intervention probably had value in promoting children's early literacy development.

A rigorous experimental evaluation of the current REAL project (Hannon, 2001) reported their first results as follows: children in the intervention did significantly better than a comparison group in the Sheffield Early Literacy Development Profile (Beta = 0.41) and in the number of letters children were able to recognise Letter Identification (Beta = 0.30). These are promising findings and it is worth noting that the biggest strength of the study is that it used an experimental design. The evaluation of the project is currently in further stages of data collection and analysis.

### 2.5.5 Evidence-based Policy and Practices

#### 'Sources' of Evidence-based Policy and Practices

Evidence-based education as shown in Figure 2.1 operates at two distinct levels: the first is to '*utilise existing evidence from worldwide research and literature*' and the second is to '*establish sound evidence where existing evidence is lacking or of a questionable, uncertain, or weak nature*' (Davies, 1999, p.109).

The need for both levels of educational research, although it seems clear, is characterised by complexities that will be addressed further. The above division of evidence-based education can be further sub-divided.

Broadly speaking evidence-based policy and practice in education can evolve through different research exercises. One strand is evidence coming from different types of research synthesis. The other strand is dual. One section is research carried out by academics in universities and research centres, and the other strand is research carried out by teachers in schools in collaboration with research centres. As this study evolved by research carried out under an academic institution the focus of this section will follow the same line.

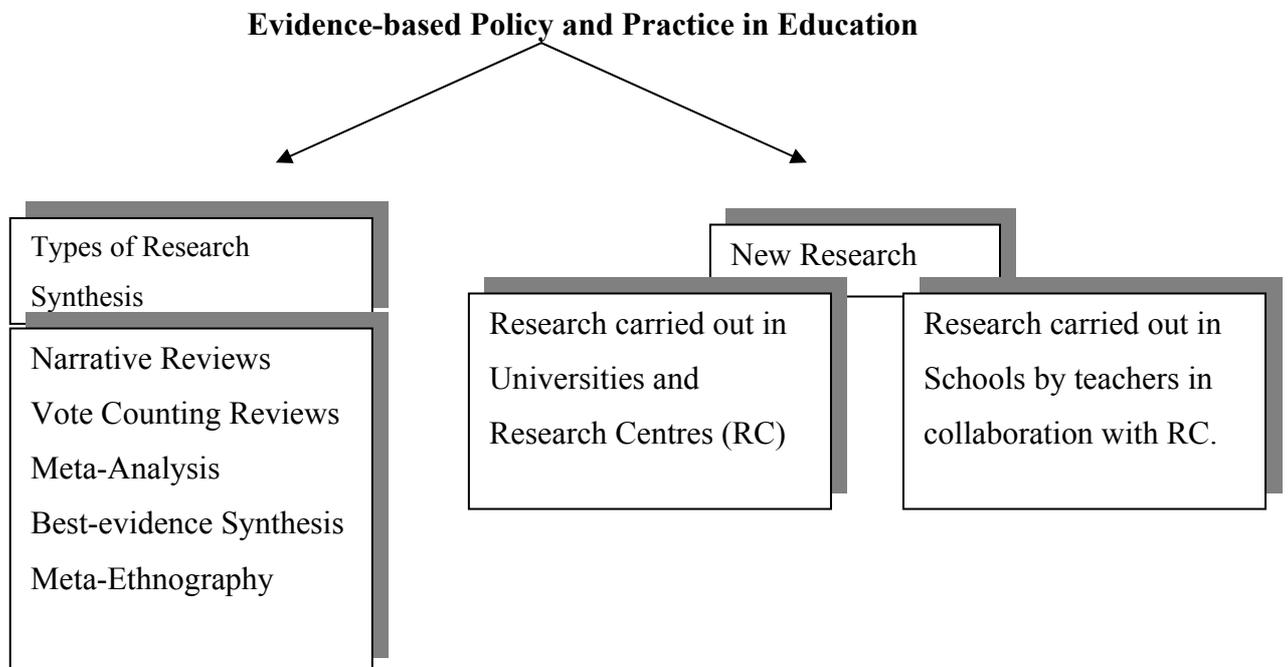


FIGURE 2.1: TYPES OF EVIDENCE-BASED POLICY AND PRACTICE IN EDUCATION

## **What is Evidence-based Policy and Practice?**

There is a new emphasis on evidence-based practice, *grounded in information from research that attempts to show what works both in individual cases and in the planning of services* (Statham, 2000, p.i).

According to Davies (1999), *evidence-based education is a set of principles and practices which can alter the way people think about education, the way they go about education policy and practice, and the basis upon which they make professional judgements and deploy their expertise* (ibid, p.118).

In his opening paper at the Evidence-based Conference in Durham, Brighton (1997) posed a series of questions related to evidence-based practices. He addressed two different aspects (definitions and identification) of evidence-based practice. His main questions were: *Best practice for what? Best practice for whom? And how do we identify the methods that will most reliably produce those defined goals?* As all three questions are valid in the current debate, it is worth attempting to provide some answers.

*'Evidence-based' refers to an approach which argues that policy and practice should be capable of being justified in terms of sound evidence about their likely effects* (Curriculum, Evaluation and Management Centre, 2000, p.1). Researchers at the University of Durham offer the above conceptualisation that addresses the issues of policy and practice in different disciplines and not only in education. Coe, from the same university, offered a conceptualisation of the term in direct connection with education: Before a policy is implemented and a practice recommended, it should have been tried out and evaluated (Coe, 2001).

The development of evidence-based practice in social care would depend on five issues: *the generation of good quality data concerning effectiveness, a workforce able critically to appraise evidence, systematic reviews of research findings, the dissemination of data in readily accessible form to service users, and a work and policy environment that facilitates rather than impedes the development of practices which reflect 'best evidence'* (Macdonald, 1999, p.30).

In addition, the UK government set up the Centre for Management and Policy Studies (CMPS) in 1999. One of the aims of the centre is to *capture and absorb the best research evidence and management practice wherever they may be found* (CMPS, 2001, p.1). The Policy Studies Directorate was divided into three sections: Policy Evaluation, Research

and Resources. The Policy Evaluation division is responsible for promoting and developing expertise in policy evaluation. *One of the divisions key roles is to devise and implement a system of peer review of policy evaluation across Departments and to devise a method of evaluating improvements in policy making (ibid, p.1).*

The above is an example of the development of evidence-based practices in a policy setting. It provides a framework for understanding how decisions are taken. If the government prioritises evidence-based practices then it seems logical that it will fund relevant research and use relevant findings for every department and division.

A commitment to evidence-based policy development was the conclusion of the Hillage (1998) report: policy-makers (at national and local level) should commit themselves to ensuring that, wherever possible, policies are developed on the basis of and/or related to publicly available research evidence, and encompass clear and independent evaluation strategies. *Such a policy-level commitment should feed through to practice, where more evidence-based decision-making should be encouraged where appropriate (Hillage et al., 1998, p.60).*

The PEEP project has received funding for the last six years both from private sources and from the government, especially for the evaluation of the project. As the project leaders were aware of the need to produce evidence that is effective in any form (for further dissemination and replication) they welcomed this study as the second strand of an ‘outcome’ evaluation planned and carried out since 1998. The results of this study will provide evidence about the possible effects of the intervention at local level. The same results will provide a basis for PEEP to be compared with international interventions that have been carefully evaluated.

## **SECTION 3: METHODOLOGY**

### **3.1 Research Sample**

#### ***3.1.1 Recruitment During the First Phase of the Study (Funded by ESRC)***

The initial phase of the evaluation of the Foundation PEEP (3-4 years old) was funded by ESRC. Children and their mothers were already attending the PEEP intervention before the beginning of the ESRC funded phase of the evaluation; therefore random assignment to groups was not possible.

#### **Intervention Group**

The population from which the intervention sample was drawn was the whole of the PEEP for 3s group; namely, all children who had access to the PEEP Project in the period 1<sup>st</sup> April 1998 to 31<sup>st</sup> March 1999. The PEEP attendance register was used to generate a population list of children who satisfied the two criteria: a) attending PEEP for 3s and b) having their 3<sup>rd</sup> birthday during the recruitment term. Among those children who satisfied the above two criteria seventy-three children were recruited after their mothers volunteered to participate. A total of 104 letters were sent out to parents (Appendix 3). Of these 73 agreed to participate (71%), 24 of the 104 families left PEEP (23%) and 5 families of the 104 (5%) gave consent but left the study and 2 children were not fulfilling the age criterion so they were not recruited (1.92%).

The children were recruited in three cohorts, as follows: the first cohort was made up from children born between 1<sup>st</sup> January and 30<sup>th</sup> April 1995. The second cohort was children born between 1<sup>st</sup> May and 31<sup>st</sup> August 1995. The third cohort was children born between 1<sup>st</sup> September and 31<sup>st</sup> December 1995. The reason for having separate cohorts was the insufficient number of participants in the PEEP groups within one cohort.

#### **Comparison Group**

The comparison group was not selected from the same area as the PEEP group to reduce any effects of programme leakage. A study by the Department of Social Policy and Social Work, University of Oxford, carried out by Smith (1988), has identified a town in Oxfordshire as a demographically matched community control group, based on census data. In the comparison area a cluster sample was used to select the playgroups. A letter was sent to the Pre-school Learning Alliance of the Comparison area, informing them that a study would take place in a few of the playgroups in their area for a year. A different letter was sent to playgroup committees asking for their permission to include their

playgroups in the study. After a telephone enquiry of all the places that offer childcare for 3 to 4 year olds in the area suggested by the Smith report and checked with postcodes, a random sample of 15 appropriate playgroups was selected. Of the 15 possible playgroups 6 fulfilled all the criteria below and 5 agreed to participate. These were all selected. The playgroups were selected on the basis of the following criteria:

- They described the service as a playgroup;
- They were operating under the authority of the Pre-school Learning Alliance (PLA) and not of the Local Education Authority (LEA);
- They offered their services to 3 to 4 year old children;
- They operated for at least 2 sessions a week.

The same cohort procedure as had been used to recruit children in the PEEP groups was employed to recruit approximately 10–30 children each term from these playgroups in the comparison area.

The parents and children in the comparison area did not receive the intervention. Of the 97 families approached in the comparison area only 6 were not able to take part; and they did not give any reasons (10 % attrition).

### ***3.1.2 Recruitment During the Second Phase of the Study (Funded by the DfES)***

When the children were aged 4, at the end of the ESRC phase of the study, all families received a new letter explaining the continuation of the study (funded by the DfES) and were offered the opportunity to opt out of the study (Appendix 4). Schools also received a letter explaining the study in detail (Appendix 5). All families had initially received and signed an informed consent form when their children were recruited in the ESRC funded study.

We had 156 children continuing from the initial phase of the study (3-4 year olds) for our sample for the DfES funded second phase. A total of 149 formed the sample for the DfES funded phase of the study (4% attrition). Lost children and their families had moved not only outside the PEEP catchment area but mainly abroad (e.g. Australia and Pakistan). Although 149 children were assessed, the pair of twins was excluded giving a total number of 147 children, of which 83 were in the Comparison group and 64 in the intervention group.

The whole analysis was carried out and presented as a combination of boys and girls throughout. This was due to the fear that dividing the sample into smaller groups (such as boys/girls, single-parent vs. two-parent families) might produce spurious differences. The

same case is for the parents of each child, as the analysis does not refer separately to them as mothers or fathers. Table 3.1 shows children’s mean age expressed in months at the different points of assessment.

Table 3.1: Mean Age in Months

	<b>Mean age in months</b>
<b>Pre-test</b>	PEEP = 39.9 Comparison = 39.3
<b>Post-test 1</b>	PEEP = 50.0 Comparison = 50.0
<b>Post-test 2</b>	PEEP = 62.9 Comparison = 61.5

### 3.2 Research Design

To study the effectiveness of the Foundation PEEP approach a quasi-experimental design was chosen which includes one pre- and two post-test measures collected over a period of three years from four groups of children born during the same term in the intervention area and from three groups of children born during the same term in the comparison area. A quasi-experiment is a study in which two or more groups of individuals are compared to investigate the effect of an intervention (or treatment) on the individual. When the design is quasi rather than pure experiment the individuals are not assigned randomly to groups but are matched on characteristics thought to be related to the outcomes. The pre-test scores were collected before the children had received the intervention while the post-test scores were collected one and two years after exposure to the intervention.

	<b>Pre-test</b>	<b>Post-test I</b>	<b>Post-test II</b>
<b>Intervention group</b>	√	√	√
<b>Comparison group</b>	√	√	√

FIGURE 3.1: PRE-TEST, POST-TEST, QUASI-EXPERIMENTAL DESIGN

Children and families who were receiving the PEEP intervention were compared with a matched group who did not. PEEP was offered to all families in its geographical area in Oxford and thus random assignment was not possible. The comparison group could not be selected from the same area as the PEEP group, as it was offered to all families in the PEEP catchment area. The comparison group also had to be in a different area in order to

reduce any effects of programme leakage. A study by the Department of Social Policy and Social Research carried out by Smith identified an area in Oxfordshire as demographically matched to the PEEP catchment area, based on census data, and it was chosen as a comparison population (Smith, 1998).

In the absence of random assignment to groups, the pre- and post-test design allowed this study to measure the contribution to developmental progress of two groups of children in two years of pre-school learning of the type these children were experiencing (intervention versus non-intervention). Thus this research was a 'value-added' study investigating the contribution of PEEP experience to children's measured progress between three time points.

The study examined the effects on children who participated in the PEEP programme for a two-year period from age 3 to 5. Table 3.2 illustrates the research timetable.

