



UNIVERSITY  
OF WOLLONGONG  
AUSTRALIA

University of Wollongong  
Research Online

---

Faculty of Social Sciences - Papers

Faculty of Social Sciences

---

2004

# Pre-school experience and social/behavioural development at the end of year 1 of primary school

Louise Quinn  
*Queen's University Belfast*

Edward Melhuish  
*University of Wollongong, melhuish@uow.edu.au*

Karen Hanna

Kathy Sylva  
*University of Oxford*

Pam Sammons  
*University of London*

*See next page for additional authors*

---

## Publication Details

Quinn, L., Melhuish, E., Hanna, K., Sylva, K., Sammons, P., Siraj-Blatchford, I. & Taggart, B. (2004). Pre-school experience and social/behavioural development at the end of year 1 of primary school. Belfast, Northern Ireland: The Stranmillis Press.

Research Online is the open access institutional repository for the University of Wollongong. For further information contact the UOW Library:  
research-pubs@uow.edu.au

---

# Pre-school experience and social/behavioural development at the end of year 1 of primary school

## **Abstract**

This longitudinal study assesses the attainment and development of children followed between the ages of 3 and 7 years. Over 700 children were recruited to the study during 1998 and 1999 from 80 pre-school centres. Both qualitative and quantitative methods (including multilevel modelling) are used to explore the effects of pre-school experience on children's cognitive attainment and social/behavioural development at entry to school and any continuing effects on such outcomes up to 7 years of age. In addition to the effects of preschool experience, the study investigates the contribution to children's development of individual and family characteristics such as gender, family size, parental education and employment. This overview describes the research design and discusses a variety of research issues (methodological and practical) in investigating the impact of pre-school provision on children's developmental progress. A parallel study is being carried out in England (EPPE).

## **Keywords**

pre, year, end, development, behavioural, primary, social, 1, experience, school

## **Disciplines**

Education | Social and Behavioral Sciences

## **Publication Details**

Quinn, L., Melhuish, E., Hanna, K., Sylva, K., Sammons, P., Siraj-Blatchford, I. & Taggart, B. (2004). Pre-school experience and social/behavioural development at the end of year 1 of primary school. Belfast, Northern Ireland: The Stranmillis Press.

## **Authors**

Louise Quinn, Edward Melhuish, Karen Hanna, Kathy Sylva, Pam Sammons, Iram Siraj-Blatchford, and Brenda Taggart



# **Effective Pre-school Provision in Northern Ireland (EPPNI)**

## **Pre-school Experience and Social/Behavioural Development At the End of Year 1 of Primary School.**

Louise Quinn  
Edward Melhuish  
Karen Hanna  
Kathy Sylva  
Pam Sammons  
Iram Siraj-Blatchford  
Brenda Taggart

**Technical Paper 7**

A Longitudinal Study funded by Department of Education (DE),  
Department of Health, Social Services and Public Safety (DHSSPS)  
and Social Steering Group (SSG)1998-2004

First published for EPPNI in 2001 by  
The Stranmillis Press  
(an imprint of  
Stranmillis University College,  
Belfast BT9 5DY  
[www.stran.ac.uk](http://www.stran.ac.uk)

British Library Cataloguing in Publication Data  
A catalogue record for this book is available from  
The British Library

ISBN 0 903009 60 9

The views expressed in this report are the authors'  
and do not reflect those of the funding bodies

© Melhuish, E., Quinn, Louise., Sylva, K., Sammons, P., Siraj-Blatchford, I.,  
Taggart, B., McSherry, K., & McCrory, M.

## **The EPPNI Research Team**

### **Principal Investigators**

Professor Edward Melhuish  
Birkbeck, University of London

Professor Kathy Sylva  
Department of Educational Studies, University of Oxford

Professor Pam Sammons  
Institute of Education, University of London

Professor Iram Siraj-Blatchford  
Institute of Education, University of London

Louise Quinn  
Stranmillis University College, Queen's University Belfast

Dr. Leslie Caul  
Stranmillis University College, Queen's University Belfast

### **Research Coordinator**

Louise Quinn  
Stranmillis University College, Queen's University Belfast

### **EPPE – EPPNI Liaison**

Brenda Taggart  
Institute of Education, University of London

<b>Contents</b>	<b>Page Number</b>
Effective Pre-school Provision in Northern Ireland.....	9
‘EPPNI’.....	9
Overview of the Project.....	9
Previous Research on the Effects of Early Education in the UK.....	9
Overview of Research Methods.....	10
The 8 aims of the EPPNI Project.....	10
The sample: centres and children.....	11
Child assessments.....	12
Child Measures at 3+ years.....	12
Child Measures at start of P1.....	12
Child Measures at the End of P1.....	12
Child Measures at the End of P2.....	12
Child Measures at the End of P3.....	12
Child Measures at the End of Key Stage 1.....	12
Measuring child/family characteristics known to have an impact on children’s development...	12
Parental interview.....	12
Pre-school Characteristics and Processes.....	13
Case Studies.....	13
Analytic Strategy.....	14
Identifying continuing effects of pre-school centres until the end of Key Stage One.....	14
The Linked Study in England 1997-2003.....	14
Summary.....	15
Executive Summary.....	16
End of Year 1 Summary.....	16
Child variables.....	17
Parent Variables.....	17
Home Variables.....	17
Family Characteristics.....	18
Childcare factors.....	18
Pre-school Effects.....	18
Home versus Pre-school Attainment.....	18
Home versus Pre-school Progress.....	18
Pre-school Type.....	18
Pre-school variables.....	19
Quality of Pre-school.....	19
Progress up to.....	20
End of P1.....	20
Progress up to.....	20
End of P1.....	20
Introduction.....	21
The Sample.....	21
Method of Data Collection.....	22
Social/Behavioural Development.....	22
Year 1 Primary Assessments of Social/Behavioural Development.....	22
The Child Social/Behaviour Questionnaire (CSBQ).....	22
Parental interview.....	23
Pre-school Environments.....	23
Data Collection on Pre-school Centre Characteristics.....	23
Analyses of Social/Behavioural Data.....	25
Regression Analyses.....	28
Results.....	29

Child Variables.....	29
Parent variables.....	29
Fathers’ quals. (compared with none).....	29
Home variables.....	29
Event.....	29
Play at home (compared with none).....	29
ELB area (ompared with Southern).....	29
Pre-school Type Progress.....	31
Childcare history.....	31
ELB area ( <i>compared with Southern</i> ).....	31
Childcare history.....	32
ELB Area ( <i>in comparison to Southern</i> ).....	32
Belfast.....	32
Western.....	32
North Eastern.....	32
South Eastern.....	32
ECERS-R sub-scales.....	32
Sociability.....	33
Table 4: End of P1 Sociability (Attainment).....	33
Child variables.....	33
Health problems (compared with none).....	33
Behaviour problems (compared with none).....	33
Pre-school centre ( <i>in comparison to Home children</i> ).....	33
Nursery Class/School.....	33
Playgroup.....	33
Private Day Nursery.....	33
Reception Class.....	33
Reception Group.....	33
Parent variables.....	33
Fathers’ quals (compared with none).....	33
Mothers’ employment level (compared with full time).....	33
Home variables.....	33
Home play (compared with none).....	33
Table 5: End of P1 Sociability Progress (Home Versus Pre-school).....	35
Start of P1 social development.....	35
Child variables.....	35
Health problems (compared with none).....	35
Behaviour problems (compared with none).....	35
Pre-school centre ( <i>in comparison to Home children</i> ).....	35
Nursery Class/School.....	35
Playgroup.....	35
Private Day Nursery.....	35
Reception Class.....	35
Reception Group.....	35
Parent variables.....	35
ELB Area ( <i>in comparison to Southern</i> ).....	35
Table 6: End of P1 Sociability Progress (Pre-school Type).....	36
Child variables.....	36
Parent variables.....	36
Fathers’ quals (compared with none).....	36
Pre-school characteristics.....	36
Confidence.....	37