Table 3.2: Research Timetable (White section funded by ESRC 1997-2000) (Shaded section funded by DfES 2000-2001)

PRE-TESTS: Summer '98 – Summer '99 (Children 3:0 to 3:3 years)		POST-TESTS I: Summer '99 – Spring '00 (Children 4:0 to 4:3 years)		POST-TESTS II: Autumn '00 – Summer '01 (Children 5:0 to 5:3 years)	
Tasks Administered	Administered by	Tasks Administered	Administered by	Tasks Administered	Administered by
<b>COGNITIVE TASKS</b> Non-verbal reasoning Skills (BAS) <i>Block Building</i> <i>Picture Similarities</i>  <b>LANGUAGE AND LITERACY TASKS</b> Verbal Skills (BAS) <i>Verbal Comprehension</i> <i>Naming Vocabulary</i> Writing Skills (Clay) <i>Writing Sample</i>	Researcher	<b>LANGUAGE AND LITERACY TASKS</b> <ul style="list-style-type: none"> <li>• <i>Verbal Comprehension (BAS)</i></li> <li>• <i>Vocabulary (BPVS)</i></li> <li>• <i>Phonological Awareness (Bryant &amp; Bradley)</i></li> <li>• <i>Concepts About Print (Clay)</i></li> <li>• <i>Writing Sample (Clay)</i></li> </ul>	Researcher	<b>LITERACY TASKS</b> <ul style="list-style-type: none"> <li>• <i>Verbal Comprehension (BAS)</i></li> <li>• <i>Vocabulary (BPVS)</i></li> <li>• <i>Phonological Awareness (Bryant &amp; Bradley)</i></li> <li>• <i>Letter Identification (Clay)</i></li> <li>• <i>Concepts About Print (Clay)</i></li> <li>• <i>Writing Sample (Clay)</i></li> </ul>	Researcher
<b>SOCIAL SKILLS AND EMOTIONAL DEVELOPMENT (ASBI)</b>  <i>Compliance /Conformity</i> <i>Pro-Social</i> <i>Confidence / Independence</i> <i>Anti-Social</i>	Teacher / Playgroup leader	<b>NUMERACY TASK (BAS)</b> <ul style="list-style-type: none"> <li>• <i>Early Number Concepts</i></li> </ul>	<b>Researcher</b>	<b>NUMERACY TASK (BAS)</b> <ul style="list-style-type: none"> <li>• <i>Early Number Concepts</i></li> </ul>	<b>Researcher</b>
		<b>SELF-ESTEEM (PSPCYC)</b> <ul style="list-style-type: none"> <li>• <i>Cognitive Competence</i></li> <li>• <i>Physical Competence</i></li> <li>• <i>Maternal Acceptance</i></li> <li>• <i>Peer Acceptance</i></li> </ul>	Researcher	<b>SELF-ESTEEM (PSPCYC)</b> <ul style="list-style-type: none"> <li>• <i>Cognitive Competence</i></li> <li>• <i>Physical Competence</i></li> <li>• <i>Maternal Acceptance</i></li> <li>• <i>Peer Acceptance</i></li> </ul>	Researcher
		<b>SOCIAL SKILLS AND EMOTIONAL DEVELOPMENT (ASBI)</b> <ul style="list-style-type: none"> <li>• <i>Compliance /Conformity</i></li> <li>• <i>Pro-Social</i></li> <li>• <i>Confidence / Independence</i></li> <li>• <i>Anti-Social</i></li> </ul>	Teacher	<b>SOCIAL SKILLS AND EMOTIONAL DEVELOPMENT (ASBI)</b> <ul style="list-style-type: none"> <li>• <i>Compliance /Conformity</i></li> <li>• <i>Pro-Social</i></li> <li>• <i>Confidence / Independence</i></li> <li>• <i>Anti-Social</i></li> </ul>	Teacher
				Statutory Baseline Assessment	Teacher

**KEY:** ASBI: Adaptive Social Behaviour Inventory **BAS:** British Ability Scales II **BPVS:** British Picture Vocabulary Scale **PSPCYC:** Pictorial Scale of Perceived Competence for Young Children

### **3.3 Demographic Characteristics**

Demographic characteristics in this study were collected on two different levels; firstly at the level of the child and the family, and secondly at the level of the pre-school settings. The above information was collected in order to rule out the possibility of greater developmental progress in children due to favourable home or playgroup characteristics in either group.

If the researcher had collected only educational outcomes (*i.e.* post-tests) it is possible that children might have higher scores in one group because of more favourable home circumstances.

#### ***3.3.1 The Design of the Parent/Carer Interview***

The semi-structured interview (Appendix 6) was adapted from the Effective Provision of Pre-school Education (EPPE) project (Sylva, Sammons, Melhuish, Siraj-Blatchford, and Taggart, 1999). The EPPE interview was piloted by research officers all over the country and used in the study of 3000 families. The interview that the researcher used for demographic data for the PEEP Project differed from the EPPE interview for two reasons. Many areas (*i.e.* parental choice of day care history, pre-school provision) were not relevant to the aims of the current study and so were not included. The interview was also adapted and shortened to allow all of the interviews to be carried out entirely by one researcher.

The parental interview collected information on individual ‘child factors’ such as gender, birth order, first language and health. It also provided detailed information about parental education, occupation and employment history, family structure and child’s pre-school attendance. Finally parental support for educational activities at home (reading to child, visits to the library, teaching nursery rhymes) was analysed. The areas covered in the interview were as follows:

- Child's Characteristics (Child Health, Development/Behaviour and Home Activities);
- Parental Education and Occupation;
- Family Characteristics;
- Pre-school Attendance.

### ***3.3.2 The Design of the Playgroup Manager Interview***

The semi-structured interview (Appendix 7) was adapted from the Manager interview used for the Effective Provision of Pre-school Education (EPPE) project (Taggart, Sylva, Siraj-Blatchford, Melhuish, Sammons and Walker-Hall, 2000). In the PEEP study an adaptation of the EPPE interview was used as items that were not relevant to PEEP were removed.

The areas covered in the interview were as follows:

- Centre characteristics;
- Characteristics of the work force;
- The centres' programmes and activities;
- Centres and parents.

Interviews conducted with the managers of playgroup centres during May 1999. In total, 11 managers (PEEP n=6, Comparison n=5) in Oxfordshire were interviewed. The centre manager was classified as the member of the staff responsible for the overall day-to-day running of the playgroup. On average the interview lasted 30 minutes and all playgroup managers were happy to answer all the questions.

### ***3.3.3 Assessment of Nursery Class Characteristics***

Seven nurseries had the majority of the children in the study when they were 4 years old (4 nurseries in the PEEP area, and 3 nurseries in the comparison area). All 4 nurseries in the PEEP area agreed to have a visit. Only 2 of the possible 3 in the comparison area agreed to a visit. This assessment was conducted in two ways, firstly by carrying out the ECERS-E observation (literacy subscale) and secondly by interviewing the nursery class teacher.

#### **The ECERS- E Language Subscale**

The Early Childhood Environment Rating Scale (ECERS-R) (Harms, Clifford and Cryer, 1998) includes 7 subscales (Space and furnishings, Personal care and routine, Language reasoning, Activities, Interaction, Programme structure and Parents and staffing in order to assess the quality of the day-to-day functioning within settings. As the above instrument did not include more 'educational' or curricular aspects of English centres, Sylva, Siraj-Blatchford and Taggart (unpublished) developed the extension of ECERS, called ECERS-E. The ECERS-E subscales include the following areas: Language,

Mathematics, Science and the Environment, and Diversity. The Language Subscale was used in this study (Appendix 8).

Each subscale comprises a range of items describing quality of the specific type of provision. All items are rated on a 7 point scale from 1 (inadequate) to 7 (excellent). The areas that the language subscales addresses are: Environmental Print; Letters and words; Book and literacy areas; Adult reading with the children; Sounds in words; Emergent writing / mark making and Talking and Listening.

### **Interview with Nursery Class Teachers**

The structure and content of the interview with the nursery class teacher was based on the playgroup manager interview schedule, but shorten (Appendix 9).

## **3.4 Assessment Instruments at Pre-test**

### ***3.4.1 Educational Outcomes***

#### **Language Tasks**

- Verbal comprehension from the British Ability Scales II (BAS) by Elliot, Smith and McCulloch (1996). The verbal subscale assesses understanding of language.
- Naming Vocabulary from the British Ability Scales II (BAS) by Elliot, Smith and McCulloch (1996). This test was designed to measure a child's receptive vocabulary for Standard English.
- Young Children's Writing sample by the Gorman and Brooks (1996)

### ***3.4.2 Cognitive Outcomes***

- British Ability Scales II (BAS) two sub-scales (Block Building, Picture Similarities) from the early years form by Elliot *et al.* (1996).

### ***3.4.3 Social-emotional Outcomes***

- Adaptive Social Behaviour Inventory (ASBI) by Hogan *et al.* (1982). The questionnaire addresses pre-school social competence. It focuses on four areas: compliance/conformity, pro-social, confidence/ independence and anti-social behaviour.

### **3.5 Assessment Instruments at Post –tests I and II**

#### ***3.5.1 Educational Outcomes***

##### **Language Tasks**

- Phonological Awareness by Bryant and Bradley (1985). The test consists of three different subscales: testing of rhyme, testing of alliteration and knowledge of the letters of the alphabet.
- Verbal comprehension from the British Ability Scales II (BAS) by Elliot, Smith and McCulloch, (1996). The test assesses understanding of language.
- Young Children’s Writing, (Clay, 1972);
- British Picture Vocabulary Scale II (BPVS) by Dunn, Dunn, Whetton and Burley (1997) only at post-test. The test was designed to measure a child’s receptive vocabulary for Standard English.
- Concepts about Print by Clay (1975) only at post-test. The test was designed to assess children’s knowledge of the nature and function of written text.
- Letter Identification only at post-test II; M Clay (1972). The test was designed to assess which letters the child knows.

##### **Mathematical Task**

- Early Number Concepts from the British Ability Scales II (BAS) by Elliot *et al.* (1996). The test is a scale with verbal, pictorial and quantitative content which can contribute to the General Conceptual Ability of an early year’s child.

#### ***3.5.2 Social–emotional Outcomes***

- Adaptive Social Behaviour Inventory (ASBI) by Hogan *et al.* (1982). The questionnaire addresses pre-school social competence. It focuses on four areas: compliance/conformity, pro-social, confidence/ independence and anti-social behaviour.

#### ***3.5.3 Self-esteem Outcomes***

- The Pictorial Scale of Perceived Competence and Acceptance for Young Children in Reception grades’ (PSPCYC) by Harter and Pike (1981). It aims to assess the young child’s perceptions of his or her competence and acceptance by others. The scale is divided into two domains (competence and acceptance) and into four

subscales. The competence domain is divided in cognitive competence and physical competence, reflecting children's perception of their academic performance and physical domains. The acceptance domain is divided into peer acceptance and maternal acceptance, reflecting children's perception about their friends and their mother.

### **3.6 Ethical Considerations**

All researchers should consider whether the research that is to be conducted 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, David, Godfrey and Thompson, 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 were all taken into account.

The study meets the guidelines stated by the British Psychological Society (Robson, 1993; Aubrey *et al*, 2000) and the British Educational Research Association (BERA) (1992) Ethical Guidelines for Educational Research:

1. All 156 families were informed of the aims and methods via letter and personal contact if requested.
2. All staff that participated were informed via letter/leaflet and meeting with the researcher.
3. A letter of 'informed consent' was received from every participating family before the child joined the study. In the DfES study all parents were offered the opportunity to opt out of the study.
4. All records from children, parents and staff are confidential. No names were used in the computer records. Information collected from staff is available to those individuals who provided it. Names and settings have been altered in the database into numbers. Pseudonyms were to be used instead of real names. The names were kept in a locked file following BERA's guidelines for educational research and the NFER allocation of ID numbers.
5. Children who showed no willingness to participate (possibly due to their young age) were excluded from the study. Although parental consent had been obtained, the matter was not pursued further. (Only two such cases occurred).

## SECTION 4: FINDINGS

### 4.1 Introduction

The analysis in this study has followed different stages in order to ensure that the groups were compared in every possible way. The children and their families were matched on demographic information; their pre-school settings were compared. The next step was to explore whether the performances of the two groups of children at pre-test (children aged 3) were comparable, and finally their post-test scores were compared. As data were gathered in two points in time for post-test (I and II) (when the children were aged 4 and 5) the analysis followed the same structure, first analysing scores at post-test II by taking into account children's scores in the pre-test, and secondly analysing scores at post-test II by taking into account the scores at post-test I (Table 4.1).

Table 4.1: Structure of Analysis

<b>Outcomes</b>	<b>Post-test II</b>	<b>Post-test II</b>
	Demographic information i.e. family characteristics	Demographic information i.e. family characteristics
Control for	Quality of Pre-school Settings (ECERS –R)	Quality of Pre-school Settings (ECERS –R)
	Pre-test scores	Post-test I scores

### 4.2 Summary of Pre-test Analysis

The aim of the assessment of all children at entry to the study was to establish a baseline score against which to measure any future progress after a year of attendance (or non-attendance) of the PEEP programme for 3s, and 2 years of attendance at both the PEEP programme for 3s and 4s.

What is clear from the above analysis is that on entry to the study children from the two groups had no statistically significant differences in their scores, so they began from approximately the same level. Overall no significant differences were found between the two groups in children's writing samples and in all four factors of the ASBI and in BAS total scores and sub-scale, i.e. in non-verbal reasoning, literacy tasks and social skills and emotional development. This in conjunction with the findings of the demographic analysis (which preceded this section) offers a strong basis for the final analysis of the study when demographic characteristics and the children's performance at pre-test will be taken into account in the multilevel analysis of data.

### **4.3 Demographic Information**

Demographic characteristics in this study were collected on two different levels; first at the level of the child and the family, and secondly at the level of the pre-school settings. Demographic data were collected using parents' interviews (Appendix 6) when children were recruited into the study (3:0 to 3:3 years old). Parental interviews yielded considerable information about the children, parents and families who participated in the study. The information was used to describe the sample in terms of the children (health, development and behaviour, activities at home, playgroup experience), the family (ethnicity, language and structure), the parents (occupations, qualifications, marital status and age) and pre-school attendance. This information was used to compare the profiles of the two groups (PEEP and comparison) to ensure that the two groups were comparable at entry to the study. Tsitiridou-Evangelou (2001) provides a more detailed description of the analysis of the parental interviews and demographic characteristics.

The parental interview consisted of 45 questions examining 32 areas. Out of these areas only 3 showed a statistically significant difference between the PEEP and comparison groups. The similarities and differences between the two groups are summarised in table 4.2.

As can be seen on the majority of comparison criteria no statistically significant differences were found between the PEEP group and comparison group. The two groups were overwhelmingly similar in support, characteristics and behaviour. This means that the groups were generally comparable, which justifies the choice of the comparison group as the control group.

Table 4.2: Summary of Similarities and Differences Between PEEP and Comparison Groups

Similarities between groups	Significant differences between groups
<p><b>1 Family Characteristics</b></p> <p>ethnic distribution  first language  family structure  family size  parent marital status</p>	<p>more single mothers in PEEP group  (Two-way Chi-square test )</p>
<p><b>2 Child Birth</b></p> <p>premature births  children’s birth weight</p>	
<p><b>3 Child Health and Development</b></p> <p>frequency of health, development and behavioural problems</p>	
<p><b>4 Parental Education, Occupation and Benefits Received</b></p> <p>parents’ age group  parents’ age on leaving full-time education  parents’ qualifications levels  parents’ current employment status  mothers’ reasons for not working  parents’ occupational status  car ownership</p>	<p>more social security benefits received in PEEP group  (two-way chi-square test)</p>
<p><b>5 Pre-school Experience</b></p> <p>age started playgroup  attendance at other pre-school centres  number of sessions attended in other pre-school centres</p>	<p>more hours of playgroup attendance per week in PEEP group  (two independent samples T-test)</p>
<p><b>6 Home Activities</b></p> <p>rules for watching TV  hours of watching TV  parents’ frequency of reading to child  parents’ frequency of teaching ABC  parents’ frequency of teaching numbers  parents’ frequency of teaching songs and poems  parents’ frequency of teaching nursery rhymes  frequency of hours children are read to by parents  frequency of visits to library  sessions of play with letters and numbers at home</p>	

#### **4.4 Control for the Characteristics of Playgroups**

This information was collected in order to rule out the possibility of greater developmental progress in children due to favourable playgroup characteristics in either group. It compared the profiles of the two groups of playgroups in order to investigate whether the playgroup quality was different in the two communities. If the answer was negative then any difference in children's outcomes was most likely due to PEEP for 3s.