Child Variables.....	37
Pre-school centre ( <i>in comparison to Home children</i> ).....	37
Nursery Class/School.....	37
Playgroup.....	37
Private Day Nursery.....	37
Reception Class.....	37
Reception Group.....	37
Family and Home Factors.....	37
No. of siblings (compared with none).....	37
Childcare variables.....	37
ELB Area (compared with Southern).....	37
Standardised Beta.....	39
Significance.....	39
Parental Characteristics.....	39
ELB Area ( <i>in comparison to Southern</i> ).....	39
P1 Social Development.....	40
ELB Area ( <i>compared to Southern</i> ).....	40
ECERS subscales.....	40
Compositional variables.....	40
Empathy.....	41
Table 10: End of P1 Empathy (Attainment).....	41
Child variables.....	41
Pre-school centre <i>in comparison to Home children</i> .....	41
Nursery Class/School.....	41
Playgroup.....	41
Private Day Nursery.....	41
Reception Class.....	41
Reception Group.....	41
Parent variables.....	41
<i>Fathers' qualifications (compared with none)</i> .....	41
16 vocational.....	41
16 academic.....	41
18 vocational.....	41
18 academic.....	41
Degree or above.....	41
Father not resident.....	41
<i>Mothers' employment (compared with full time)</i> .....	41
Part time.....	41
Unemployed.....	41
Home Variables.....	41
Home play (compared with none).....	41
Child care variables.....	41
Table 11: End of P1 Empathy Progress (Home Versus Pre-School).....	43
Start of P1 social development.....	43
Child variables.....	43
Pre-school centre attended by child ( <i>in comparison to Home children</i> ).....	43
Nursery Class/School.....	43
Playgroup.....	43
Private Day Nursery.....	43
Reception Class.....	43
Reception Group.....	43
Parent variables.....	43

<i>Fathers' employment level (compared with full time)</i> .....	43
Part-time .....	43
Self-employed.....	43
Unemployed.....	43
Home variables .....	43
Family characteristics .....	43
Child care variables .....	43
Table 12: End of P1 Empathy Progress (Pre-School Type).....	45
Start of P1 social development.....	45
Child variables.....	45
Parent variables.....	45
Fathers' employment (compared with full time) .....	45
Part time .....	45
Self employed.....	45
Unemployed.....	45
Home variables .....	45
Home play (compared with none).....	45
Child care variables .....	45
Total group care.....	45
Independence/Concentration.....	47
Beta .....	47
Significance .....	47
Child variables.....	47
Parent variables.....	47
Mothers' quals. (compared with none).....	47
Home variables .....	47
Home play (compared with none).....	47
Start of P1 social development.....	49
Child variables.....	49
Parent variables.....	49
Mothers' quals. (compared with none).....	49
Childcare history.....	49
ELB Area ( <i>compared with Southern</i> ).....	49
Table 15: End of P1 Independence/Concentration Progress (Pre-school Type) .....	50
Child variables.....	50
Mothers' qualifications (compared with none) .....	50
Mothers' employment (compared with full time).....	50
Childcare history.....	50
ELB Area ( <i>compared with Southern</i> ).....	50
Conduct Problems.....	51
Table 16: End of P1 Conduct Problems (Attainment) .....	51
Significance .....	51
Child Variables.....	51
Pre-school centre ( <i>in comparison to Home children</i> ) .....	51
Nursery Class/School.....	51
Playgroup.....	51
Private Day Nursery.....	51
Reception Class.....	51
Reception Group.....	51
Home.....	51
Beta .....	53
P1 social development.....	53

Childcare variables.....	53
P1 Social Development.....	54
Childcare variables.....	54
Pre-school characteristics.....	54
Compositional sub-scales.....	54
Attainment Summaries.....	56
Home verses Pre-school.....	56
Child Variables.....	56
Parent Variables.....	56
Home Variables.....	57
Childcare Factors.....	57
Area.....	57
Pre-school Effects.....	57
Progress Summaries.....	58
Home Vs Pre-school.....	58
P1 social/behavioural outcomes.....	58
Child variables.....	58
Parent variables.....	58
Home variables.....	58
Childcare variables.....	59
Family characteristics.....	59
Area.....	59
Pre-school effects.....	59
Pre-school Type.....	59
P1 social/behavioural outcomes.....	59
Child variables.....	59
Parent variables.....	60
Home variables.....	60
Childcare variables.....	60
Pre-school variables.....	60
Education and Library Boards.....	60
ECERS and ECERS sub-scales.....	61
Compositional variables.....	61
Pre-School Effects.....	61
References.....	62
Appendices.....	64
Appendix 1.....	64
Child Social Behaviour Questionnaire-Year 1.....	64
Appendix 2.....	66
Appendix 3.....	68

# Effective Pre-school Provision in Northern Ireland 'EPPNI'

## Overview of the Project

This longitudinal study assesses the attainment and development of children followed from the age of 3 until the end of Key Stage 1. Over 700 children were recruited to the study during 1998 and 1999 from 80 pre-school centres in Northern Ireland. Both qualitative and quantitative methods are used to explore the effects of pre-school experience on children's cognitive attainment and social/behavioural development at entry to school and any continuing effects on such outcomes up to 8 years of age. In addition to the effects of pre-school experience, the study investigates the contribution to children's development of individual and family characteristics such as gender, family size, parental education and employment. This overview describes the research design and discusses a variety of research issues (methodological and practical) in investigating the impact of pre-school provision on children's developmental progress. A parallel study is being carried out in England (EPPE).

## Previous Research on the Effects of Early Education in the UK

There has been little large-scale, systematic research on the effects of early childhood education in the UK. The 'Start Right' Enquiry (Ball 1994; Sylva 1994) reviewed the evidence of UK research and concluded that small-scale studies suggested a positive impact but that large-scale research was inconclusive. The Start Right enquiry recommended more rigorous longitudinal studies with baseline measures so that the 'value added' to children's development by pre-school education could be established.

Research evidence elsewhere on the effects of different kinds of pre-school environment on children's development (Melhuish et al. 1990; Melhuish et al 1993; Sylva & Wiltshire 1993; Schweinhart & Weikart 1997; Borge & Melhuish, 1995; National Institute of Child Health Development 1997) suggests positive outcomes. Some researchers have examined the impact of particular characteristics, e.g. gender and attendance on children's adjustment to nursery classes (Davies & Brember 1992), or adopted cross-sectional designs to explore the impact of different types of pre-school provision (Davies & Brember 1997). Feinstein, Robertson & Symons (1998) attempted to evaluate the effects of pre-schooling on children's subsequent progress but birth cohort designs may not be appropriate for the study of the influence of pre-school education. The absence of data on children's attainments at entry to pre-school means that neither the British Cohort Study (1970) nor the National Child Development Study (1958) can be used to explore the effects of pre-school education on children's progress. These studies are also limited by the time lapse and many changes in the nature of pre-school provision that have occurred. To date no research using multilevel models (Goldstein 1987) has been used to investigate the impact of both type of provision and individual centre effects. Thus little research in the UK has explored whether some forms of provision have greater benefits than others.

In the UK there is a long tradition of variation in pre-school provision both between types (e.g. Playgroup, Local Authority or Private Nursery or Nursery Classes) and in different parts of the country reflecting funding and geographical conditions (i.e. urban/rural and local access to centres). A series of reports (House of Commons Select Committee 1989; DES Rumbold Report 1990; Ball 1994) have questioned whether pre-school education in the UK is as effective as it might be and have urged better co-ordination of services and research into the impact of different forms of provision (Siraj-Blatchford 1995). The EPPNI and EPPE projects are thus the first

large-scale studies in the UK on the effects of different kinds of pre-school provision relating experience in particular centres and type of centre to child development.

## **Overview of Research Methods**

The EPPNI and EPPE projects investigate three issues that have important implications for policy and practice:

- the effects on children of different types of pre-school provision,
- the ‘structural’ (e.g. adult-child ratios) and ‘process’ characteristics (e.g. interaction styles) of more effective pre-school centres, and
- the interaction between child and family characteristics and the kind of pre-school provision a child experiences.

The research design was chosen to enable investigation of the progress and development of individual children (including the impact of personal, socio-economic and family characteristics), and the effect of individual pre-school centres on children's outcomes at entry to school, through to age 8.

### **The 8 aims of the EPPNI Project**

- To produce a detailed description of the ‘career paths’ of a large sample of children and their families between entry into pre-school education and the first four years of primary school.
- To compare and contrast the developmental progress of 800+ children from a wide range of social and cultural backgrounds who have differing pre-school experiences.
- To separate out the effects of pre-school experience from the effects of education in the primary school period years 1, 2, 3 and 4.
- To establish whether some forms of pre-school experience are more effective than others in promoting children's cognitive and social/emotional development during the pre-school years (ages 3-4) and the first four primary years (4-8 years).
- To discover the individual characteristics (structural and process) of pre-school education in centres found to be most effective.
- To investigate differences in the progress of different groups of children, e.g. children from disadvantaged backgrounds and both genders.
- To investigate the medium-term effects of pre-school education on educational performance at age 8 in a way which will allow the possibility of longitudinal follow-up at later ages to establish long-term effects, if any.
- To relate the use of pre-school provision to parental labour market participation.

## **The sample: centres and children**

In order to maximise the likelihood of identifying the effects of various types of provision, the EPPNI sample was stratified by type of centre and geographical location. The centres were chosen to include a selection of nursery classes and schools, Playgroups, Private Day Nurseries, Reception Classes and Reception Groups. Thus examples of all major types of pre-school centre in Northern Ireland from all regions were included in the study.

Over 700 children were recruited from 80 pre-school centres from all Education & Library Boards in Northern Ireland. Children and their families were selected randomly in each centre to participate in the EPPNI Project. All parents gave written permission for their children to participate. In order to examine the impact of no pre-school provision, an additional sample of 150 children with no pre-school experience were recruited from the Year 1 classes that EPPNI children entered.

The progress and development of pre-school children in the EPPNI sample is being followed over five years until the end of Key Stage 1 of primary school. Details about length of sessions and number of sessions normally attended per week have been collected to enable the amount of pre-school education experienced to be quantified for each child in the sample. Two complicating factors are that a substantial proportion of children moved from one form of pre-school provision to another (e.g. from playgroup to nursery class) and some attended more than one centre in a week. Careful records are necessary in order to examine issues of stability and continuity, and to document the range of pre-school experiences to which individual children can be exposed.

## **Child assessments**

### ***Child Measures at 3+ years***

Around the third birthday, or up to a year later if the child entered pre-school provision after three, each child was assessed by a researcher on four cognitive tasks from the British Ability Scales II (BASII) (Elliott et al 1996). These tasks were; verbal comprehension, naming vocabulary, knowledge of similarities seen in pictures, and block building. A profile of the child's social and behavioural adjustment (ASBI, Hogan, Scott, and Bauer, 1992), was completed by the member of the pre-school staff who knew the child best. If the child changed pre-school before school entry, he or she was assessed again.

### ***Child Measures at start of P1***

At school entry, a trained researcher administered a similar battery of cognitive assessments. These included pattern construction, verbal comprehension, naming vocabulary, knowledge of similarities seen in pictures and early number concepts. Knowledge of the alphabet, rhyme and alliteration (literacy measures) were also administered. These literacy measures were then computed to give an overall measure of pre-reading ability. The Year 1 teacher completed a social behavioural profile of the child.

### ***Child Measures at the End of P1***

Children were again assessed individually at the end of their first year of primary school. The measures included early number concepts, British Ability Scales word reading, Marie Clay dictation and literacy measures. A social behavioural profile of the child was again completed by the primary 1 teacher.

### ***Child Measures at the End of P2***

Further assessments were made at the end of Year 2. In addition to NFER-NELSON standardised assessments of reading and mathematics, information on school progress, attendance and special needs was collected. Goodman (1997) Strengths & Difficulties Questionnaire and related measures were completed by the P2 teacher as a measure of the child's social behaviour.

### ***Child Measures at the End of P3***

At age 7, children are invited to report themselves on their attitudes to school. The P3 teacher again completes the Goodman (1997) Strengths & Difficulties Questionnaire and related measures.

### ***Child Measures at the End of Key Stage 1***

The end of Key Stage 1 results will be collected directly from the school that each child attends.

## **Measuring child/family characteristics known to have an impact on children's development**

### ***Parental interview***

Shortly after the initial assessments of cognitive and social/behavioural development had been completed, one of the child's parents or guardians was interviewed. In the vast majority of cases the interview was with the child's mother. Parents were interviewed either in person when they were at the pre-school centre, or by telephone. The interview followed a semi-structured format with answers to most questions being coded into an established set of categories, and a small number of open-ended questions that were coded post hoc. The length of the interviews varied,

depending on the complexity of the information to be collected, the conciseness of the parents and other factors. A typical interview might take between twenty and forty minutes of the parent's time depending upon the complexity of the information supplied by the parent.

The interview contained questions dealing with the parents, the family, the child's health, development and behaviour, the child's activities in the home, the use of pre-school provision and the childcare history. Information on individual 'child factors' such as gender, language and birth order was also collected.

Family factors were also investigated. Parent interviews provided detailed information about parent education, occupation and employment history, family structure and pre-school attendance. In addition, details about the child's day care history and parental involvement in educational activities (e.g. reading to child, teaching nursery rhymes, television viewing etc), and also other activities of the child, have been collected and analysed.

### **Pre-school Characteristics and Processes**

Regional researchers interviewed centre managers on: group size, child staff ratio, staff training, aims, policies, curriculum, parental involvement, etc. 'Process' characteristics such as the day-to-day functioning within settings (e.g. child-staff interaction, child-child interaction, and structuring of children's activities) were also studied. The Early Childhood Environment Rating Scale (ECERS) which has been recently adapted (Harms, Clifford & Cryer 1998) and the Caregiver Interaction Scale (Arnett 1989) were also administered. The ECERS includes the following sub-scales:

- Space and furnishings
- Personal care routines
- Language reasoning
- Activities
- Interaction
- Programme structure
- Parents and staffing

In addition four additional sub-scales (ECERS-E) (Sylva, Siraj-Blatchford & Taggart, 2003) describing educational provision in terms of: Language, Mathematics, Science and the Environment, and Diversity were also used in each pre-school centre.

### **Case Studies**

In addition to the quantitative data collected about children, their families and their pre-school centres, detailed qualitative data has been collected using case studies. The case studies were chosen retrospectively on the basis of the analyses of ECERS-R, ECERS-E and Inspection Report. The case studies add the fine-grained detail to how processes within centres articulate, establish and maintain good practice. There are case studies of three pre-school centres in EPPNI, and will be detailed in separate report.

The methodology of the EPPNI project is thus mixed. The detailed case studies use a variety of methods of data gathering, including documentary analysis, interviews and observations and the results help to illuminate the characteristics of more successful pre-school centres and assist in generating guidance on good practice. Particular attention has been paid to parent involvement, teaching and learning processes, child-adult interaction and social factors in learning. Inevitably there are difficulties associated with the retrospective study of process characteristics of centres

and it is important to examine field notes and pre-school centre histories to establish the extent of change during the study.

### **Analytic Strategy**

The EPPNI research was designed to enable the linking of three sets of data: information about children's attainment and development (at different points in time), information about children's personal, social and family characteristics (e.g. age, gender, SES etc), and information about pre-school experience (type of centre and its characteristics).

Longitudinal research is essential to enable the impact of child characteristics (personal, social and family) to be disentangled from any influence related to the characteristics of pre-school centre attended. Given the disparate nature of children's pre-school experience it is vital to ensure that the influences of age at assessment, amount and length of pre-school experience and pre-school attendance record are accounted for when estimating the effects of pre-school education. This information is also important in its own right to provide a detailed description of the range of pre-school provision experienced by different children and any differences in the patterns of provision used by specific groups of children/parents and their relationship to parents' labour market participation. Predictor variables for attainment at entry to primary school will include prior attainment (verbal and non-verbal sub scales), social/emotional profiles, and child characteristics (personal, social and family).

The extent to which it is possible to explain (statistically) the variation in children's scores on the various measures assessed at entry to primary school will provide evidence about whether particular forms of pre-school provision have greater benefits in promoting development by the end of the pre-school period. Analyses will test out the impact of measures of pre-school process characteristics, such as the scores on various ECERS scales and pre-school centre structural characteristics such as ratios. This will provide evidence as to which measures are associated with better cognitive and social/behavioural outcomes in children.

### **Identifying continuing effects of pre-school centres until the end of Key Stage One**

In the EPPNI research it is planned to explore the possible mid-term effects of pre-school provision on later progress and attainment in primary school until the end of Key Stage 1. Children's educational experiences are complex and over time different institutions may influence cognitive and social/behavioural development for better or worse. This study will allow the relative strength of any continuing effects of pre-school attendance to be ascertained, in comparison with the primary school influence.

### **The Linked Study in England 1997-2003**

The Effective Provision of Pre-school Education (EPPE) project is a linked project and is under the directorship of Professor Kathy Sylva, Professor Edward Melhuish, Professor Pam Sammons, and Professor Iram Siraj-Blatchford. The study explores the characteristics of different kinds of early years provision and examines children's development in pre-school, and influences on their later adjustment and progress at primary school up to age 7 years (end of key stage 1 in England). It will help to identify the aspects of pre-school provision that have a positive impact on children's attainment, progress, and development, and so provide guidance on good practice. The research involves 141 pre-school centres randomly selected throughout 5 regions of England. The study investigates all main types of pre-school provision attended by 3 to 4 year olds in England: Playgroups, Private Day Nurseries, Nursery Classes, Nursery Schools, Local Authority Nurseries

and Integrated Centres. The data from England and Northern Ireland offer opportunities for potentially useful comparisons.

### **Summary**

The EPPNI project studies the complicated effects of amount and type of pre-school provision experienced by children and their personal, social and family characteristics on subsequent progress and development. Assessment of both cognitive and social/behavioural outcomes are made. The relationships between pre-school characteristics and children's development can be explored. The results of these analyses and the findings from the qualitative case studies of selected centres can inform both policy and practice. Comparisons with the English study (EPPE) can further illuminate the interpretation of results.