Interviews conducted with the managers of playgroup centres that the children in the study were attending during May 1999 (Appendix 7). In total, 11 managers (PEEP n=6, Comparison n=5) in Oxfordshire were interviewed. The centre manager was classified as the member of staff responsible for the overall day-to-day running of the playgroup. The areas covered in the interview were as follows:

- Centre characteristics;
- Characteristics of the work force;
- The centres' programmes and activities;
- Centres and parents.

In all areas of the interviews a lot of similarities were found and a few differences between the groups of playgroups. Although some aspects of the comparison playgroups were less favourable in a few areas when compared to the PEEP playgroups, they nevertheless fall within the national range when compared with the EPPE findings. In other aspects the comparison playgroups appeared stronger.

Table 4.3: Summary of Similarities and Differences Between the Playgroups

<p><b>Centre Characteristics</b></p>	<p>Same child/staff ratio            Care for the same age group (3-4)            Similar space available            Majority registered with the PLA            A few similarities in important aims of pgs            Comparison fees more expensive</p>
<p><b>Characteristics of the Work Force</b></p>	<p>Similar managers' childcare qualifications            Similar age range of staff members            No male staff members in either group            Additional help available in both areas            Similar patterns of staff training</p> <p>More part-time staff in comparison playgroups            and more full-time staff in PEEP playgroups            Comparison members of staff better qualified</p>
<p><b>The Centres' Programmes and Activities</b></p>	<p>Overall agreement in the majority of important aspects of childcare            Available daily plans            Planning of activities carried out by all staff together approach in the majority of playgroups            Similar patterns of assessment procedures            Similar guidance for the planning of literacy activities            Use of DLO in majority of PEEP playgroups and DLO and experience used in majority of comparison playgroups</p>
<p><b>Centres and Parents</b></p>	<p>Very similar patterns of parents/staff contact            Similar settling-in procedures            Similar type of information available to parents            Similar patterns of regular meetings with parents</p> <p>Similar patterns of parental involvement in the playgroups, with the comparison playgroups even stronger            PEEP provides parental education</p>

## 4.5 Analysis of Pre-test Measures at Age 3 (Funded by ESRC)

### 4.5.1 British Ability Scales II (BAS) Scores

A total of 160 children were recruited initially in the ESRC-funded study in 4 cohorts for the PEEP group and 3 cohorts for the Comparison group. All 156 children were assessed at entry to the study using four subscales of the British Ability Scales (BAS): Verbal Comprehension, Naming Vocabulary, Block Building and Non-verbal Reasoning (Picture Similarities). Scores of the above subscales were aggregated to form a total BAS score.

Two of the subscales were verbal and two non-verbal. The two verbal were: Verbal Comprehension and Naming Vocabulary, and these were summed to give a total verbal subscore. The two non-verbal subscales were Block Building and Non-Verbal Reasoning (Picture Similarities), and these were aggregated to give a total non-verbal subscore. The non-verbal scales are less dependent on verbal instructions and are appropriate for some children who are not fluent in English. Although a few children in the study had English as an Additional Language (PEEP  $n=5$  and Comparison  $n=2$ ) by the age of three they were all able to understand and complete the four subscales of BAS.

Children's total scores on BAS ranged from 20 to 71; the maximum possible score was 125, the mean was 50.24 and the standard deviation was 10.66. For the PEEP group only the range was also from 20 to 71, with a mean of 51.46 and a standard deviation of 11.18. For the comparison group the range was from 22 to 71, the mean was 49.23 and the standard deviation 10.17. No significant difference was found between the means of the two groups ( $t = 0.193$ ,  $df = 155$ ,  $p$ , ns at 95% c.l.), which shows that the mean performance of the PEEP and Comparison groups was at a similar level.

Table 4.4: BAS Total Scores at Pre-test

	n	Minimum	Maximum	Mean	Standard Deviation
Total BAS Score	156	20	71	50.24	10.66
PEEP Total BAS	70	20	71	51.46	11.18
Comparison Total BAS	86	22	70	49.23	10.17

Subscale scores as well as total scores were analysed and for all items no statistically significant differences were found. On entry to the study children from both groups had no statistically significant differences in their scores, so they began from approximately the same level.

When we examined children’s performance at post-test I and II we took into account their performance at pre-test as well as their family characteristics so that we could measure the difference brought about by the PEEP intervention controlling for children’s abilities before the intervention.

#### **4.5.2 Analysis of Writing Scores at Pre-test**

Children were asked to provide a writing sample at the end of the BAS assessment. This was a quick activity and almost all children enjoyed doing it, though a few refused to hold the pencil. From the total of 156 children, 149 (95.5%) writing samples were collected and scored by using the Gorman and Brooks (1996) scoring scale. The researcher asked another student to score the samples unaware of children’s group and they achieved 95% agreement.

Table 4.5: Writing Scores at Pre-test

	<b>n</b>	<b>Stage 1</b>	<b>Stage 2</b>	<b>Stage 3</b>	<b>Total</b>
PEEP	67	53 (79.1%)	13 (19.4%)	1(1.5%)	100%
Missing	3				
Comparison	82	72 (87.8%)	9 (11.0%)	1(1.2%)	100%
Missing	4				
<b>Total</b>	<b>156</b>	<b>125</b>	<b>22</b>	<b>2</b>	

As it can be seen from table 4.5 the majority of the children in both groups (83.9%) were at stage 1 of the writing scale. Children at stage 1 can make shapes and lines on a page. For them these often have clear meanings, but the shapes do not look like letters. However, children at this stage often already understand that there is a difference between pictures and words. One must not forget that children were between 3:0 and 3:3 when the first writing samples were collected.

Fewer children were at stage two (14.8%) of the two groups. Children’s writing at stage two is characterised by letter like forms but they are not clear forms yet. Only 1.3% of all children produced writing at the 3<sup>rd</sup> stage, which is ability to copy letters or to write over

or under an adult's writing. A Mann-Whitney test found no significant difference between the samples ( $U = 2510$ ,  $p$ , ns at 95% c.l.). The PEEP and the Comparison group at pre-test performed at similar level at the writing task.

#### ***4.5.3 Analysis of Social and Behavioural Development at Pre-Test***

Children's social and behavioural development was important in the study. Children were assessed by the playgroup key worker who knew them best at entry to the study, usually within a month of the BAS assessments and, for the majority of the children, within the same week.

The ASBI form (Appendix 10) involves rating children by means of a three-point scale 'rarely or never', 'sometimes' or 'almost always' in terms of specific items. In all cases all items were completed and in a few the key workers added additional information about the child in their care, which was not entered or analysed. ASBI returns were collected for all 156 children (100 % of the sample). The test is assessing the following four areas: compliance/conformity, pro-social, confidence/independence and anti-social behaviour.

Table 4.6: ASBI Scores at Pre-Test

<b>Factor 1</b> <b>Compliance /Conformity</b>	<b>N</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Mean</b>	<b>St. Deviation</b>
PEEP	70	7	21	16.29	3.56
Comparison	86	7	21	15.88	4.35
<b>Factor 2</b>					
<b>Pro-social</b>					
PEEP	70	10	27	19.40	4.02
Comparison	86	9	27	19.65	4.52
<b>Factor 3</b>					
<b>Confidence / Independence</b>					
PEEP	70	5	15	11.26	3.06
Comparison	86	5	15	10.99	2.81
<b>Factor 4</b>					
<b>Anti- social</b>					
PEEP	70	4	11	5.14	1.80
Comparison	86	4	11	5.52	2.01

Overall, no significant differences were found between the two groups in all four factors of the ASBI. These findings as well the BAS analysis and the writing sample analysis will be used at the next step of the statistical analysis of the data. This will be in the form of multiple regression analysis taking into account demographic characteristics of the sample and pre-test results.

#### **4.6 Analysis of Post-test I Scores at Age 4 (Funded by ESRC)**

##### **4.6.1 Introduction**

Tests were performed to establish if there was a significant difference in the mean scores of PEEP and comparison groups at post-tests I. T-tests were applied if the variables were normally distributed and Mann-Whitney tests otherwise.

In order to select the factors to be included in each final multivariate model, the first step was to carry out univariate analyses showing the relationship of each item in the demographic characteristics to children's post-test scores. The factors, namely more single mothers, more social security benefits and more hours of playgroup attendance in

the PEEP group (Table 4.2), were included in the multivariate analysis as they showed significant differences between the two groups at the start of the study.

The next step was to use all the items that showed statistically significant association for each outcome and to carry out multiple regression analysis to see whether they continued to be significant in each model after the intervention–comparison group variable was entered as a predictor. At the end, after checking whether the 3 demographics that differed between the groups were related to progress (Single motherhood, Benefits received and Hours of playgroup attendance), the model was finalised as follows.

Table 4.7: Model of Analysis for Post-test I (Effect of 1 Year in PEEP)

Outcomes (Dependent Variable)	Predictors (Independent Variable)	Co-variates (Variables controlled for in analysis)
Verbal Comprehension (post-test)	Intervention / comparison group	BAS Language total (pre-test) Single mothers Gender
Vocabulary (post-test)	Intervention / comparison group	BAS Language total (pre-test) Gender
Phonological Awareness (post-test)	Intervention / comparison group	BAS Language total (pre-test) Gender
Concepts about Print (post-test)	Intervention / comparison group	BAS Language total (pre-test) Gender
Writing Sample (post-test)	Intervention / comparison group	Writing Sample (pre- test)
Early Number Concepts (post-test)	Intervention / comparison group	BAS Non-verbal reasoning total (pre-test) Single mothers Gender
Self-esteem (post- test) Maternal Acceptance Peer Acceptance Cognitive Competence Physical Competence	Intervention / comparison group	Gender Benefits received
Social–emotional development (post-test) Compliance/Conformity Pro-social Confidence/Independence Anti-social	Intervention / comparison group	Adaptive Social Behaviour Inventory (pre-test)

#### 4.6.2 Summary of Post-test I Analysis

In conclusion multiple linear regression analyses have shown that PEEP children made significantly more progress than the comparison group in verbal comprehension, phonological awareness, vocabulary, concepts about print, numeracy and maternal acceptance over the course of one year. These effects were over and beyond that of gender, single mother status and pre-test scores, when they were identified as significant in univariate analyses and therefore controlled for in the final model.

#### 4.6.3 Process of Post-test I Analysis

Measures at post-test I included verbal comprehension, phonological awareness, vocabulary, concepts about print, numeracy and maternal acceptance. The mean scores and standard deviations of the two groups in each of these assessments can be seen in the table 4.8.

Table 4.8: Mean Performance at Post-test I of PEEP and Comparison Group

	<b>PEEP</b>	<b>Comparison</b>
<b>Verbal Comprehension</b>	18.29 (1.97)	16.78 (2.52)
<b>Phonological Awareness</b>	10.12 (4.96)	8.08 (4.3)
<b>Vocabulary</b>	38.61 (9.86)	33.99 (9.12)
<b>Concepts about Print</b>	6.97 (3.39)	4.55 (2.2)
<b>Early Number Concepts</b>	18.05 (5.0)	13.57 (5.14)
<b>Maternal Acceptance</b>	20.71 (3.41)	18.98 (3.22)

As mentioned above, hours of playgroup attendance was highlighted as a demographic characteristic significantly different in the groups. However, univariate regression analysis showed that hours of playgroup attendance was not significant for any of the post-test outcome measures and was therefore excluded from the final regression model.

Each of the models listed in table 4.7 was tested with and without outliers. During the initial stages of analysis children who consistently (*i.e.* across a variety of outcomes) performed markedly worse or better than expected (outliers) were identified. Outliers were defined as scores more than 3 standard deviations beyond the group mean.

For the few children found in each outcome the analysis was carried out with and without outliers. As the results were not different between the two analyses, it was decided to retain the outliers in the final model.

Multiple regressions were used so that influential factors in educational outcomes, which could potentially confound the analysis of the variables of primary interest, were controlled for as covariates. The above and subsequent analyses were an exploration of interactions between differences in children outcomes and whether children benefited by belonging to the intervention group. Effects of the whole group are reported here as they are more important and provide answers to the research questions. Spurious differences might result from dividing the intervention group into sub-groups (*e.g.* male-female) and therefore it was decided to confine analyses to the whole sample to maintain sufficient sample size for adequate statistical power.

Children were assessed in three different domains in this study, language and literacy, numeracy, and social-emotional development (which included self-esteem). All these areas are offered through the PEEP curriculum for Threes. Table 4.9 summarises the advantage of the PEEP children in all the domains in which significant group differences were found.

Table 4.9: Advantage of the Intervention Group at Post-test I

	Verbal Comprehension	Vocabulary	Phonological Awareness	Concepts about Print	Early Number Concepts	Maternal Acceptance
R <sup>2</sup>	24 %	36%	17%	27%	37%	.086%
Adjusted R <sup>2</sup>	22%	35%	15.7%	25.5%	36%	.068%
Beta	.23	.14	.16	.36	.35	.29
B	1.1	2.8	1.4	2.1	3.8	2.0
P	p<0.01 (99 %)	p<0.01 (99 %)	p<0.05 (95 %)	p<0.01 (99 %)	p<0.01 (99 %)	p<0.05 (95 %)

R<sup>2</sup> shows the percentage of the variance in the scores of the outcome that can be explained by the predictors. Adjusted R<sup>2</sup> has the same function while taking into account the sample size. The statistic B is the change in the outcome for every one-unit change in the predictor. Beta value (effect size) is the change expressed in standard deviation units for every one standard deviation change in the predictor.

#### 4.7 Control for the Characteristics of Nursery Classes

This information was collected in order to rule out the possibility of greater developmental progress in children due to favourable nursery class characteristics in either group. It compared the profiles of the two groups of nurseries in order to

investigate whether the nursery class quality was different in the two communities. If the answer was negative then any difference in children’s outcomes was most likely due to PEEP for 4s.

In order to identify similarities and differences between the literacy teaching practices of these pre-school settings the main measure used was the ECERS-E literacy subscale; and a brief interview with the teachers took place. (Appendices 8 and 9).

#### 4.7.1 ECERS-E Literacy Subscale

There was no significant difference between the nurseries’ ECERS-E scores in the two areas. As the data was not normally distributed non-parametric test was applied. Mann-Whitney U= 3500, p ns at 95% c.l.).

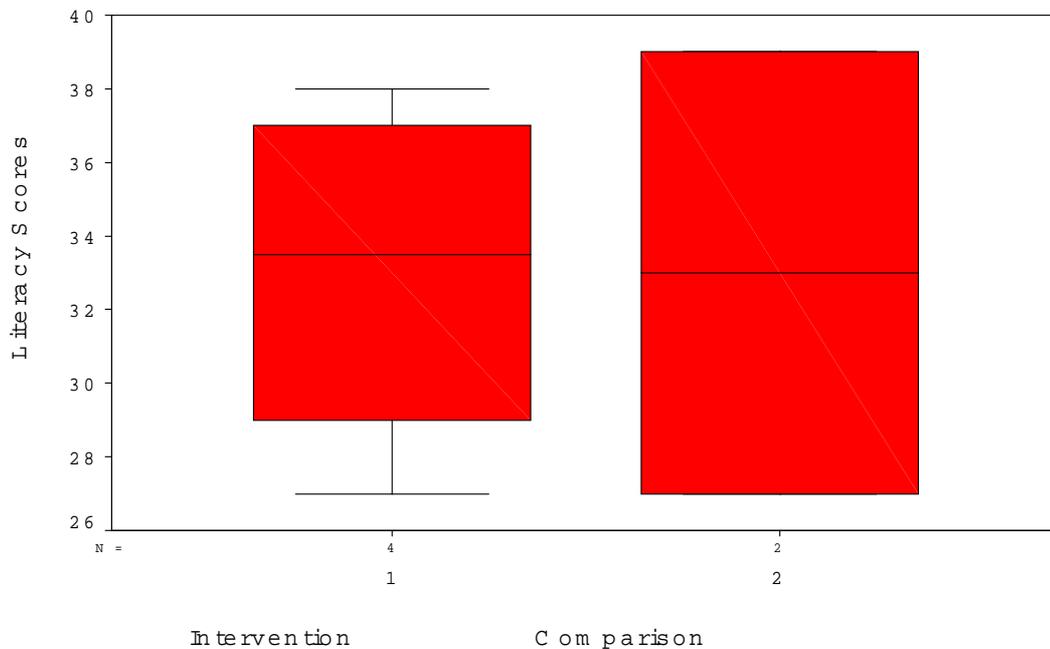


FIGURE 4.1: LITERACY SUBSCALE SCORES FOR BOTH GROUPS

The graph above illustrates the match between the two groups on the literacy subscale score.

#### 4.7.2 Interview with Nursery Teachers

Nursery teachers were also asked what they perceive to be important with respect to their nursery aims (Appendix 9). Both PEEP and Comparison nurseries were asked to rate eight aims for their nursery on a three-point scale (very important, quite important, and not very important). The ratings given to each characteristic (as a percentage) are shown

in figure 4.2. PEEP nurseries viewed the following areas of development as very important: Language and Reasoning, Friendships, Reading and Maths, Physical Co-ordination, Value Different cultures and Manners while the comparison nurseries viewed these skills as quite important. When interpreting the figure below one should always remember the small sample of nurseries participating in the questionnaire. Two thirds of the nurseries in the comparison area agreed with the PEEP nurseries in the areas of language and reasoning, friendships, value different cultures and manners. The area that had the greatest spread in the comparison area was Reading / Maths with each setting voting them as a very important aim, quite important and not so important. One should always remember the small number of participating settings in this exercise.

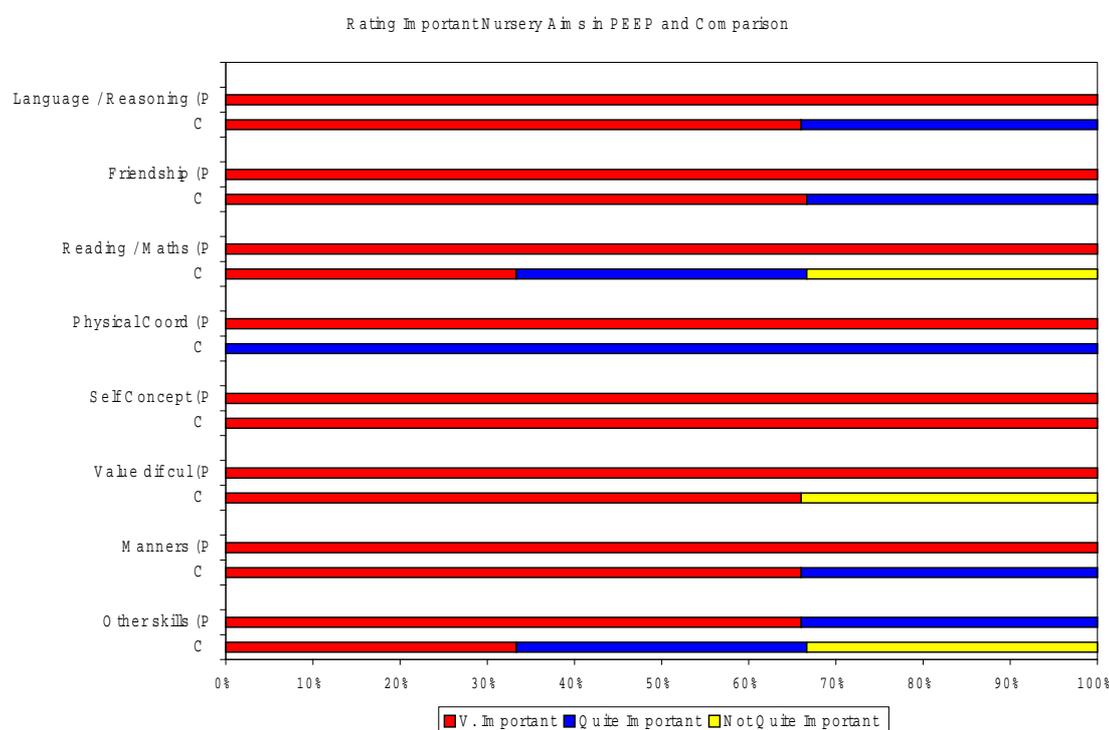


FIGURE 4.2: IMPORTANT AIMS IN PEEP AND COMPARISON NURSERIES

## **4.8 Analysis of Post-test II Scores at Age 5 (Funded by DfES)**

### ***4.8.1 Introduction***

This section reports on the analyses and results of assessments used to measure children's progress between ages 4 and 5. The final number reported for analysis is 147 out of 149 assessed during the study. The reason for the difference in the number is because two children belonged to twin pairs and were therefore randomly excluded.

### ***4.8.2 Summary of Post-test II Analysis***

PEEP for 3s and 4s (two years, children aged 3 to 5) led to significant gains in progress in the following domains of development: Verbal Comprehension; Vocabulary; Concepts about Print; Early Number Concepts; and Self-esteem (Cognitive Competence and Physical Competence).

PEEP for 4s (one year, children aged 4 to 5) led to significant gains in progress in the following domains of development: Verbal Comprehension; Vocabulary; Letter Knowledge (Upper case); and Self-esteem (Cognitive and Physical Competence).

### ***4.8.3 Process of Post-test II Analysis***

In order to select the covariates to be included in each final regression model, the first step was to carry out univariate analysis showing the relationship of each item in the demographic characteristics to children's post-test scores. The factors which proved significant are listed in table 4.10. Particular care was taken to include in the multivariate analysis the items that had shown significant differences between the two groups at the start of the study (demographic characteristics), namely that there were more single mothers in the PEEP group, and more social security benefits received, and that PEEP children attended more hours of playgroup. In addition, during the analysis of Post-test II scores, three additional characteristics were taken into account: free school meals, Baseline Assessment scores and the age of each child at the time of the assessment. These were collected as they could potentially affect children's performance. There were no significant differences in the amount of free school meals and in the school Baseline Assessment scores (administered by the children's teachers) between the two groups. A significant difference was found in the age of the children at time of assessment (range of months within PEEP = 14 and within Comparison = 8) and this was taken into account in the multiple regression models.

Tests were also performed to establish if there was a significant difference in the mean scores of the PEEP and Comparison group. A t-test was applied if the variable was normally distributed and a Mann-Whitney test if it was not. The next step was to use all the items that showed a statistically significant association for each outcome and to carry out multiple regression analysis to see whether they continued to be significant in each model after the PEEP–Comparison group variable was entered as a predictor. At the end the model was finalised as shown in table 4.10.

Table 4.10: Model of Analysis for Post-test II (Effect of 2 Years in PEEP)

<b>Outcome</b>	<b>Predictors</b>	<b>Co-variates</b>
<b>Verbal Comprehension</b>	Intervention / Comparison group	BAS Language total pre-test Gender Single mother Age at post-test II
<b>Vocabulary</b>	Intervention / Comparison group	BAS Language total pre-test Gender Age at post-test II
<b>Concepts about Print</b>	Intervention / Comparison group	BAS Language total pre-test Gender Age at post-test II
<b>Early Number Concepts</b>	Intervention / Comparison group	BAS Maths total pre-test Gender Single mother Age at post-test II
<b>Cognitive Competence</b> <b>Physical Competence</b>	Intervention / Comparison group	Gender Benefits received Age at post-test II

Multiple regressions were used so that influential factors in educational outcomes, which could potentially confound the analysis of the variables of primary interest, were controlled for as covariates. The above and subsequent analyses were an exploration of interactions between differences in children’s outcomes and whether children benefited by belonging to the intervention group (PEEP). Effects of the whole group are reported here as they are more important and provide answers to the research questions. Spurious differences might result from dividing the intervention group in sub-groups (i.e. male-

female) and therefore it was decided to confine analyses to the whole sample to maintain sufficient sample size for adequate statistical power.

The results of post-test II were analysed and will be reported in two ways. First by controlling for pre-test (at age 3) and secondly by controlling for post-test I (at age 4). Thus one analysis explores the gain in children’s development from 2 years’ participation in the PEEP programme for 3s (ages 3 to 5). The second analysis explores the gain in children’s development from 1 year’s participation in the PEEP programme for 4s (age 4 to 5). These kinds of analyses are known as value added analysis.

***4.8.4 PEEP Children’s Gains After 2 Years of Participation in the PEEP Programme for 3s***

Table 4.11 summarises the advantage of the PEEP children in all the domains in which significant group differences were found.

Table 4.11: Advantage of the Intervention Group at Post-test II (Effect of 2 Years in PEEP)

	Verbal Comprehension	Vocabulary	Concepts about Print	Early Number Concepts	Cognitive Competence	Physical Competence
R <sup>2</sup>	21 %	36 %	31 %	34 %	7.1%	4.5 %
Adjusted R <sup>2</sup>	18 %	34 %	29 %	31 %	4.4 %	1.8 %
Beta	.26	.16	.22	.26	.20	.18
B	1.5	3.3	2.0	2.3	1.0	1.0
P	p<0.01 (99 %)	p<0.05 (95 %)	p<0.01 (99 %)	p<0.01 (99 %)	p<0.05 (95 %)	p<0.05 (95 %)

Table 4.11 shows that PEEP children made significantly more progress than the comparison group in verbal comprehension, vocabulary, concepts about print, numeracy and cognitive and physical competence over the course of two years. These effects were over and beyond that of gender, single mother status, pre-test scores and age at post-test II, when these were identified as significant in univariate analyses and therefore controlled for in the final model.

#### 4.8.5 PEEP Children's Gains After 1 Year of Participation in the PEEP Programme for 4s

A further analysis took place to explore the effects, if any, of participating only one year in the PEEP programme for 4s. Table 4.12 shows the models of analyses for post-test II by taking into account the scores at post-test I.

Table 4.12: Model of Analysis for Post-test II (Effect of 1 Year in PEEP)

<b>Outcome</b>	<b>Predictors</b>	<b>Co-variates</b>
<b>Verbal Comprehension</b>	Intervention / Comparison group	Gender Single mother Age at post-test II Verbal Comprehension scores at post-test I
<b>Vocabulary</b>	Intervention / Comparison group	Gender Age at post-test II Vocabulary score at post-test I
<b>Letter Identification (Upper case)</b>	No model applied (non-normally distributed data)	
<b>Cognitive Competence</b>	Intervention / Comparison group	Gender Benefits received Age at post-test II Score at post-test I
<b>Physical Competence</b>	Intervention / Comparison group	Gender Benefits received Age at post-test II Score at post-test I

Table 4.13 summarises the advantage of the PEEP children in all the domains in which significant group differences were found.

Table 4.13: Advantage of the Intervention Group at Post-test II (Effect of 1 Year in PEEP)

	Verbal Comprehension	Vocabulary	Letter Identification (Upper case)	Cognitive Competence	Physical Competence
R <sup>2</sup>	<b>18%</b>	40%		7.3%	5.1%
Adjusted R <sup>2</sup>	15%	39%		4.0%	1.7%
Beta	.28	.16	8.6	.19	.18
B	1.6	3.2		1.0	0.9
P	p<0.01 (99 %)	p<0.05 (95 %)		p<0.05 (95 %)	p<0.05 (95 %)

Table 4.13 shows that PEEP children made significantly more progress than the comparison group in verbal comprehension, vocabulary, letter identification (upper case), and cognitive and physical competence over the course of one year. These effects were over and beyond that of gender, single mother status, social benefits received, post-test I scores and age at post-test II, when these were identified as significant in univariate analyses and therefore controlled for in the final model.

Table 4.14 summarises the gains for PEEP children (expressed in effect sizes) in all areas of development. It is of interest to note that the greatest gain can be seen after one year participation in the PEEP for 3s in the areas of numeracy and concepts about print.

Table 4.14: Summary of Children’s Outcomes After PEEP for 3s, PEEP for 4s, and PEEP for Both Years Together

<b>Area of Development</b>	<b>Post-test I</b>	<b>Post-test II</b>	<b>Post-test II</b>
<b>Literacy</b>	<b>Effect of 1 year in PEEP for 3’s</b>	<b>Effect of 1 year in PEEP for 4’s</b>	<b>Effect of 2 years in PEEP for 3’s and 4’s</b>
Verbal Comprehension	.23	.28	.26
Vocabulary	.14	.16	.16
Writing	.15		
Concepts about Print	.36	ns	.22
Phonological Awareness (Rhyme and Alliteration)	.16	ns	ns
Letter recognition: Lower case			
Letter recognition: Upper case		8.6*	
<b>Numeracy</b>			
Early Number Concepts	.35	ns	.26
<b>Social-emotional development</b>			
<b>Self-esteem</b>			
Cognitive Competence		.20	.20
Physical Competence		.18	.18
Maternal Acceptance	.29	ns	ns
Peer Acceptance		ns	ns
<b>Social-emotional development</b>			
Compliance Conformist	ns		
Pro-social	ns	ns	ns
Confidence / Independence	ns	ns	ns
Independence & Concentration		ns	ns
Co-operation & Conformity	ns		
Anti-social			

\*At this point it should be made clear why the effect size for letter recognition (upper case) is expressed in a different scale. As the data for upper case letters were not normally distributed a non-parametric test was applied (Mann-Whitney test) and found a significant difference between the groups ( $U=2074$ ,  $p < 0.05$ ). In the case of non-parametric tests regression analyses are not possible, so in the letter recognition score demographic characteristics could not be controlled. In order to calculate the effect size of the upper letter recognition, the mean gain was calculated by subtracting the mean gain of the PEEP group from the mean gain of the comparison group and this was found to be equal to 3 letters. As children scored a maximum of 26 on a scale of 0 to 26 in effect

children in the intervention group had a mean advantage of 3 letters out of 26 (equivalent to an 8.6 % advantage).