## Executive Summary

The Effective Pre-school Provision in Northern Ireland (EPPNI) project is a longitudinal study that assesses the development of children followed between the ages of 3 and 8 years. Both qualitative and quantitative methods are used to explore the effects of pre-school experience on children's attainment and progress on cognitive and social/behavioural development at entry to school and up to 8 years of age. In addition to pre-school effects, the study investigates the contribution to children's development of individual and family characteristics such as gender, family size, parental education and employment. A parallel study is being carried out in England (Effective Provision of Pre-school Education - EPPE). The EPPNI and EPPE projects are the first large-scale studies in the UK to investigate the effects of different kinds of pre-school provision. They relate experience in particular centres and type of centre to child development. The data from England and Northern Ireland offer opportunities for potentially useful comparisons.

The EPPNI and EPPE projects investigate three issues that have important implications for policy and practice:

- the effects on children of different types of pre-school provision,
- the 'structural' (e.g. adult-child ratios) and 'process' characteristics (e.g. interaction styles) of more effective pre-school centres, and
- the interaction between child and family characteristics and the kind of pre-school provision a child experiences.

Over 700 children were recruited from 80 pre-school centres from all Education & Library Boards in Northern Ireland. Children and their families were selected randomly in each centre to participate in the EPPNI Project. In order to examine the impact of no pre-school provision, an additional sample of 150 children without pre-school experience were recruited from the Year 1 classes that EPPNI children entered. The progress and development of the children is being followed from age 3 until the end of Key Stage 1 of primary school (age 8 years).

## End of Year 1 Summary

Children's social/behavioural development was measured through a questionnaire completed by their class teacher. This questionnaire produced measures of the following factors:

Co-operation/Conformity e.g. *tries to be fair in games*

Sociability e.g. *plays games and talks with other children*

Peer Empathy e.g. *is sympathetic to others' distress*

Confidence e.g. *tends to be proud of things she/he does*

Independence and Concentration e.g. *thinks things out before acting*

Conduct Problems e.g. *teases other children, calls them names.*

The analyses have considered both the child's level of development at the end of P1 and the developmental gain (progress) over the first year of primary school having allowed for previous attainment measured at entry to primary school. The effects of child, family, home environment and child care variables on children's social behaviour measured at the end of P1, and on developmental gains or change over the P1 year are summarised below. In all cases the relationships are statistically significant, when the influence of other measures is controlled. The findings identify general tendencies for different groups of children, but do not necessarily apply to every individual in a specific group.

### ***Child variables***

- Older children scored higher on all subscales except conduct problems. Older children made more progress on sociability and independence/concentration at the end of P1.
- Girls showed less conduct problems than boys, and attained higher scores than boys on independence/concentration, co-operation/conformity, and empathy. Girls made more progress on empathy than boys at the end of P1. Boys and girls appeared to make similar progress on the remaining subscales.
- Children with heavier birth weights attained higher scores on independence/concentration and confidence.
- Previous behaviour problems had significant effects for confidence, conduct problems, co-operation/conformity and sociability. Children who had no previous behaviour problems attained higher scores than children with previous behaviour problems. Children who had previous high levels of behaviour problems made less progress on sociability over the P1 period compared with children with no previous behaviour problems.
- Previous health problems had significant effects for sociability and co-operation/conformity with children who had no previous health problems scoring better than children who had previous health problems. Children who had previous low levels of health problems made less progress on sociability.

### ***Parent Variables***

Parental education was important.

- Children whose mothers had a degree or better obtained higher scores on independence/concentration compared to children whose mothers had no qualifications. Children whose mothers obtained 16 academic, 18 vocational or degree or above made more progress on independence/concentration across the P1 period. Children whose mothers had obtained a degree or above made more progress on confidence.
- Children whose fathers had obtained 'A' levels and above had more sociability, confidence and empathetic behaviour, than children whose fathers had no qualifications. Children whose fathers obtained 16 academic or above had higher co-operation/conformity. For progress over P1, fathers' qualifications were significant for sociability, with children whose fathers had obtained 'A' levels making more progress over the P1 period.

Parental employment also was influential.

- Children whose fathers work part-time did less well on co-operation/conformity and empathy, and had more conduct problems than children whose fathers work full-time. Children whose fathers work full-time made more progress on empathy in comparison to children whose fathers work part-time or are unemployed.
- Children whose mothers work full-time generally scored higher on confidence, sociability, empathy and independence/concentration. Children whose mothers work full-time, made more progress on sociability and independence/concentration.

### ***Home Variables***

- The Home Learning Environment is an index of the level of activities in the home offering learning opportunities to the child. The higher the score on the Home Learning Environment (HLE) Index, the higher the score attained on confidence and independence/concentration.
- Where children experienced a potentially disruptive life event they attained lower scores on co-operation/conformity and independence/concentration.
- Children who experienced peer play at home, in comparison to children who had no peer play, scored higher on co-operation/conformity, empathy, sociability and independence/concentration. They also showed less anti-social behaviour and made more progress over the P1 year on empathy.

- Where there were rules about watching T.V./video in the home, children were generally more sociable.
- Children with 3 or more siblings attained lower scores on confidence than children with no siblings.

#### ***Family Characteristics***

- Children from a one-parent family made more progress on empathy in comparison with children belonging to a two-parent family. As there were no differences in attainment this indicates that these children were catching up.

#### ***Childcare factors***

- Children with more group care in the first 3 years of life showed less empathy and more conduct problems. Also children who experienced more early group care, made less progress on conduct problems, cooperation/conformity, empathy and independence/concentration.
- Children with more relative care in the first 3 years were more confident and made more progress on empathy and independence/concentration.

## **Pre-school Effects**

#### ***Home versus Pre-school Attainment***

In comparison to home children, children from;

- Nursery Schools/Classes had more confidence and sociability, and less co-operation/conformity.
- Playgroups had better confidence, empathy and sociability.
- Private Day Nurseries were more sociable and confident, had more conduct problems and less co-operation/conformity.
- Reception Classes showed less co-operation/conformity, but were more sociable.
- Reception Groups had more conduct problems and showed less co-operation/conformity.

#### ***Home versus Pre-school Progress***

In comparison with home children, children from

- Playgroups made more progress on empathy and sociability.
- Reception Classes and Reception Groups made more progress on empathy at the end of P1.
- Private Day Nurseries and Nursery Classes/Schools appeared to be equivalent with home children on all of the sub-scales.

#### ***Pre-school Type***

In comparison to children from Reception Classes, children from;

- Nursery Classes/Schools made less progress on empathy at the end of P1.
- Private Day Nurseries made less progress on empathy.
- Playgroups made less progress on conduct problems across the P1 period.

There appeared to be no difference between children from Reception Classes and children from Reception Groups on any of the subscales.

Home and Pre-school effects can be found in table form (see Appendix 2 and Appendix 3).

### ***Pre-school variables***

- Children who attended pre-school on a full time basis made more progress over the first year of school on sociability than children who attended part-time.
- The more months that children had attended pre-school, the less conduct problems they displayed at the end of P1.
- Children who attended a pre-school where the leader had a Bachelor of Arts or Bachelor of Science qualification or a Bachelor of Education qualification, decreased in their conduct problems in comparison with children who attended a pre-school where the leader had no qualifications.

### ***Quality of Pre-school***

When the children were in pre-school the quality of early care and education was assessed by observation using 3 instruments, ECERS-R focussing on care and interaction, ECERS-E focusing on educational aspects and the Caregiver-Interaction Scale (CIS) which was a rating of caregivers interactions. Only one subscale showed a significant effect after allowing for all the other predictor variables.

- Children who attended a pre-school centre rated higher on the ECERS-R subscale for Care, made more progress on cooperation/conformity over the P1 period, but made less progress on confidence.



## **Introduction**

The Effective Pre-school Provision in Northern Ireland (EPPNI) project is a research study of children's progress and development from age three to eight years, and how progress relates to their pre-school centre experience and family background.

In the first stage of the study parents were interviewed concerning child and family characteristics. Children were also assessed on social/behavioural and cognitive development. The data provided on child and family characteristics and social/behavioural and cognitive development at the start of the study can be used to investigate social/behavioural and cognitive development at 3–4 years in relation to a range of parental, family, child, home and childcare factors. This analysis has been done and is reported in Technical Paper 2, (Melhuish et al, 2001). Cognitive and social/behavioural attainment and progress across the pre-school period has been analysed and reported in Technical Papers 4 and 5 (Melhuish et al. 2002).

This paper considers the social/behavioural attainment of children at the end of Primary 1, and the progress across the first year of primary school, in relation to the range of variables available in the EPPNI study that measure characteristics of the children, their parents, family, home and childcare history. A wide range of variables is considered and the nature of associations between family background and children's development are explored.

## **The Sample**

The focus of the EPPNI study is on the effects of pre-school experience upon children's development. The EPPNI sample was stratified by type of centre and geographical location.

The first stage of the study involved 683 children recruited from 80 pre-school centres, including 188 children from nursery classes, 157 children from Playgroups, 117 children from Private Day Nurseries and 221 children from Reception Groups/classes. The children were aged between 3 years and 4 years 6 months (mean 43.3 months; S.D. = 5.5 months) at the beginning of the study. For 7 families, parents were unavailable for interview. Hence this paper is based on the analysis of data from 676 parental interviews of the original sample. 151 children with no pre-school experience, for whom all parents were interviewed, were also recruited to the study at the beginning of their P1 year. These children's data are included for relevant analyses.

## **Method of Data Collection Social/Behavioural Development**

### **Year 1 Primary Assessments of Social/Behavioural Development**

When the children started Year 1 of Primary school social/behavioural data on the children were collected in the first term. Teachers with at least 1 month's experience of working with a particular child would rate that child on the Child Social Behaviour Questionnaire (CSBQ). The CSBQ was derived by adding 15 items, taken from other studies of social behaviour for this age group, to the 30 items of the original Adaptive social Behavior Inventory, (ASBI) (Hogan et al, 1992), (See Technical Paper 5 for details). The extra 15 items were selected to sample behaviours emerging in 5-year-old children that were not covered by the original ASBI, including independence, attention related behaviours and empathy. The child's teacher also completed the CSBQ during the summer term, at the end of the first year of statutory schooling.

### **The Child Social/Behaviour Questionnaire (CSBQ)**

This questionnaire consists of 45 items rated on a 5 point scale.

1=Rarely/never    2= not often    3=sometimes    4=usually    5=almost always

Results of a factor analysis of these 45 items resulted in the extraction of 6 underlying factors. These were:

**Co-operation/Conformity** *e.g. tries to be fair in games*

**Sociability** *e.g. plays games and talks with other children*

**Peer Empathy** *e.g. is sympathetic to others' distress*

**Confidence** *e.g. tends to be proud of things she/he does*

**Independence and Concentration** *e.g. thinks things out before acting*

**Conduct Problems** *e.g. teases other children, calls them names.*

### Parental interview

Shortly after the child and family were recruited to the study, one of the child's parents or guardians was interviewed. In the vast majority of cases the interview was with the child's mother. Parents were interviewed either in person when they were at the pre-school centre, or by telephone. The interview followed a semi-structured format with answers to most questions being coded into an established set of categories, and a small number of open-ended questions that were coded post hoc. The length of the interviews varied, depending on the complexity of the information to be collected, the conciseness of the parents and other factors. A typical interview might take between twenty and forty minutes of the parent's time depending upon the complexity of the information supplied by the parent. The interview contained questions dealing with the parents, the family, the child's health, development and behaviour, the child's activities in the home, the use of pre-school provision and the childcare history.

### Pre-school Environments

685 children in the study attended one of the following types of pre-school

Playgroup	N= 15
Private Day Nurseries	N= 19
Nursery Class	N= 7
Nursery School	N= 9
Reception Class	N= 9
Reception Group	N= 21

In addition to the children in pre-school centres there were 152 children recruited to the study who had not attended a pre-school centre (Home children). These children were recruited at the start of Year 1 in Primary school.

### Distribution of Children Across Pre-school Settings

Area	Nursery class/school	Playgroup	PDN	Reception class/group	Home	Total
Belfast	33	32	28	38	11	142
West	33	30	14	44	43	164
North-east	34	30	41	39	30	174
South-east	37	26	22	49	21	155
South	51	39	12	51	46	199
<b>Total</b>	<b>188</b>	<b>157</b>	<b>117</b>	<b>221</b>	<b>151</b>	<b>834</b>

### Data Collection on Pre-school Centre Characteristics

For the centres attended by the children in the study interviews were conducted with the pre-school centre manager. The topics covered in this interview included group size, child staff ratio, staff training, aims, policies, curriculum, and parental involvement.

In addition to the visits to the centres to conduct interviews there were visits to collect observational data. Process' characteristics such as the day-to-day functioning within settings (e.g. child-staff interaction, child-child interaction, and structuring of children's activities) were studied.

The Early Childhood Environment Rating Scale (ECERS) that has been recently revised (Harms, Clifford & Cryer 1998) was administered. The ECERS includes the following sub-scales:

- Space and furnishings
- Personal care routines
- Language reasoning
- Activities
- Interaction
- Programme structure
- Parents and staffing

In addition four sub-scales (ECERS-E) (Sylva et al., 2003) describing educational provision and based on Desirable Learning Outcomes were used:

- Language
- Mathematics
- Science and the Environment
- Diversity

Also at the end of a visit to a centre researchers would complete the Caregiver Interaction Scale (Arnett, 1989) that provided the following four factors.

- Positive relations
- Permissiveness
- Punitiveness
- Detachment.

Thus the project had a range of interview and direct observational data relevant to the issue of quality of pre-school provision.

## Analyses of Social/Behavioural Data

The analyses presented in this report consider the children's social/behavioural development in two ways; attainment at the end of the first year of primary school (P1), and progress over the first year of primary school i.e. the P1 period.

Attainment: these analyses answer the question 'What affects the child's level of development at the end of the first year of primary school?'

In analysing attainment the child, socio-economic (area & parent), parent, family, home, childcare, and pre-school characteristics affecting the child's level of attainment at the end of primary one were considered. The child's earlier level of social/behavioural functioning is not taken into account. Attainment analyses can include a comparison between the home group and the children attending different types of pre-school.

These analyses on progress over the first year of primary school answer the question 'What affects the progress the child makes over the first year of primary school?'

In analysing progress, all possible predictor variables used in attainment were analysed, but, in addition, the child's level of social/behavioural functioning at the start of P1 is taken into account.

The strategy of analysing the end of P1 social/behavioural outcomes in a regression model where the start of P1 social/behavioural scores are always used as potential predictor variables is the equivalent to analysing the child's progress or developmental gain in social/behavioural outcomes as the initial level of social/behavioural development is taken into account.

There are consequences of this strategy for progress models.

1. The child's level of functioning at the start of P1 will absorb the effects of several child, parent, family and home factors, where their effects do not persist additively over the P1 period.
2. Where children are not showing high levels of attainment in relation to their age at the start of P1, there is more scope for progress for such children. Hence such children may show bigger progress effects, without necessarily showing high attainment at the end of the first year of primary school.

The social/behavioural factor scores for children were used as the outcome variables in a series of regression analyses. Each end of P1 social/behavioural sub-scale was analysed in terms of

- a) Children's attainment at the end of primary school and
- b) Progress across the year 1 period

The predictor variables were entered into a regression model using the "enter" method. The variables that had statistically significant ( $p < .05$ ) effects were retained in the model. The other factors were removed one at a time to ensure all variables with statistically significant effects were retained. The final regression models for each outcome variable retained only the predictor variables found to have statistically significant effects on the outcome variable. The chosen significance level (conventional cut-off point) of  $p < .05$  means that there is a less than 5% chance that the observed result is due to chance.

The predictor variables considered in the regression analyses are listed in full below.

### **Child characteristics**

Age  
Gender  
Birth weight  
Perinatal health difficulties  
Previous developmental problems  
Previous behaviour problems  
Previous health problems

### **Parental characteristics**

Socio-economic status  
Mother's level of employment  
Father's level of employment  
Mother's qualifications  
Father's qualifications  
Mother's age  
Father's age  
Age mother left education  
Age father left education

### **Family characteristics**

Lone parent  
Number of siblings  
Birth position  
Life events

### **Home characteristics**

Home learning environment  
Rules about bedtime  
Rules about TV/video  
Peer play at home  
Peer play with friends elsewhere

### **Childcare history**

Total relative care before entering the study  
Total individual care before entering the study  
Total group care before entering the study  
Time in target centre before entering the study

### **Pre-school experience variables**

Type of pre-school  
Adult/Child Ratio  
Number of sessions  
Duration of time spent in pre-school  
Pre-school leader qualifications

### **Area**

Education and Library Boards (ELB)

### **ECERS-R**

ECERS-R total score  
ECERS-R sub-scales scores  
Space and furnishings  
Personal care routines  
Language reasoning  
Activities  
Interaction  
Programme structure  
Parents and staff facilities

### **ECERS-E**

ECERS-E total score  
ECERS-E sub-scales scores  
Maths  
Literacy  
Science/environment  
Diversity

### **Caregiver Interaction Scale (CIS)**

Positive Relations  
Punitiveness  
Permissiveness  
Detachment

### **Index of Area Deprivation**

Child poverty mean

Various measures of area deprivation were considered. They were all highly correlated. Therefore it was sensible to choose one and the child poverty index seemed most appropriate.