#### **4.9 Possible Biases**

One possible threat to the validity of this study is the accuracy of the assessments. In an ideal world, blind assessors who would not know whether they were assessing intervention (PEEP) or comparison children should have carried out the assessments. But this is not an ideal world and a number of reasons made blind assessment not possible. The first reason was that the children were living in different communities, with a considerable distance between them. The only possible way to solve this problem would have been by inviting all the children to be assessed in a clinical setting (a room in the university) by blind assessors. In this case two further problems would have arisen. The first one would have been the attrition of the sample as it would have been very difficult to persuade the parents of the comparison group to travel to participate in the study, when there were no benefits for them. The second problem would have been for the comparison families to realise that they were the 'control group' of a study, while they think that their children are the main focus of the study. A third possible problem would have been the ability on behalf of the assessors to re-visit a 'shy' child in order to establish a rapport.

In order to overcome possible biases the researcher asked another researcher to re-score randomly 50% of the children's writing sample both of pre- and post-tests (the only test with no fixed starting and stopping points and the only test which yields a permanent record or a 'product'). They had 95% agreement. This high agreement was the best evidence against bias between the researcher and a completely blind assessor who scored writing samples of children from both groups.

A Senior Researcher of the EPPE study had assessed the researcher for reliability on most tests during the piloting of the study and prior to the children's assessment, by non-participatory observation and by ascertaining that the assessments were carried out as required by the manual. Every ethical measure to avoid possible biases was taken from the beginning of the study.

## SECTION 5: DISCUSSION AND CONCLUSIONS

### 5.1 Towards Effective Early Childhood Interventions

It is hoped that this study will contribute to the literature on evaluations in early childhood, especially those related to literacy in the UK. The study addresses the need described by Hannon: *There have so far been very few studies of pre-school involvement programmes in which literacy development has been the principal concern and, in so far as it has been a concern at all, a restricted pre-reading, skills-based approach rather than an emergent literacy approach has generally been taken* (Hannon, Weinberger and Nutbrown, 1991, p.80).

It is also hoped that the study provides some evidence for national and international policy on the benefits to children of early childhood interventions. In particular this study demonstrates the value of an explicit curriculum, intensive staff training and a collaborative approach to work with parents.

### 5.2 Three Key Messages

The main findings of the study are presented in the executive summary. There are three key messages:

**1. PEEP for Threes (i.e. 1 year of PEEP age 3-4) has a positive effect on children's:**

 **Literacy**

- **Verbal Comprehension**
- **Vocabulary**
- **Phonological Awareness**
- **Concepts about Print**
- **Writing**

 **Numeracy**

- **Early Number Concepts**

 **Self-Esteem**

- **Maternal Acceptance**

**2. PEEP for Threes and Fours (i.e. 2 years of PEEP age 3-5) has a positive effect on children's:**

 **Literacy**

- **Verbal Comprehension**
- **Vocabulary**

- **Concepts about Print**
- ✚ **Numeracy**
  - **Early Number Concepts**
- ✚ **Self Esteem**
  - **Cognitive Competence**
  - **Physical Competence**

**3. PEEP for Fours (i.e. 1 year of PEEP age 4-5) has a positive effect on children's:**

- ✚ **Literacy**
  - **Verbal Comprehension**
  - **Vocabulary**
  - **Letter Knowledge (Upper-Case only – no difference on lower-case letters)**
- ✚ **Self-Esteem**
  - **Cognitive Competence**
  - **Physical Competence**

### **5.3 A Detailed Discussion of Some Key Findings**

It was an encouraging finding for the PEEP Project that the children at age 4 whose parents attended PEEP groups in nursery classes made significantly greater progress in the following areas of literacy development: Concepts about Print, Verbal Comprehension, Phonological Awareness, Writing and Vocabulary. As the results are self-explanatory four examples are presented below which link the PEEP curriculum with research outcomes found in this study: these will address Verbal Comprehension, Vocabulary, and Concepts about Print and Numeracy.

#### ***5.3.1 Verbal Comprehension***

Children in the PEEP intervention did significantly better in their Verbal Comprehension scores compared to the scores of the comparison group. The PEEP curriculum for 3s has one third of its structure devoted to oral language skills. In particular, during the first term the parents are reminded of the importance of listening attentively to their children. The PEEP curriculum for 3s states that *children often understand more than they say in words. When other people listen carefully to them, children can get better at listening carefully and saying the things they want to say. Learning to talk and to listen are the first stages of writing and reading* (Appendix 2). During the PEEP sessions parents are offered examples of 'good practice' in listening to their children as well as responding to

their children's numerous queries. The Verbal Comprehension test used in this study relies heavily on children's listening skills, as they must listen to the instruction and then point to the correct item or picture. It is therefore not a surprising finding that the PEEP children had an advantage in verbal comprehension due to the PEEP emphasis upon listening skills. Children's scores in Verbal Comprehension continued to remain significantly higher for the PEEP group one and two years after the age of 3.

Tizard and colleagues (1988) provide research evidence which shows that high scores in verbal comprehension tests lead to better attainment later in schooling. The EPPE study in the UK used the same instruments and it is the intention of the researcher to compare this study's research findings with the EPPE findings in the future.

### **5.3.2 Vocabulary**

Children were assessed on Vocabulary with two different assessment tools, the Naming Vocabulary subscale from the British Ability Scales (BAS) II at pre-test, and the British Picture Vocabulary Scale (BPVS) at post-test.

The fact that children were assessed with two different assessment tools at pre- and post-test could be perceived as a limitation of the study. However, the reason for the choice of instruments turns the argument in favour of the design of the study, as the researcher was aware that the BAS subscale might not be able to pick up fine differences in vocabulary at age 4. The BPVS scales have a greater range of vocabulary which allows children's individual differences to be identified.

Talking with and to the children is very important in the PEEP curriculum. What follows are two extracts from the PEEP curriculum for 3s. *One way children learn to think about things and find out more about the world is through talking. Children are full of questions (although they may not always ask them). At times, they really need an answer from us, but often they can find out their own answers. When a child asks a question, it can help to think about what he/she really wants. Sometimes a child might need attention or help, rather than an answer to the question. Talking with children can really help their learning.* And another example: *Parents and carers can offer lots of opportunities for children's talking. Children get better and better at talking, when they have lots of things to talk about. They need someone to talk with who listens, joins in and tries to understand. Going out, having picnics and making books together are three good opportunities to encourage talking* (Appendix 2). Through talking, singing and sharing books opportunities children may expand their vocabulary.

Research studies have shown that children's vocabulary scores at age four are strongly related to progress later on in school (Tizard *et al*, 1988). The vocabulary results remained significantly higher for the PEEP group at both one and two years after the initial assessment at three.

### ***5.3.3 Concepts About Print***

Children in the PEEP intervention had significantly higher scores at age 4 to 5 on Concepts about Print when compared to the comparison group. This finding is also consistent with the PEEP curriculum aims and practice. Throughout PEEP sessions PEEP leaders model for parents the different ways of reading books to their children by paying particular attention to the following aspects: varying the tone of their voices, reading the title of the story and the names of authors and illustrators, following the text with their finger, asking questions for comprehension while they are reading the story, and linking stories to songs to name but a few. Parents are also encouraged to read to their children as much as possible and families are provided with a story pack on a weekly basis. The story pack includes ideas to make the most of the story and to link it with all domains of the foundations of literacy: oral language (speaking and listening), pre-reading and pre-writing.

There is research evidence that supports the importance of concepts about print to later attainment in reading. Tizard *et al.* (1988) found that scores of concepts about print at age 4 correlated  $r = .27$  with reading at age 7 and were the fifth best predictor of reading achievement at ages seven and eleven, after two and four years respectively in school.

Riley (1996a) assessed pre-school and reception children's concepts about print and found that scores on concepts about print were one of the predictors for future reading at reception age, but not the most powerful one. Children's scores on concepts about print were rated third in importance after measures of alphabet knowledge and the ability to write one's name ( $r = .33$ ). However, it is worth noting that both Tizard and Riley used an adapted version of Clay's test and that makes direct comparison with this study more difficult. The stronger correlation found in Riley's study compared to Tizard's finding could be explained by Clay's view (1991) that the more skilled the reader the less important the concepts about print become, as Riley had assessed the children a year after entry to nursery, and in this study children were assessed at the beginning.

Children's scores in the PEEP group remained significantly higher from 3 to 5 but not from 4 to 5 analyses. It was shown that by joining PEEP for 3s had gains in more areas of their literacy and numeracy development.

### 5.3.4 Numeracy Outcomes

Although PEEP primarily aims to foster literacy development, it also aims to help parents provide their children with a good grasp of numbers up to 10. The focus of the study was children's literacy development, but the researcher could not ignore the fact that in the PEEP curriculum for 3s numeracy plays an important role, which was why children's numeracy development became part of the research questions.

Another encouraging finding for the PEEP Project was that children who attended the PEEP for 3s intervention made significant gains in their early numeracy skills compared with the comparison group.

What follows are two examples of the PEEP curriculum for 3s focused specifically on numeracy. *For young children, numbers up to five, or even ten, are the ones that matter. These are 'easy' numbers for us, and can become easy for children too. Children need to play with numbers in many different ways. There are numbers all around us every day. With a bit of help, children quickly get good at spotting them - on houses, buses, birthday cards, in shops, magazines, books, etc. Playing games together and having fun with numbers will help children to do sums and other maths later on (Appendix 2). The order of things is very important for young children. They like the idea of things happening in the right order because knowing what comes next helps them feel secure. Developing a sense of order also helps children's later understanding of science and maths (ibid).*

Research evidence on the importance of early number concepts comes from the work of Nunes and Bryant (1996). They created a conceptual framework to understand children's mathematical development and they argued that children understand mathematical concepts before they are taught them formally. For Nunes and Bryant mathematics is an activity that is socially defined (this is in line with the view that this report presents in regard to literacy as an activity too), and how children approach mathematical problems is dependent on the way they define and respond to the social situations in which these mathematical problems are presented. Children in the PEEP intervention for 3s are offered the possibility to experience and learn early number concepts through everyday life events.

Children's scores in the PEEP group remained significantly higher from 3 to 5 in relation to the comparison group. This was very important because numeracy is not part of the PEEP curriculum for 4s; nevertheless the measured numeracy gains at age 5 are the long-term results of the numeracy curriculum implemented in the PEEP for 3s programme.

## 5.4 Implications for Policy

This study has an important implication for policy. The main research question of this study was *whether* PEEP for 3s and 4s is effective and what its precise outcomes are.

The positive findings for PEEP help strengthen the case for continuing support for this intervention.

It is of interest here to reflect upon comments by Brooks-Gunn (2000) that: *If policy makers believe that offering early childhood intervention for two years or even three will permanently and totally reduce SES disparities in children's achievement, they may be engaging in magical thinking (ibid, p.12)*. One cannot tell yet whether the positive effects found in this study will be sustained for another year or whether they will diminish. Furthermore continuing evaluation of early childhood interventions over a longer period of time will help answer questions such as the optimal time for offering the intervention to families.

In general the results of this study provide support, based on firm evidence, for funding of early years provision with strong parental partnerships, since PEEP offered parents a curriculum to help them support their children's learning. However, the question of continuing effects of early interventions remains unanswered in this report. Brooks-Gunn (2000) offers an argument for continuous funding of early childhood interventions and early years provision. *From a comparative perspective, early childhood intervention has larger effects (by about one-half to three-quarters) than interventions later in children. In addition, the effects continue through elementary school and, while they are smaller, they are still larger (by one-third to one-half) than the immediate effects of other later interventions (ibid, p.15)*.

## 5.5 Suggestions for Future Research

Many studies have shown that the effects of early childhood interventions at the beginning of primary school are greater than interventions introduced later on. This study confirms substantial effects in one such early intervention from 3 to 5. It would be very interesting to follow the same children up to the end of KS1 and to analyse their first SATs results. Without such a study it is impossible to determine the long-term impact of the PEEP intervention. There may be a decline in progress or even a 'wash-out' of the PEEP intervention effect.

*There is a relative lack of studies that have followed the children into adolescence and adulthood* (Brooks-Gunn, 2000, p.11). As PEEP aims to expand further it would be interesting to follow the children into adolescence to see whether the achievement levels of children entering secondary schools in the catchment area have improved, as this was the initial concern that triggered the intervention.

Another area of future research on PEEP would be to compare specific aspects of pre-school literacy experiences across a range of families coming from various socioeconomic backgrounds. The majority of research so far has been aimed at disadvantaged children, families and communities.

This study was carried out to investigate the effects of the PEEP intervention through a rigorous research design. No one study on its own can shape political or practical debate and change the current practices. However, the results of this study add weight to the claim that early childhood interventions can improve children's educational and social attainment just prior to school entry. More specifically, this research has demonstrated that the PEEP programme for 3s and 4s can lead to significant gains in children's literacy, numeracy and self-esteem.

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## **APPENDICES**

## Appendix 1: Instruments used in the DfES funded study

### Language Tasks

#### Verbal Comprehension

Verbal comprehension is a verbal 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 subscale assesses understanding of language. The items required to administer the test are: a picture of a soft toy, a box full of toys which the child has to identify either by their name or their function, a set of wooden objects to sample the child's understanding of prepositions, and two more sets of toys for more complex instructions. The scale measures language comprehension through a receptive mode (listening). None of the items requires the child to respond orally, so children with English as an Additional Language are able to perform on the test.

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;
- Short-term auditory memory for sentences.

Low scores on the scale may also reflect:

- Egocentricity;
- Distractibility;
- Impulsiveness.

Those who administer the test should have formal training. The administrator needs to calculate the child's chronological age and to ensure that the test environment is largely free from distractions.

In order to evaluate how accurate the scores obtained from the BAS II Verbal Comprehension subscale are, the reliability of the scale will be presented here. Reliability refers to several factors that influence the interpretation of test scores including internal reliability or consistency of the test's content, and inter-rater reliability, that is the consistency with which test performance is scored by different scorers (Elliot, Smith and

McCulloch, 1997). *The method used to estimate internal reliability was a modified split-half correlation, adjusted for the number of items likely to be given to each child (ibid, p.192).* The internal reliability for Verbal Comprehension is  $r = .85$  for children aged 3:0 to 3:5 (the age range of the children on recruitment in this study). Intercorrelations of the Verbal comprehension subscale to the rest of the subscales were reported as follows (verbal comprehension and naming vocabulary  $r = .57$ ; verbal comprehension and picture similarities  $r = .29$ ; verbal comprehension and early number concepts  $r = .53$ ; verbal comprehension and block building  $r = .34$ ). The internal reliability of the test ranges from moderate to good.

### **Phonological Awareness**

The phonological awareness test consists of three different sub-scales: testing of rhyme, testing of alliteration and knowledge of the letters of the alphabet.