### **Compositional variables**

Within each pre-school centre the study has a representative sample of children recruited within the setting up phase of the project. Hence an average of the children's scores on a characteristic, leaving out the target child's score, gives a measure of the rest of the pre-school group's composition in terms of that characteristic. Such a composition variable is a useful way to incorporate analysis of peer group effects during the pre-school period.

Composition variables were computed for:

Child cognitive ability  
Child co-operation  
Child peer sociability  
Child confidence  
Child anti-social behaviour  
Child worried behaviour  
Mother's education

## Regression Analyses

In this section we deal with two separate types of regression models for each of the six sub-scales.

The first type of model compares the attainment of children with pre-school experience and children who entered the study with no pre-school experience. In this regression model we cannot include pre-school variables, as they are not available for the Home children because they did not attend any form of pre-school setting.

The second type of model looks at the children's progress across the P1 period and includes comparisons for children attending different types of pre-school, and is repeated for the home versus pre-school distinction. The pre-school type models include the start of P1 social/behavioural scores, pre-school type and process variables, and compositional variables in the regression model. However the comparisons for the home children cannot include these pre-school factors, as they are unavailable for this group.

Individual child, socio-economic, parent, family and home characteristics are analysed in successive stages. However in this report only the final models, which contain all significant predictor variables, are presented. The intermediate steps of the analyses are omitted. Examples of each progressive stage of the analyses are presented in Technical Paper 4 (Melhuish et al 2002).

## Results

This section deals with the analyses for each separate social/behavioural subscale in terms of attainment and progress across the P1 period. The attainment models compare the home children with children attending different types of pre-school centres. The progress models then examine the P1 period and the effects on social/behavioural progress.

**Table 1: End of P1 Co-operation/Conformity Attainment**

$R^2 = .17$

Adjusted  $R^2 = .14$

$F(27,709) = 5.42, p < .0001$

	Standardised Beta	Significance
<b>Child Variables</b>		
Age	.22	.000
Gender	-.16	.000
<i>Behavioural Problems (ompared with none)</i>		
Low problems	-.09	.008
High problems	-.10	.003
<i>Health Problems (compared with none)</i>		
Low problems	-.11	.002
High problems	-.02	ns
<b>Pre-school centre (in comparison to Home children)</b>		
Nursery Class/School	-.12	.012
Playgroup	-.01	ns
Private Day Nursery	-.10	.037
Reception Class	-.13	.006
Reception Group	-.11	.010
<b>Parent variables</b>		
<i>Fathers' quals. (compared with none)</i>		
16 vocational	.03	ns
16 academic	.09	.046
18 vocational	.04	ns
18 academic	.10	.014
Degree and above	.13	.003
Father not resident	-.00	ns
<i>Fathers' employment (compared with full time)</i>		
Part time	-.08	.020
Self employed	.02	ns
Unemployed	-.02	ns
<b>Home variables</b>		
Event	.08	.023
<i>Play at home (compared with none)</i>		
Low play	.13	.002
High play	.08	.050
<b>ELB area (ompared with Southern)</b>		
Belfast	.13	.002
Western	-.01	ns
North-Eastern	-.02	ns
South-Eastern	.03	ns

Older children attained higher cooperation/conformity at the end of P1 than younger children. Gender was significant with boys attaining lower scores on cooperation/conformity than girls.

Children who had experienced any level of behavioural problem in the first 3 years attained lower scores on co-operation/conformity than children without behavioural problems. Children who had experienced low levels of health problems in the first 3 years attained lower scores on cooperation/conformity than children without health problems.

Fathers' qualifications and level of employment, event, peer play at home and area had significant effects. Children whose fathers obtained a 16 academic, 18 academic or degree or above qualification obtained higher cooperation/conformity scores than children whose fathers have no qualifications. Children whose fathers work full-time scored higher on co-operation/conformity than children whose fathers work part time. Children whose fathers work full-time, appeared to attain equivalent scores on co-operation/conformity, to children whose fathers were unemployed or self-employed.

Children who have experienced a potentially disruptive event in their lives, which may affect development, attained lower scores on co-operation/conformity than children who had not experienced such an event.

Children who had experienced any level of peer play at home were more co-operative/conforming at the end of year 1 compared with children who had no peer play at home.

Children from Belfast ELB attained higher scores on co-operation/conformity compared with children from Southern ELB whilst the other ELB areas appeared to have equivalent co-operation/conformity scores to the Southern ELB.

Children from nursery classes/schools, private day nurseries, reception classes and reception groups scored lower on co-operation/conformity than home children. There appeared to be no difference between home children and playgroup children on co-operation/conformity attainment.

## Pre-school Type Progress

In this section progress is examined for the home versus pre-school groups and also for children attending different types of pre-school. The beginning of P1 social/behavioural variables were entered into the analyses to enable the analysis of progress over the first year of primary school. Progress was analysed in terms of the previously mentioned child, SES, parental, home and family background variables. For the pre-school type progress models, pre-school processes and characteristics were also analysed. These could not be included in the pre-school versus home models as the information is not available for the home group.

Progress on co-operation/conformity at the end of P1 refers to the child's score on this outcome having allowed for the child's social/behavioural development at the start of P1.

**Table 2: End of P1 Co-operation/Conformity Progress (Home Versus Pre-school)**

$R^2 = .49$

Adjusted  $R^2 = .49$

$F(6,559) = 86.71, p < .0001$

	Beta	Significance
<b>Start of P1 social development</b>		
Co-operation/Conformity	.68	.000
<b>Childcare history</b>		
Group care	-.09	.003
<b>ELB area (compared with Southern)</b>		
Belfast	.04	ns
Western	-.13	.001
North-Eastern	-.07	ns
South-Eastern	.03	ns

The higher the children were rated on co-operation/conformity at the start of P1, the higher their co-operation/conformity scores at the end of P1. This aspect of children's behaviour was very stable across the P1 period.

The more group care experienced by children prior to joining the study, then the less progress that was made on cooperation/conformity at the end of P1.

Children who attended pre-school in the Western ELB made less progress on co-operation/conformity at the end of P1 compared with children from the Southern ELB. The other ELB areas appeared to be equivalent to the Southern ELB on co-operation/conformity progress.

There appeared to be no difference between the home children and pre-school children on cooperation/conformity progress at the end of P1.

**Table 3: End of P1 Co-operation/Conformity Progress (Pre-school Type)**

R<sup>2</sup>=. 53

Adjusted R<sup>2</sup>=. 52

F (7,502)=79.34, p<.0001

	<b>Beta</b>	<b>Significance</b>
<b>Start of P1 social development</b>		
Co-operation/Conformity	.70	.000
<b>Childcare history</b>		
Group care	-.14	.000
<b>ELB Area (in comparison to Southern)</b>		
Belfast	.02	ns
Western	-.11	.005
North Eastern	-.08	ns
South Eastern	.02	ns
<b>ECERS-R sub-scales</b>		
Care	.14	.002

Children who were rated highly on co-operation/conformity at the start of P1 scored more highly on this measure at the end of P1.

Children who had experienced more group care prior to joining the study, made less progress on co-operation/conformity at the end of P1.

Children who attended pre-school in the Western ELB area made less progress on co-operation/conformity at the end of P1 in comparison with children from the Southern ELB area. Children from the other ELB areas appeared to make similar progress to children from the Southern ELB on co-operation/conformity at the end of P1.

Children who attended pre-school centres rated higher on ECERS-R/Care, made more progress on cooperation/conformity at the end of P1.

After analysing the full range of child, SES, parent, family, home and pre-school characteristics and processes there appeared to be no significant difference between children attending different types of pre-school on co-operation/conformity progress.

## Sociability

**Table 4: End of P1 Sociability (Attainment)**

R<sup>2</sup>= .176

Adjusted R<sup>2</sup>= .151

F (22,714)=6.933, p<.0001

	Beta	Significance
<b>Child variables</b>		
Age	.23	.000
<i>Health problems (compared with none)</i>		
Low problems	-.10	.003
High problems	-.01	ns
<i>Behaviour problems (compared with none)</i>		
Low problems	-.06	ns
High problems	-.11	.002
<b>Pre-school centre (in comparison to Home children)</b>		
Nursery Class/School	.15	.001
Playgroup	.20	.000
Private Day Nursery	.14	.003
Reception Class	.10	.042
Reception Group	.08	ns
<b>Parent variables</b>		
<i>Fathers' quals (compared with none)</i>		
16 vocational	.00	ns
16 academic	-.05	ns
18 vocational	.02	ns
18 academic	.09	.023
Degree or above	.11	.011
Father not resident	.02	ns
<i>Mothers' employment level (compared with full time)</i>		
Employed part time	-.12	.003
Unemployed	-.17	.000
<b>Home variables</b>		
Rules about TV/video	.07	.039
<i>Home play (compared with none)</i>		
Low play	.11	.007
High play	.09	.030

Older children attained higher scores on sociability than younger children. Children who experienced low levels of health problems during their first three years attained lower scores on sociability than children who did not have previous health problems. Children who had high levels of behaviour problems in the first 3 years attained lower scores on sociability than children without any behavioural problems.