The first part of the test consists of presenting three words at a time, all of which have a sound in common. The child has to listen to the words and find the odd one out (for example: bun, hut and sun). In the second part of the test, the children are tested for alliteration, which is the ability to identify the first sound of each word (for example pin, dog and pig).

The third part of the test includes the use of all the letters of the alphabet in random order. Children are marked regardless of whether they can recognise the name, or the sound or an object that starts with that letter.

It is a quick test to administer, and Bryant and Bradley have demonstrated that childrens' 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 ( $r = .81$ ).

### **Vocabulary (British Picture Vocabulary Scale II)**

This test was designed to measure a child's receptive vocabulary for Standard English. The authors believe that it is an achievement test as it shows the extent of English vocabulary acquisition. The test is based on the Peabody Picture Vocabulary Test (PPVT), but it has been modified and standardised for use on a British population. No additional qualifications are required for those administering the test. Apart from having read and understood the manual thoroughly, more training is necessary however for interpreting the results.

It measures vocabulary and is not a comprehensive test of general intelligence. The test is simple to use with very young children and adults as well. It is widely used in research for two 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, in cases where it is not necessary to provide more precise data; and its wide range of features reduces the possibility of floor and ceiling effects. The test should be seen only as a suggestion of the present level at which the participant is functioning.

It is very important to establish rapport with the child being assessed and especially in the case of very young children. It is also necessary to know children's chronological age before beginning the test. Praise should and can be given generously in this test, as opposed to the administration of the BAS II test where examiners can only probe to continue with the next item, or say 'Thank you'.

The test has two forms: a short form for very young children up to 8 years old and a long form for children aged 8 and above. The reliability of this test has been documented in over 100 published studies on the reliability of PPVT. This second edition of the BPVS was tested again for reliability and validity. By taking into account the different age groups that the test can be used with the authors provided the following results. For the pre-school age group (3 to 5 years) Cronbach's Alpha  $r = .96$  and for the Corrected Split-half  $r = .89$ . The BPVS has also been standardised on a British national sample of 2571 children. The validity of the test has also been tested, and studies show that it correlates with other vocabulary tests and individual intelligence tests. The authors reported correlations with other tests:  $r = .51$  with the British Ability Scales Word Reading Test (Elliot *et al*, 1996), and  $r = .59$  with the Reynell Comprehension Scale.

### **Young Children's Writing**

Researchers working for the Basic Skills Agency from 1994 to 1995 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.

The Basic Skills Agency's researchers came up with 7 different stages of writing:

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

Over 900 samples were gathered in order to identify and assess the progress of development in children's writing. In order to identify the writing stage of each child, the test utilises a series of questions, descending in difficulty, to measure the capacity of each child. For example the child is first asked to write a few sentences. If the child finds it beyond his or her capacity to do so, they are asked to write their name and any letters that they know. If this too proves difficult, the child is asked to make a few attempts of forming letters. If they cannot even copy letters they are asked to do a drawing. In this way the stage of writing development of each child is easily discovered.

The main aim of the exercise is to produce the highest stage of writing of which each child is independently capable. Writing samples were gathered twice from each child as a pre-test and post-test outcome. 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 an  $r = .61$  between handwriting skills on school entry and reading achievement at age seven on the Young Reading Test. Also, Blatchford and Plewis (1990) found that pre-school writing skills correlated  $r = .50$  with 7-year-old writing scores. Riley (1994) reported an  $r = .57$  between children's ability to write their own name and their scores on reading tests by the end of the school year.

### **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 concerns important concepts of printed language. The test assesses various aspects of print, and 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 test entitled 'Stones', explains that the test can be used with non-readers, as the child is asked to help the examiner locate certain features as the examiner reads the book. The administration of the test follows a standard procedure, but the examiner should be flexible in communicating the task to the child. Clay believes that it is desirable to:

- Observe precisely what children are saying and doing;
- Use tasks that are close to the learning tasks of the classroom;

- Observe what children have been able to learn (not what they have been unable to do);
- Discover what reading behaviours should not be taught;
- Shift the child's reading behaviour from less adequate to more adequate responding, by training on reading tasks.

The booklet used in this study was 'Stones' (Clay, 1979). It consists of 21 pages with text and pictures. 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).

### **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. Both capital and lower-case letters are presented to the child in random order within each set. Children score if they know the name, an acceptable sound for that letter, or a word that begins with that letter.

### **Numeracy Task**

### **Early Number Concepts**

Early Number Concepts is a scale with verbal, pictorial and quantitative content which can contribute to the General Conceptual Ability of an early years child.

It assesses the following number concepts and skills:

- Reciting numbers up to ten by rote;
- Counting up to ten objects in one-to-one correspondence with pointing;
- Matching and classifying by number;
- Making comparisons of sets by concepts such as more, less, same/equal;
- Matching and classifying according to qualitative attributes;
- Recognising number names and numerals;
- Recognising ordinal relationships such as first, second or last;
- Understanding numerical order as shown by identifying larger or smaller numbers;
- Solving basic addition and subtraction word problems;

- Counting by tens and recognising place value of tens and ones.

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 also reflect: a child's expressive language difficulties, including reluctance to speak.

In order to evaluate the accuracy of the scores obtained from the BAS II Early Number Concepts subscale, the reliability of the scale will be presented here. The method used to estimate internal reliability was a modified split-half correlation, adjusted for the number of items likely to be given to each child. The internal reliability for Early Number Concepts is  $r = .96$  for children aged 3:0 to 3:5 (the age range of the children on recruitment in this study). Intercorrelations of the Early Number Concepts subscale to the rest of the subscales were reported as follows (Early Number Concepts and Block building  $r = .39$ ).

## **Social-emotional Tasks**

### **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.* (1992) states that the measure was based on a notion of social competence as multi-faceted and separated from behaviour problems.

The three sub-scales of the inventory (based on an American sample) are Express, Comply and Disrupt. Special attention is given to social behaviours, which may be influenced by educational/day care experiences.

The scale reliabilities for the two pro-social scales (express and comply) are comparable and adequate ( $r$  near .80). The authors combined these two subscales and the reliability improved to .85. For the third subscale (disrupt) a lower internal consistency was reported due to its lower number of items.

The 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 filled in by the playgroup leaders and by the nursery teachers at post-test level, as they would have a better understanding of the children's social development than the researcher.

The ASBI has been used in the Effective Provision of Pre-school Education (EPPE) study on almost 3000 British children. The analysis of the test will follow the factors established by the EPPE team: compliance/conformity, pro-social, confidence / independence and anti-social behaviour. These are somewhat different from the factors found in the USA but have been used in the report as it seemed best to follow a British sample on exactly the same age group.

Factor analysis on the ASBI items was carried out by the EPPE study on 2129 children's scores (see Sammons *et al.*, 1999 for detailed analysis).

From the above analysis, 5 factors were identified: compliance/conformity, pro-social, confidence/independence, anti-social and anxiety. As only one item was loaded strongly for factor 5: Anxiety, this factor was excluded. Factors 1 to 4 described in Appendix 11 are adopted from Sammons *et al.* 1999.

### **Self-esteem: The Pictorial Scale of Perceived Competence and Acceptance for Young Children**

The Pictorial Scale of Perceived Competence and Acceptance for Young Children (PSPCSA) aims to assess the young child's perceptions of his or her competence and acceptance by others (Harter, 1982). Perceived competence is viewed as an important correlate and mediator of the child's motivation to be effective. Harter and Pike (1982) 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. A different scale is available for first and second grade children. This test has been used successfully in evaluative research into early years (Nabuco, 1997).

Harter (1982) and Harter and Pike (1983) believe that children do not see themselves as equally competent in all domains. The scale is divided into two domains (competence and acceptance) and into four subscales. The competence domain is divided into Cognitive Competence and Physical Competence, reflecting children's perception of their performance in academic and physical domains. The acceptance domain is divided into

Peer Acceptance and Maternal Acceptance, reflecting children's perception about the way their friends and their mother see them. Factor analyses for both age groups' scales defined two general factors, General Competence and Social Acceptance. Each of the four subscales consists of six items. There is a sample practice item, which is not scored. For each age group there is a different set for girls and boys. Among the 24 items, 12 present the more competent child on the left and the other half present the more competent child on the right. Within each subscale, three present the more competent child on the left and three on the right. The scale is administered individually.

Harter and Pike (1983) stated that the statistical properties of the scale are based on the Cattell's 'scree' test indicating that a two-factor solution best describes the data from both the pre-school sample and the first grade samples. Item means were in the range of 3.0 to 3.6 indicating that young children tend to relatively positive feelings of competence and acceptance. The subscale reliability was assessed by coefficient alpha that provides an index of internal consistency. For the nursery subscale the alpha range is from .50 to .83.

The materials required were the booklet of pictures and an individual scoring sheet to record each child's responses. The interview took place in the same room that the rest of the assessments took place, usually away from the classroom. Standard administration procedures were followed according to the scale's manual. It took approximately fifteen to twenty minutes to administer the scale.

## Appendix 2: PEEP Curriculum for 3s

	Autumn			Spring			Summer		
Sessions	2 - 4	5 - 7	8 - 10	13 - 15	16 - 18	19 - 21	24 - 26	27 - 29	30 - 32
Curriculum	Self-concept and dispositions	Oral language	Numeracy	Self-concept and dispositions	Oral language	Numeracy	Self-concept and dispositions	Oral language	Numeracy
ORIM focus	Recognition and interaction	Interaction and modelling	Interaction and modelling	Recognition and interaction	Interaction and modelling	Interaction and modelling	Recognition and interaction	Interaction and modelling	Interaction and modelling
Thinking about...	...four ways of helping children to learn	... listening to children	...talking about numbers in everyday life	...how children feel about themselves, and why this makes a difference	... encouraging conversations with children	... using 'maths language' during everyday situations	...how an awareness of play patterns makes a real difference	...helping children's developing language	... the importance of a sense of order
Folder section heading	Helping children to learn	Listening to children	Numbers, numbers everywhere	Children's friendships	Talking with children	Talking maths	Making the most of play patterns	Things to talk about	What Comes Next
	<p>There are many ways adults help children to learn. Here are four ways: giving children <b>opportunities</b> and chances to do things <b>recognising</b> when children have learned something new <b>interaction</b>: doing things together <b>modelling</b>: being an example.</p>	<p>Children often understand much more than they say in words. When other people listen carefully to them, children can get better at listening carefully and saying the things they want to say. Learning to talk and to listen are the first stages of writing and reading.</p>	<p>For young children, numbers up to five, or even ten, are the ones that matter. These are 'easy' numbers for us, and can become easy for children too. Children need to play with numbers in many different ways. There are numbers all around us every day. With a bit of help, children quickly get good at spotting them - on houses, buses, birthday cards, in shops, magazines, books, etc. Playing games together and having fun with numbers will help children to do sums and other maths later on.</p>	<p>How children feel about themselves is important for learning. Children who feel good about themselves do so for a variety of reasons. One reason is when other people enjoy being with them. Children who feel good about themselves are more likely to want to learn.</p>	<p>One way children learn to think about things and find out more about the world is through talking. Children are full of questions (although they may not always ask them). At times, they really need an answer from us, but often they can find out their own answers. When a child asks a question, it can help to think about what he really wants. Sometimes a child might need attention or help, rather than an answer to the question. Talking with children can really help their learning.</p>	<p>Many three year olds love making 'collections' of people and objects. They often enjoy matching things and sorting them into groups. Children can be helped to compare one thing with another. They are beginning to understand that when we talk about numbers, size and measures, we are usually comparing one thing with another. We also need to compare in order to match and sort things. Children need lots of play and talk for their understanding about these things to grow and develop. It helps to talk together about matching one thing with another, about sizes and amounts, groups of things, and the words we use to describe the position of things.</p>	<p>Children often have favourite ways of playing. Sometimes they seem to need to do things in the same way again and again. Underlying the ways in which children like to play are their schemas...the 'mental frameworks' of children's thinking. Patterns come and go over time and develop into more complex combinations. In some children one or more of these patterns can seem very strong - and in other children they are harder to notice. Children can understand with their whole bodies what 'inside' and 'outside' mean, and this helps their thinking and their language to develop, along with their confidence.</p>	<p>Parents and carers can offer lots of opportunities for children's talking. Children get better and better at talking, when they have lots of things to talk about. They need someone to talk with who listens, joins in and tries to understand. Going out, having picnics and making books together are three good opportunities to encourage talking.</p>	<p>The order of things is very important for young children. They like the idea of things happening in the right order because knowing what comes next helps them feel secure. Developing a sense of order also helps children's later understanding of science and maths.</p>

## Appendix 2b: PEEP Curriculum for 4s

### PEEP with Fours: Year Map

Term	Autumn			Spring		Summer			
Sessions	2 - 4	5 - 7	8 - 10	13 - 15	16 - 18	19 - 21	24 - 26	27 - 29	30 - 32
Curriculum	Writing	Reading	Self-concept and dispositions	Writing	Reading	Self-concept and dispositions	Writing	Reading	Self-concept and dispositions
ORIM focus	Interaction and modelling	Recognition and interaction	Interaction and modelling	Interaction and modelling	Recognition and interaction	Interaction and modelling	Interaction and modelling	Recognition and interaction	Interaction and modelling
Thinking about...	<i>...writing through play</i>	<i>...reading through playing and pretending</i>	<i>...suggestions for making a confident start at school</i>	<i>...helping children with early writing</i>	<i>...sharing books together</i>	<i>...the reasons why children want to learn</i>	<i>...learning about writing from everyday surroundings</i>	<i>...children telling their own stories</i>	<i>...developing children's self-knowledge and confidence</i>
Folder section heading	<b>Learning about writing through play</b>	<b>Other worlds in books</b>	<b>Making a flying start at school</b>	<b>Early writing</b>	<b>Sharing books with children</b>	<b>Helping children want to learn</b>	<b>Everyday writing</b>	<b>Playing with stories</b>	<b>Real progress, real praise</b>
Folder introductory text	Children can learn a lot about writing while they are playing. Children are naturally curious about the world; they want to explore and experiment. They can do this safely through their play. Adults can help by setting up play situations where children can write with a purpose. Children can also learn a lot by watching adults write.	Books and stories open up other worlds for children. This is one way for them to explore different ways of seeing things. Through stories children can find out about the worlds and lives of other people. They love pretending - especially at being grown up. Pretending to be different is an important part of finding out about themselves. The magic of favourite stories and pictures can stay with children all their lives.	By the time children are ready to go to school they have learned many skills and they understand a great deal. They have learned these things mainly with people at home, as well as with the other people they meet. Parents are children's first and most important educators. Children still need their parents to be interested and involved in their learning when they start school. This will be important throughout their school lives.	Parents are their children's first teachers, and children learn a lot about reading and writing from watching their parents. Early writing takes a lot of effort and concentration. It helps if you write slowly when your children are watching and say the words out loud as you go. Parents can encourage children by noticing what they are trying to do, by praising their efforts and by joining in.	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. Children often like to hear the same books over and over again. Choosing books is one way they can make choices and gain confidence at a time in their lives when adults make many other decisions for them.	Whether or not children want to learn makes a big difference to how much they learn, how long they remember it and whether or not they use their new learning in another situation. There are many ways that parents, older brothers and sisters and other adults that are close can help children go on wanting to learn.	Children learn about writing when they see people writing in lots of different everyday life situations and when they see different kinds of writing around them. Children learn that writing is spoken words written down. When adults write and read the words out loud, this helps children to understand about what writing is. When children play, they often imitate adults and older children. When they see these people writing, they will want to imitate that too.	Hearing stories is a vital part of learning to read. Listening to a story being told instead of read can be very special for children. Telling means that the story can be added to and played with to suit the listening child. Children love hearing stories about very ordinary, everyday events, especially about themselves.	Children's confidence grows when they are praised for their efforts - as well as for their success. This gives them a genuine sense of their own worth. Children's confidence and wish to learn is based on their knowledge of what they really can do. This makes a secure starting point for teaching something new or more difficult.