There was a significant difference between home children and children who attended nursery classes/schools, playgroups, private day nurseries and reception classes with children who attended these centres attaining higher scores on sociability at the end of P1 in comparison to home children. The difference on sociability attainment between home children and children from reception groups was not great enough to be statistically significant.

Fathers' qualifications had a significant effect with children whose fathers had obtained 18 academic or above qualifications showing higher sociability attainment in comparison to children whose fathers have no qualifications. Mothers' employment level also had a significant effect with children whose mothers are employed part-time or unemployed showing lower attainment on sociability at the end of P1 in comparison to children whose mothers are employed full-time.

Rules about watching TV/video had a significant effect. Children who lived in homes that had rules about TV/video attained higher scores on sociability at the end of P1. Children who engaged in any amount of peer play at home attained higher scores on sociability compared with children who had experienced no peer play at home.

**Table 5: End of P1 Sociability Progress (Home Versus Pre-school)**

$R^2=.437$

Adjusted  $R^2=.422$

$F(17,619)=28.26, p<.0001$

	Beta	Significance
<b>Start of P1 social development</b>		
Sociability	.55	.000
<b>Child variables</b>		
Age	.15	.000
<i>Health problems (compared with none)</i>		
Low problems	-.08	.013
High problems	-.04	ns
<i>Behaviour problems (compared with none)</i>		
Low problems	-.05	ns
High problems	-.07	.022
<b>Pre-school centre (in comparison to Home children)</b>		
Nursery Class/School	.06	ns
Playgroup	.09	.027
Private Day Nursery	.08	ns
Reception Class	.02	ns
Reception Group	.01	ns
<b>Parent variables</b>		
<i>Mothers' level of employment (compared with full time)</i>		
Employed part time	-.04	ns
Unemployed	-.09	.017
<b>ELB Area (in comparison to Southern)</b>		
Belfast	.05	ns
Western	-.11	.004
North-Eastern	-.08	.041
South-Eastern	.06	ns

Children with higher sociability at the start of P1 had higher sociability at the end of P1.

Older children made more progress on sociability at the end of P1. Children who experienced low levels of health problems made less progress on sociability during P1, than children who had not experienced health problems. Behavioural problems also had a significant effect with children who experienced high behavioural problems showing less progress on sociability during P1 in comparison to children did not have previous behavioural problems.

Children who attended playgroups made more progress on sociability in comparison to home children. Children who attended any other type of pre-school did not attain significantly greater scores to home children on sociability progress.

Children whose mothers are unemployed made less progress on sociability during P1 in comparison to children whose mothers are employed full-time.

Children from the Western and the North-Eastern ELB areas made less progress on sociability than children from the Southern ELB. Children from the Belfast and South-Eastern ELB areas appeared to make similar progress on sociability to the Southern ELB area.

**Table 6: End of P1 Sociability Progress (Pre-school Type)**R<sup>2</sup>=.42Adjusted R<sup>2</sup>=.40

F(15,487)= 23.14, p&lt;.0001

	Beta	Significance
<b>Start of P1 social development</b>		
Sociability	.54	.000
<b>Child variables</b>		
Age	.20	.000
<i>Health problems (compared with none)</i>		
Low problems	-.12	.001
High problems	.01	ns
<b>Parent variables</b>		
<i>Fathers' quals (compared with none)</i>		
16 vocational	-.02	ns
16 academic	-.02	ns
18 vocational	.01	ns
18 academic	.10	.012
Degree or above	.07	ns
Father not resident	.01	ns
<b>Pre-school characteristics</b>		
Full-time versus part-time sessions	.10	.011
<b>ELB area (compared with Southern)</b>		
Belfast	.04	ns
Western	-.13	.004
North-Eastern	-.03	ns
South-Eastern	.13	.006

Children with higher sociability at the start of P1 showed more sociability at the end of P1.

Older children made more progress on sociability at the end of P1. Children who had experienced low levels of health problems made less progress on sociability at the end of P1 in comparison to children who had no previous health problems.

Fathers' qualifications showed a significant effect, with children whose fathers had achieved A levels, making more progress on sociability than children whose fathers have no qualifications.

Children who attended pre-school full-time made more progress on sociability across the P1 year compared with children who attended pre-school part-time.

Children from the Western ELB showed less progress on sociability in comparison to children from the Southern ELB. Children from the South-Eastern ELB showed more progress on sociability at the end of P1 in comparison to the children from the Southern ELB. There appeared to be no difference on sociability progress between the Southern ELB, Belfast ELB and North Eastern ELB areas.

After allowing for the full range of background variables there seemed to be no difference in the level of progress shown on sociability by children who had attended different types of pre-school centres.

## Confidence

**Table 7: End of P1 Confidence (Attainment)**

$R^2 = .18$

Adjusted  $R^2 = .15$

$F(26,636) = 5.41, p < 0.0001$

	Standardised Beta	Significance
<b>Child Variables</b>		
Age	.25	.000
Birth weight	.09	.016
<i>Behavioural Problems (compared with none)</i>		
Low problems	-.07	.050
High problems	-.02	ns
<b>Pre-school centre (in comparison to Home children)</b>		
Nursery Class/School	.12	.038
Playgroup	.14	.015
Private Day Nursery	.14	.021
Reception Class	.02	ns
Reception Group	.08	ns
<b>Parental Characteristics</b>		
<i>Mothers' level of employment (compared with Full-time)</i>		
Part-time	-.12	.006
Unemployed	-.07	ns
<i>Fathers' quals (compared with none)</i>		
16 vocational	.02	ns
16 academic	-.02	ns
18 vocational	-.00	ns
18 academic	.11	.008
Degree or Above	.11	.017
Father not resident	-.03	ns
<b>Family and Home Factors</b>		
<i>No. of siblings (compared with none)</i>		
1 sibling	-.03	ns
2 siblings	-.03	ns
3+ siblings	-.14	.006
Home Learning Environment	.09	.013
<b>Childcare variables</b>		
Relative care	.08	.025
<b>ELB Area (compared with Southern)</b>		
Belfast	.06	ns
Western	-.10	.018
North-Eastern	-.06	ns
South-Eastern	-.00	ns

Age, birth weight and previous behaviour problems had an effect, with older children and heavier birth weight children tending to attain higher scores on confidence. Children who experienced low levels of behavioural problems attained lower scores on confidence than children with no previous behavioural problems

Mothers' level of employment had an effect on confidence attainment at the end of P1 with children whose mothers are employed part-time showing lower attainment on confidence in comparison to children whose mothers are employed full-time. Children whose fathers had achieved academic qualifications at 18 or a degree/above attained higher scores on confidence in comparison to children whose fathers had no qualifications.

The number of siblings that children have was also significant. Children who have three or more siblings, scored lower on confidence compared to children with no siblings.

As the home learning index increases, so do the children's scores on confidence increase.

Where children had higher levels of relative care prior to joining the study, they scored higher on confidence at the end of P1 than the other children in the study.

Children attending schools in the Western ELB attained lower scores on confidence compared to children from the Southern ELB. The remaining ELB areas appeared to attain similar scores on confidence to the Southern ELB area.

After accounting for a wide range of background variables, children who attended nursery class/school, playgroup and private day nursery attained higher scores on confidence than home children. There appeared to be no difference between home children and children from reception classes or reception groups on confidence.

**Table 8: End of P1 Confidence Progress (Home versus Pre-school)**

$R^2 = .38$

Adjusted  $R^2 = .37$

$F(10,626) = 38.42, p < .0001$

	Standardised Beta	Significance
<b>P1 Social Development</b>		
Confidence	.57	.000
<b>Parental Characteristics</b>		
<i>Mothers' quals (compared with none)</i>		
16 vocational	.02	ns
16 academic	.07	ns
18 vocational	.06	ns
18 academic	.04	ns
Degree or Above	.12	.003
<b>ELB Area (in comparison to Southern)</b>		
Belfast	.05	ns
Western	-.10	.009
North-Eastern	-.03	ns
South-Eastern	.03	ns

Children who scored higher on confidence at the start of P1 scored higher at the end of P1.

Mothers' qualifications had a significant effect. Children whose mothers obtained a degree or above made more progress on confidence at the end of P1 compared with children whose mothers have no qualifications.

Children who attended pre-school in the Western ELB made less progress on confidence at the end of P1 in comparison with children who attended pre-school in the Southern ELB. The rest of the ELB areas appeared to be equivalent to the Southern ELB on confidence progress.

After accounting for a wide range of background variables, there appeared to be no difference between home children and children who attended pre-school on confidence progress.