Appendix 3: Recruitment letter to PEEP Parents (First phase of study)

**Dear Parent/Carer**

I am a researcher at the Department of Educational Studies, University of Oxford. I will be following the progress of a number of children who attend PEEP over a year. I am interested in your child's progress, and your opinion of PEEP.

I would like your permission to allow your child to take part. Your child would be invited to take part in a series of games with me during the playgroup sessions. These games are fun and most children very much enjoy them. Your child would also be invited to take part in similar games when s/he is four years old.

We would really appreciate your co-operation so we can learn more about PEEP and improve it for children and families. All information will be confidential. Please would you sign the attached form and hand it in to your PEEP Group Leader?

If you would like any further information about our study or would like to ask any questions please get in touch with me on 01865 274 046 or with Dr. Kathy Sylva on 01865 274 008.

Thank you for your time and I hope to hear from you soon.

Yours sincerely,

Maria Evangelou  
Researcher

Please fill in this slip and return to your child's PEEP Group Leader.

Name of Child .....

Child's Date of Birth.....

Name of Parent / Carer.....

Address.....

.....

.....

Postcode.....

Contact telephone number.

I would like my child to take part in the PEEP study.

Signed.....Date.....

Please circle the number of sessions of playgroup that your child usually attends each week.

1    2    3    4    5    6    7    8    9    10

#### Appendix 4: Recruitment letter to PEEP Parents (Second phase of study)

Dear

As you know, since [redacted] was 3 years old he has been part of a study examining the effectiveness of the PEEP Project. The study so far has followed the development of a group of children, particularly in literacy, up to the age of 4.

The Department for Education and Employment has provided a small grant to enable us to follow the development of the children up to the end of Key Stage 1.

Following our phone conversation, I am writing to thank you for your support in the study. I will be visiting [redacted] after his 5<sup>th</sup> birthday in the reception class, at a convenient time for your child's teacher. We will play a series of educational games, which the children have done before when they were in playgroup or at nursery. We will also ask the teacher to share with us your child's school entry profile.

Once more I must stress the confidentiality of each child's and their family's data and also that of your child's school. No unauthorised persons will have access to the data, and the children, families, and schools in the study will not be named in the published reports of the study.

We hope that we can rely on your continuing co-operation. Of course, you can withdraw from the study at any time without giving a reason. If you would like any further information please get in touch with me on 01865 274046. Thank you for your continued support of the study. It's been a pleasure to watch the children in this study as they grow and flourish.

Best wishes,

Maria Evangelou

Research Officer

## Appendix 5: Letter to Schools (Second phase of study)

Oxford

Dear \_\_\_\_\_,

Over the last three years Oxford's Department of Educational Studies has been carrying out a study examining the effectiveness (particularly in literacy) of the Peers Early Education Partnership (PEEP) Project. I have been following the development of a group of children up to the age of 4. All parents whose children participated in the study gave written consent for their children's progress to be monitored between the age of 3 and 4. Recently, we have asked the parents for continued permission to study their child at school.

The Department for Education and Employment has provided a small grant to enable us to follow the development of the children up to the end of Key Stage 1.

I am writing to ask your support because a child in the study, \_\_\_\_\_, has entered your school. I would like to visit \_\_\_\_\_ in your school at a convenient time for the child's teacher, and in a place with which she will feel comfortable. We will play a series of educational games that the children had done before at playgroup and at nursery. I am a fully trained primary teacher and very aware of all the pressures on reception class staff.

A great deal of background information has already been collected during interviews with parents. Now that the children have moved on to primary school, we are seeking further information on their development and their eligibility for free school meals. We will also be looking at each child's school entry assessments and our letter to parents sought their permission for this.

Once more I must stress the confidentiality of each child's data and also of the school. No unauthorised persons will have access to the data. The children, families, and schools in the study will not be named in the published reports of the study.

I will contact you soon to discuss any questions you have about the study and in the hope that I can arrange a time to come and see Morgan at school. Please feel free to contact me if you have any questions before then on 01865 274012. We hope that we can rely on your co-operation.

Best wishes,

Maria Evangelou  
Research Officer

Appendix 6: Parent / Carer Interview Schedule

**Parent/Carer Questionnaire**

Child's ID:..... Family's ID:.....

Interviewer: M. Evangelou Date:.....

Child's name..... Pre-school:.....

Name of parent/ carer:.....

Address:.....

.....

**Telephone number (home):** .....

Postcode:.....

Telephone number (work): .....

1) Who lives with X?

Mother 1

Father 2

Aunt 3

Uncle 4

Grandfather 5

Grandmother 6

Cousin 7

Sibling\* 8 No natsis..../natbr..../halsis..../hslbr..../stepsis..../stepb

Other 9 please state.....

2) Number of Siblings\* 1 2 3 4 5 6+

3) Birth position amongst siblings\* 1<sup>st</sup> 2<sup>nd</sup> 3<sup>rd</sup> 4<sup>th</sup> 5<sup>th</sup> 6<sup>th</sup> +

4) Are you X's?

- Natural mother 1 /father 5
- Adoptive mother 2 /father 6
- Step mother 3 /father 7
- Foster mother 4 /father 8
- Other 9

5) What spoken languages do you and X use in the home? (Ascertain X's first language)

..... Code.....

6) What ethnic (cultural) group would you say X belongs to?

- White UK heritage 0
- White European heritage 1
- Black Caribbean heritage 2
- Black African heritage 3
- Black other 4
- Indian 5
- Pakistani 6
- Bangladeshi 7
- Chinese 8
- Any other minority ethnic group 9
- Mixed race 10
- White heritage outside Europe *i.e.* American/New Zealand 11

**Target Pre-school centre**

7) On average how often does X attend this centre?

No of sessions per week 1 2 3 4 5 6 7 8 9 10

Hours per week.....

8) What age did X start at the centre? .....years .....months

9) Have you visited the centre in the last month other than to drop off or to pick up X and other than to attend a PEEP meeting? (Must have stayed for more than 30 minutes after dropping off – multiple answers possible) Yes /No

If so was it?

- |   |   |
|---|---|
| To spend some time in the centre with the children          | 1 |
| To assist with fund raising                                 | 2 |
| To help with maintaining the physical setting               | 3 |
| To attend at parent meetings on a group or individual basis | 4 |
| To be involved in policy setting                            | 5 |

10) Does X attend any other pre-school centre as well as this one?...Yes /No

11) If so, how often?

No of sessions per week: 1 2 3 4 5 6 7 8 9 10

Hours per week.....

### **Child's birth**

12) Birth weight:.....

13) Was the baby premature: Yes/No

15) How many weeks? .....

16) Did your child have any special medical or nursing care in the first two months after birth?

Yes/No

17) If so, please describe:

### **Child Health, Development and Behaviour**

18) Does X have any health, developmental or behavioural problems? Yes/No

19) If so, please describe:

(Prompt: You don't have any worries/ concerns about X at all? / hearing, asthma, serious allergy or any other serious illness)

**Mother (and father if resident)**

20) What is your age group?

Mother 16-20 21-25 26-35 36-45 46-55 56-65 66-75

Father 16-20 21-25 26-35 36-45 46-55 56-65 66-75

21) At what age did you leave full-time education?

Mother .....

Father/Resident partner .....

22) Did you gain any qualifications at school or after school? M: Yes/No

F/P: Yes/No

23) If so, what qualifications did you gain?

	Mother	Father /Partner
None	0	0
16 yr. old vocational	1	1
16 yr. old academic (GCSE/O level)	2	2
18 yr. old vocational (BTEC)	3	3
18 yr. old academic (A level)	4	4
Degree or equivalent	5	5
Higher degree	6	6

24) How would you describe your marital status?

Never married, single parent 0

Never married, live with partner 1

Married, live with spouse 2

Separated / divorced 3

Widow / Widower 4

25) Are you in paid work at the moment?

M: Yes/No

F: Yes/No

26) If yes, how many hours a week do you work approximately?

Mother.....

Father/partner.....

27) If no, what is the main reason for not working?

	Mother	Father/Partner
Seeking work	1	1
Looking after children	2	2
Looking after relatives	3	3
In training	4	4
House person	5	5
Other please state	6	6

28) What kind of job do you do? (Last job if unemployed)

(Prompt: what job do you do? And what did you do before you had children? What kind of business did you run? What did the factory make? What did you do in the shop?)

Mother:.....

Father/Partner: .....

29) Do you supervise anyone in this job?

Mother Yes/No

How many people?.....

Father/Partner Yes/No

How many people?.....

30) Does the family own a car?

Yes/No

31) Is the family on any benefit?

Yes/No

32) If yes, which?

Child Benefit

Income Support/Jobseeker's allowance

Family credit/Council Tax / Housing Benefit

Incapacity / Disability Benefits (various)

Other (please specify).....

### Children's activities at home

Does X have?

33) A regular bedtime Yes/No

34) Rules about watching TV/videos Yes/No

35) How often does X watch TV/videos in a typical weekday?

0 hours >1 hour 1-3 hours 3+ hours

36) Does anyone at home ever read to X? Yes/No

37) If yes, how often?

On special occasions / Once a month/ Several times a week/ Every day/ Twice a day

38) Does anyone at home ever take X to the library? Yes/No

39) If yes, how often?

On special occasions / Once a month/ Once a fortnight/ Once a week

40) Does X ever play with letters or numbers? Yes/No

(Prompt: What sort of thing has X got at home to play with?)

41) If yes, how often?

Days per week: 1234567

42) Have you ever tried to teach X? ABC/ The Alphabet/ letters? Yes/No

(Prompt: Do you ever do anything like ABC with X at home?)

43) Numbers? Yes/No

(Prompt: Have you done anything else, say numbers? )

44) Any songs / poems? Yes/No

(Prompt: Have you taught any songs, poems? Which ones have you taught?)

45) Any nursery rhymes? Yes/No

(Prompt: can you tell me which?)

Could I have a name, address and phone number of a close relative in case you move and I need to get in touch with you?

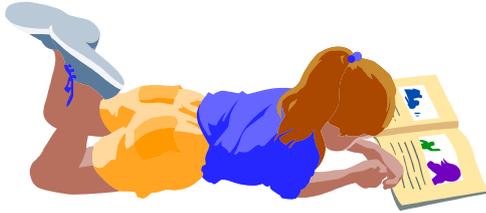
Name:.....

Address: .....

Telephone number: .....

Thank you for your time.

## Appendix 7: Manager interview schedule



### **Children's Language Development and Literacy Study - Manager Interview**

Thank you very much for your time today. As you know I am observing the development of children in your playgroup. In order to know more about their experiences during playgroup I would like to ask you some questions about your programme and staff. The first thing I'd like to say is that any information you'll give me will be treated as confidential. Also, to emphasise, that I am not linked with any government department or other agency. However, if there are any questions that you do not wish to answer, just let me know.

Do you have any questions?

**The first few questions are about the structure of the centre:**

- 1) Approximately how long has your playgroup been operating?
- 2) How many children do you have in total?
- 3) How many rooms are there for the children to use (excluding kitchen, hallways, and bathrooms)?

Years	<input type="text"/>
Children	<input type="text"/>
Rooms	<input type="text"/>

**Now I would like to ask you about looking after the children in your centre:**

- 4) How many places does the centre have for children?
- 5) How many places are taken at the moment?

<input type="text"/>
<input type="text"/>

- 6) Now would you tell me how many children in each age range there are in the centre?

2 to 3 years	<input type="text"/>
3 to 4 years	<input type="text"/>
4 to 5 years	<input type="text"/>
	<input type="text"/>

- 7) What is your staff / child ratio?

- 8) With which body is your centre registered?

- 9) Do all parents pay full fees or is there a sliding scale?

- 10) How much are the fees per session?

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11) What are the major objectives of your centre in addition to caring for children while their parents work? (Indicate 1, 2, or 3 in the box).

1= very important, 2=quite important, 3=not very important

To help children develop language and problem solving skills

To help children build strong friendships and learn to share

To help children master concepts needed for reading and arithmetic

To help children develop physical co-ordination

To help children develop a positive self-concept

To help children value those of different religions, cultures and abilities

To help children learn manners and self-discipline

To help children learn other culturally important skills

12) Of the objectives above, which is:

a. Most important

b. Second most important

c. Third most important

The next few questions are about the parental involvement in your centre:

	Yes /No	Daily 1	Weekly 2	Less often 3
13) Are parents allowed to come in to visit whenever they wish? If yes, how often?				
14) Do parents visit the centre other than to drop off or pick up their child? If yes, how often?				
15) Do parents and staff have a chance to talk with each other? If yes, how often?				
16) Can parents approach staff for advice / information? If yes, how often?				
17) Is there a room for parents to use at centre? If yes, how often do they use it?				

18) When children start at the centre, do you follow a set procedure for settling-in children? (Pre-visits, parent expected to stay, how long, how flexible) Does this vary according to the individual child?

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19) What kinds of written material do you or your staff provide to current parents?

1 None

2 Accidents

3 Toileting, eating *etc*

4 Child's daily play activities

5 Both child and centre information

6 Newsletter

7 Annual Reports

8 Not specified

9 An enrolment form only

10 Other

**20a) If you provide materials, please give examples:**

20) Do you provide any parent education (either materials or training)?

Yes

No

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20b) If you provide training sessions, how often are they scheduled?

1 Weekly

2 Monthly

3 Termly

4 Yearly

5 Never

<input type="checkbox"/>

21) Are there regularly scheduled parent/staff meetings?

Yes

No

If yes, how often are they scheduled?

1 Weekly

2 Monthly

3 Termly

4 Other

<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>

22) Does your centre involve parents in any of the following ways?

a. Some time spent in a classroom in the centre each week, in addition to drop-off and pick-up

Tick for yes

b. Some time spent in the centre outside of a classroom each week, in addition to drop-off and pick-up

c. Assistance with fund raising

d. Help with maintaining the premises

e. Attendance at parent meetings on a group or individual basis

f. Involvement in policy-setting

23) How do you judge quality? How important are the following aspects of childcare and education?

IMPORTANCE

	Extremely	Very	Some	Little	Not at all
1 Staff's warmth towards children	1	2	3	4	5
2 The attention children receive	1	2	3	4	5
3 The staff's style of discipline	1	2	3	4	5
4 Preparation for school	1	2	3	4	5
5 Children's day to day activities	1	2	3	4	5
6 Children learning to get along with others	1	2	3	4	5
7 Teaching of religious or spiritual values	1	2	3	4	5
8 Teaching of cultural values	1	2	3	4	5
9 Learning opportunities for children	1	2	3	4	5
10 The number of children in the group	1	2	3	4	5
11 The number of children for each adult	1	2	3	4	5

12	Staff's experience in caring for children	1	2	3	4	5
13	Staff training	1	2	3	4	5
14	Equipment, toys and materials	1	2	3	4	5
15	Attention to cleanliness	1	2	3	4	5
16	Attention to nutrition	1	2	3	4	5
17	Attention to children's safety	1	2	3	4	5
18	Attention to children's health	1	2	3	4	5
19	Care that is always available	1	2	3	4	5
20	Staff communication with parents about their children	1	2	3	4	5

21	Staff who share parent's values	1	2	3	4	5
22	Staff support for parents	1	2	3	4	5
23	Openness for parents' dropping in to see children during the day	1	2	3	4	5
24	More like a home than a school	1	2	3	4	5
25	Close relationship between staff and a child's family	1	2	3	4	5
26	Child care that is licensed	1	2	3	4	5
27	Sensitive settling-in process	1	2	3	4	5
28	Regular evaluation of child's development	1	2	3	4	5
29	Children see the same staff regularly	1	2	3	4	5
30	Children see same friends regularly	1	2	3	4	5
31	Appreciation of cultural differences	1	2	3	4	5

24) Is a daily timetable displayed?

Yes

No

25) Does your staff have written curriculum plans? Can I see a copy please?

Yes

No

26) Who does the planning for the 3-5 year olds in your centre?

1. Manager alone

2. Designated person alone

3. All staff together

4. Others

27) What guidelines and other materials are used in preparing learning activities?

Please give examples:

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28) Does your staff conduct regular assessments of the children?

Yes

If no, go to question 29. If yes,

No

Please list the aspects of development which are included:

What kind of training does your staff have in assessment?

Are these assessments used in planning classroom activities?

29) Are records for monitoring children's development available for parents to look at?

Yes

No

30) Do you receive any guidance or advice from the LEA or any other source for the planning of literacy activities?

Yes

No

If yes, from whom and how frequently?

**Now I'd like to ask you a few questions about your staff, their qualifications and their training:**

31) How many full time staff do you have?

Full time

32) And how many part time?

Part time

33) And how many are female?

Female

34) And how many are male?

Male

35) Could you give me details of their qualifications?

No	Age (approx.)	Highest Qualifications	Childcare Qualifications	Job	Hours/week	Time in centre

36) Are there any other regular helpers who interact with the children (excluding parents)?

Note: include domestic staff *i.e.* cooks only if they play a role directly with the children

Details	When do they attend?	How long have they been coming?
1.		
2.		
3.		
4.		
5.		

37) Do you encourage your staff to attend training courses? *i.e.* give leaflets *etc*

Yes

No

[If yes, give details]

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38) Does the centre contribute to the costs?

Yes

No

39) Is there anything else you want to tell me?

Notes:

Appendix 8: ECERS – E Literacy subscale

Item	Inadequate 1	2	Minimal 3	4	Good 5	6	Excellent 7
<b>Literacy Subscale added to ECERS</b>							
1. ‘Environmental Print’: Letters and words							
	<b>1.1 There are no pictures visible to the children with printed labels to accompany them.</b>		<b>3.1 A few labelled pictures are present and clearly visible to children.*</b>		<b>5.1 Many labelled pictures are clearly visible to the children.*</b>		<b>7.1 Discussion of ‘environmental print’ takes place and often follows on from objects children bring to the centre.</b>
	<b>1.2 Attention is not drawn to the letters or words outside of books.</b>		<b>3.2 Children see some printed words, such as labels on shelves or their own names on their coat pegs or paintings.</b>		<b>5.2 Children are encouraged to recognise printed words on everyday objects such as juice cans, food packaging, carrier bags.**</b>		<b>7.2 There is a discussion of the relationships between the spoken and the printed word.</b>
			<b>3.3 Printed words are prominently displayed e.g. ‘welcome’ on the door or ‘wash your hands’.</b>		<b>5.3 Children are encouraged to recognise letters in their own names.**</b>		<b>7.3 Children are encouraged to recognise letters and words in the environment, e.g. in labels and words on posters.</b>

**Note\*=** Visibility refers to print on label which may be above eye level if child can see it easily.

**Note\*\*=** If there is indirect evidence visible such as name-mats and labels, ask prompt question ‘Do you draw attention to printed words?’

Item	Inadequate 1	2	Minimal 3	4	Good 5	6	Excellent 7
2. Book and literacy areas							
	<b>1.1 If present, books are unattractive and of an inappropriate level.*</b>		<b>3.1 Some books of different kinds are available.</b>		<b>5.1 There is a variety of books, some picture books, many with text, and at variety of levels to cater to different skills and interests.</b>		<b>7.1 Book area is comfortable (rug and cushions or comfortable seating) and filled with a wide range of books at many levels of complexity.</b>
			<b>3.2 An easily accessible area of the room is set aside for books.</b>		<b>5.2 Children regularly use the book area.</b>		<b>7.2 Adults encourage children to use books and direct them to the book area.</b>
							<b>7.3 Books are included in learning areas outside the book corner.</b>

Note\*= This refers to the books themselves and not the way in which they are displayed.

<b>Item</b>	<b>Inadequate</b>		<b>Minimal</b>		<b>Good</b>		<b>Excellent</b>
	1	2	3	4	5	6	7
3. Adult reading with the children							
<b>1.1 Adults rarely read to the children.</b>			<b>3.1 An adult reads with the children most days.</b>		<b>5.1 Children take an active role in group reading during which discussion of the words and / or story usually takes place.</b>		<b>7.1 There is a discussion about print and letters as well as content.</b>
			<b>3.2 Children are encouraged to join in with repetitious elements of the text.</b>		<b>5.2 Children are encouraged to conjecture about and comment on the text.</b>		<b>7.2 There is support material for the children to engage with the story by themselves e.g. tapes, flannel board, displays etc.</b>
							<b>7.3 There is evidence of one to one reading with some children.</b>

Item	Inadequate		Minimal		Good		Excellent
	1	2	3	4	5	6	7
4. Sounds in words	<b>1.1 Few or no nursery rhymes or poems are spoken or sung.</b>		<b>3.1 Rhymes are often spoken or sung by adults to children.</b>		<b>5.1 The rhyming component of songs and nursery rhymes are brought to the attention of the children.</b>		<b>7.1 Attention is paid to syllabification of words through clapping games, jumping etc.</b>
			<b>3.2 Children are encouraged to speak and / or sing rhymes.</b>		<b>5.2 Initial sounds of alliterative in words and / or alliterative sentences are brought to the attention of children (e.g. Peter Piper picked a peck of pickled peppers).</b>		<b>7.2 Some attention is given to linking sounds to letters.</b>

Item	Inadequate		Minimal		Good		Excellent
	1	2	3	4	5	6	7
5. Emergent writing / mark making							
	<b>1.1 There are no materials for children to engage in emergent writing.</b>		<b>3.1 Children have access to implements for writing such as pencils and felt tips.</b>		<b>5.1 A place in the centre is set aside for emergent writing.</b>		<b>7.1 As well as pencils and paper, the mark-making area has a theme to encourage children to ‘write’, e.g. an office.</b>
	<b>1.2 There is no provision for children to observe what they say being written down.</b>		<b>3.2 Children have access to paper appropriate to a writing task, e.g. A4 or telephone pads.</b>		<b>5.2 Staff sometimes write down what children say.</b>		<b>7.2 The purpose of writing is emphasised, e.g. children are encouraged to ‘write’ and ‘read’ to communicate to others what they have produced.</b>
							<b>7.3 Children’s emergent writing is displayed for others to see.</b>

Item	Inadequate		Minimal		Good		Excellent
	1	2	3	4	5	6	7
6. Talking and Listening							
	<b>1.1 Very little encouragement or opportunity for children to talk to adults.</b>		<b>3.1 Some conversation between adults and children does occur.</b>		<b>5.1 Interesting experiences are planned by adults and drawn upon to encourage talk and the sharing of ideas.</b>		<b>7.1 Adults provide ‘*scaffolding’ for children’s conversations with them.</b>
	<b>1.2 Most verbal attention from adults is of a supervisory nature.</b>		<b>3.2 Children are mostly permitted to talk amongst themselves with little adult intervention to extend conversation.</b>		<b>5.2 Children are encouraged to ask and answer questions.</b>		<b>7.2 Children are often encouraged to talk in small groups and adults encourage their peers to listen to them.</b>
					<b>5.3 Adults make opportunities to talk to one-to-one with children, by initiating conversations with individuals.</b>		

Note\* = Adults accept and extend children’s verbal contributions in conversation

## Appendix 9: Semi-structured interview with nursery teacher

### **Introduction to the teacher:**

**First of all I would like to thank you for your time and to stress the anonymity of this interview. Neither you nor the school will be identifiable in the report produced at the end.**

**I would like us to focus on the area of communication, language and literacy and to explore briefly your practices related to literacy.**

**It would be really helpful if you could give me as much information as possible as we go along.**

---

### **Questions:**

- **Have you changed any of your teaching strategies since the implementation of the CGFS (additions or things you stopped doing)?**
- **How do you teach letter sounds and letter recognition?**
- **Do you follow a specific reading scheme?**
- **Are there any supporting projects that are offered to you and the children, especially on literacy?**
- **Do you involve parents in supporting their child's literacy? In which ways?**
- **Were there any staff changes during the last year in your nursery?**
- **Is there anything that you would like to add?**

What are the major objectives of your centre in addition to caring for children while their parents work? (Indicate 1, 2, or 3 in the box).

**1= very important, 2=quite important, 3=not very important**

- a. To help children develop language and problem solving skills
- b. To help children build strong friendships and learn to share
- c. To help children master concepts needed for reading and arithmetic
- d. To help children develop physical co-ordination
- e. To help children develop a positive self-concept
- f. To help children value those of different religions, cultures and abilities
- g. To help children learn manners and self-discipline
- h. To help children learn other culturally important skills

**Thank you very much for your time!!!**

Appendix 10: Adaptive Social Behaviour Inventory

**Children’s Language Development and Literacy Study**

Adaptive Social Behaviour Inventory

Name of child: ..... Name of centre:.....

Date of Birth:..... Name of administrator:.....

Date of administration:.....

	R or N	S	AA
1. Understands others’ feelings, like when they are happy, sad or mad	1	2	3
2. Is helpful to other children	1	2	3
3. Is obedient and compliant	1	2	3
4. When you give him/her an idea for playing, he/she frowns, shrugs shoulders, pouts or stamps foot	1	2	3
5. Follows rules in games	1	2	3
6. Gets upset when you don’t pay enough attention	1	2	3
7. Is sympathetic toward other children’s distress, tries to comfort others when they are upset	1	2	3
8. Waits his/her turn in games or other activities	1	2	3
9. Is open and direct about what he/she wants	1	2	3
10. Co-operates with your requests	1	2	3
11. Can easily get other children to pay attention to him/her	1	2	3
12. Says nice or friendly things to others, or is friendly towards others	1	2	3
13. Will join a group of children playing	1	2	3
14. In social activities, tends to just watch other	1	2	3
15. Follows household or pre-school centre rules	1	2	3
16. Says “please” and “thank you” when reminded	1	2	3
17. Asks or wants to go play with other children	1	2	3
18. Is calm and easy going	1	2	3
19. Plays games and talks with other children	1	2	3
20. Shares toys or possessions	1	2	3
21. Teases other children, calls them names	1	2	3
22. Is confident with other people	1	2	3
23. Prevents other children from carrying out routines	1	2	3
24. Tends to be proud of things he/she does	1	2	3
25. Accepts changes without fighting against them or becoming upset	1	2	3
26. Bullies other children	1	2	3
27. Is interested in many and different things	1	2	3
28. Is worried about not getting enough (where enough might include attention, access to toys, food/drink <i>etc.</i> )	1	2	3
29. Is bossy, needs to have his/her way	1	2	3
30. Enjoys talking with you	1	2	3

**R or N = Rarely or Never S = Sometimes AA = Almost Always**

Appendix 11: ASBI factors

### **Factor 1: Compliance/Conformity**

When calculating factor 1 the following items are entered in the equation: Items with an asterisk show the strongest relationship for factor 1 are:

\*Is obedient and compliant (3)

Follows rules in games (5)

\*Waits his/her turn in games and other activities (8)

\*Co-operates with your request (10)

\*Follows household or pre-school centre rules (15)

Is calm and easy going (18)

Shares toys and possessions (20)

This can be interpreted as 'compliant or conformist' behaviour.

### **Factor 2: Pro-social**

The items, which load most highly on Factor 2, are the ones marked with an asterisk:

Understands others' feelings, like when they are happy, sad or mad (1)

Is helpful to other children (2)

\*Is sympathetic towards other children's distress, tries to comfort other children when they are upset (7)

Can easily get other children to pay attention to him/her (11)

Says nice or friendly things to others, or is friendly towards others (12)

\*Will join a group of children playing (13)

In social activities, tends to just watch other (14) (-) negative loading

\*Asks or wants to go and play with other children (17)

\*Plays games and talks with other children (19)

This can be interpreted as indicative of a child's sociability and ability to empathise with the feelings of others.

### **Factor 3: Confidence/Independence**

The items, which load most highly on Factor 3, are the ones marked with an asterisk:

\*Is open and direct about what he/she wants (9)

\*Is confident with other people (22)

Tends to be proud of things he/she does (24)

Is interested in many and different things (27)

Enjoys talking with you (30)

This can be interpreted as indicative of a child's confidence and independence.

#### **Factor 4: Anti-social**

The items, which load most highly on Factor 4, are the ones marked with an asterisk:

\* Tease other children, calls them names (21)

\*Prevents other children from carrying out routines (23)

\*Bullies other children (26)

Is bossy, needs to have his/her way (29)

This can be interpreted as indicative of aggressive and anti-social behaviour.

Table 11.1 summarises the items in the 4 factors. These four measures provide a baseline at entry to the study against which subsequent social and behavioural development can be assessed.

Table 11.1: Factor Loadings of ASBI Items at Entry to EPPE study

	Factor 1 Conformity/Compliance	Factor 2 Pro-social	Factor 3 Confidence /Independence	Factor 4 Anti-social
ASBI items	3*	1	9*	21*
	5	2	22*	23*
	8*	7*	24	26*
	10*	11	27	29
	15*	12	30	
	18	13*		
	20	14 (-)		
		17*		
		19*		

\*Factors with highest loadings

Table adapted from Sammons *et al.* 1999, p.15.

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Produced by the Department for Education and Skills

ISBN: 1 84478 118 6  
Ref No: RR489

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