**Table 9: End of P1 Confidence Progress (Pre-school Type)**

$R^2 = .38$

Adjusted  $R^2 = .37$

$F(7,482) = 41.97, p < .0001$

	<b>Standardised Beta</b>	<b>Significance</b>
<b>P1 Social Development</b>		
Confidence	.51	.000
<b>ELB Area</b> ( <i>compared to Southern</i> )		
Belfast	-.01	ns
Western	-.19	.000
North-Eastern	-.08	ns
South-Eastern	.03	ns
<b>ECERS subscales</b>		
ECERS-R/Care	-.12	.002
<b>Compositional variables</b>		
Peer sociability	.07	.05

Children with higher confidence at the start of P1 were higher in confidence at the end of P1.

ELB area also had an effect with children from the Western ELB showing less progress on confidence across the P1 period in comparison to children from Southern ELB area. Children from all other ELB areas appeared to be equivalent to children from Southern ELB on confidence progress.

Children who attended pre-school centres rated higher on ECERS-R/care tended to make less progress on confidence across the P1 year.

The higher the level of sociability for the peer group in the pre-school class, the more progress the children made on confidence over the P1 year.

There appeared to be no difference between children who attended different types of pre-school centre on confidence progress, after allowing for a wide range of background variables.

## Empathy

**Table 10: End of P1 Empathy (Attainment)**

R<sup>2</sup>=. 201

Adjusted R<sup>2</sup>=. 17

F (25,644)=6.47, p<.0001

	Beta	Significance
<b>Child variables</b>		
Age	.17	.000
Gender	-.20	.000
<b>Pre-school centre in comparison to Home children)</b>		
Nursery Class/School	.08	ns
Playgroup	.17	.003
Private Day Nursery	-.01	ns
Reception Class	.08	ns
Reception Group	.09	ns
<b>Parent variables</b>		
<i>Fathers' qualifications (compared with none)</i>		
16 vocational	-.02	ns
16 academic	-.03	ns
18 vocational	.06	ns
18 academic	.08	.044
Degree or above	.10	.044
Father not resident	.00	ns
<i>Mothers' employment (compared with full time)</i>		
Part time	-.10	.014
Unemployed	-.10	.036
<i>Fathers' employment (compared with full time)</i>		
Part-time	-.07	.026
Self employed	.02	ns
Unemployed	-.07	ns
<b>Home Variables</b>		
<i>Home play (compared with none)</i>		
Low home play	.16	.000
High home play	.15	.001
<b>Child care variables</b>		
Group care	-.09	.014
<b>ELB Area (compared with Southern)</b>		
Belfast	.10	.020
Western	-.09	.050
North-Eastern	-.06	ns
South-Eastern	.03	ns

Older children attained higher scores than younger children on empathy. Additionally, girls scored higher than boys on empathy.

Children who attended playgroups showed higher attainment on empathy in comparison with home children. Children who attended nursery classes/schools, private day nurseries and reception classes/groups appeared to attain equivalent scores to home children on empathy.

Fathers' qualifications had a significant effect with children whose fathers have an 18 academic or above qualification attaining higher scores on empathy in comparison to children whose fathers have no qualifications.

Mothers' employment had a significant effect with children whose mothers work full-time attaining higher scores on empathy than children whose mothers work part-time or who are unemployed.

Fathers' employment level also had a significant effect with children whose fathers work part-time or are unemployed attaining lower scores on empathy at the end of P1 in comparison with children whose fathers work full-time.

Children who had any level of peer play at home attained higher scores on empathy compared with children who were not reported as having peer play.

Of the childcare variables, group care had a significant effect with children who had received more group care prior to entering the study attaining lower scores on empathy at the end of P1.

Children from Belfast ELB showed higher empathy attainment in comparison with children from the Southern ELB area. Children from Western ELB attained lower scores on empathy at the end of P1 compared to children from the Southern ELB. Children from the Southern ELB area appeared to attain equivalent scores on empathy to children from the North Eastern and South Eastern ELB areas.

**Table 11: End of P1 Empathy Progress (Home Versus Pre-School)**

R<sup>2</sup>= .44

Adjusted R<sup>2</sup>= .42

F (21,544)=20.57, p<.0001

	Beta	Significance
<b>Start of P1 social development</b>		
Empathy	.52	.000
<b>Child variables</b>		
Gender	-.11	.002
<b>Pre-school centre attended by child (in comparison to Home children)</b>		
Nursery Class/School	.10	ns
Playgroup	.18	.001
Private Day Nursery	.07	ns
Reception Class	.15	.001
Reception Group	.09	.045
<b>Parent variables</b>		
<i>Fathers' employment level (compared with full time)</i>		
Part-time	-.07	.026
Self-employed	-.06	ns
Unemployed	-.08	.017
<b>Home variables</b>		
<i>Home play versus none</i>		
Low home play	.14	.000
High home play	.10	.012
<b>Family characteristics</b>		
Lone parent family	.07	.041
<b>Child care variables</b>		
Relative care	.08	.014
<b>ELB Area (compared with Southern)</b>		
Belfast	.04	ns
Western	-.12	.006
North-Eastern	-.08	ns
South-Eastern	.04	ns

Children with higher levels of empathy at the beginning of P1 showed more empathy at the end of the P1 period. Girls made more progress on empathy.

Children who attended playgroups, reception classes and reception groups made significantly more progress on empathy across the P1 year in comparison to the home group. Children who attended the remaining types of pre-school provision did not make significantly greater progress on empathy than home children.

Fathers' employment level had a significant effect with children whose fathers work part time or are unemployed making less progress on empathy compared with children whose fathers work full-time. There appeared to be no difference on empathy progress between children whose fathers are self-employed and children whose fathers work full-time.

Of the Home variables, peer play at home had a significant effect, with children who experienced any amount of peer play at home making more progress on empathy at the end of P1 compared with children who had no peer play at home.

Children from lone parent families made more progress on empathy compared with children from two parent families.

The amount of relative care experienced by a child had a significant effect on empathy progress at the end of P1 with children who had received more relative care making more progress.

Children from the Western ELB showed less progress on empathy in comparison to children from the Southern ELB. All other ELB areas appeared to be equivalent to the Southern ELB on empathy progress.

**Table 12: End of P1 Empathy Progress (Pre-School Type)**

R<sup>2</sup>= .41

Adjusted R<sup>2</sup>= .39

F (16,493)=21.484, p<.0001

	Beta	Significance
<b>Start of P1 social development</b>		
Empathy	.52	.000
<b>Child variables</b>		
Gender	-.13	.000
<b>Pre-school centre attended by child (in comparison to Reception Classes)</b>		
Nursery Class/School	-.12	.018
Playgroup	-.02	ns
Private Day Nursery	-.13	.011
Reception Group	-.04	ns
<b>Parent variables</b>		
<i>Fathers' employment (compared with full time)</i>		
Part time	-.09	.009
Self employed	-.06	ns
Unemployed	-.09	.018
<b>Home variables</b>		
<i>Home play (compared with none)</i>		
Low home play	.11	.007
High home play	.09	.028
<b>Child care variables</b>		
Total group care	-.09	.011
<b>ELB Area (in comparison to Southern)</b>		
Belfast	.04	ns
Western	-.10	.028
North-Eastern	-.07	ns
South-Eastern	.04	ns

Children with higher levels of empathy at the beginning of P1 showed more empathy at the end of the P1 year. Girls showed more progress than boys.

Children whose fathers work part-time or are unemployed made less progress on empathy across the P1 period compared with children whose fathers work full-time.

Of the home variables, the amount of peer play in which the child participated in at home had an effect with children who had participated in any level of peer play at home making more progress on empathy over the P1 year in comparison with children who had no peer play at home.

Of the childcare variables, group care had a significant effect. Children who had experienced more group care prior to entering the study made less progress on empathy across the P1 period.

Children who attended pre-school in the Western ELB made less progress on empathy over the P1 period compared with children from the Southern ELB. All other ELB areas appeared to be equal to the Southern ELB on empathy progress.

After accounting for a broad range of background variables, children from nursery classes/schools and private day nurseries made less progress on empathy at the end of P1, in comparison to children from reception classes. Children from playgroups and reception groups appeared to make similar progress to children from reception classes on empathy at the end of P1, but the attainment analyses show that playgroup children attained higher scores overall.

## Independence/Concentration

**Table 13: End of P1 Independence/Concentration (Attainment)**

R<sup>2</sup>= .21

Adjusted R<sup>2</sup>= .19

F (18,717)=10.48, p<.0001

	Beta	Significance
<b>Child variables</b>		
Age	.29	.000
Gender	-.09	.008
Birth weight	.10	.005
<b>Parent variables</b>		
<i>Mothers' quals. (compared with none)</i>		
16 vocational	.02	ns
16 academic	.04	ns
18 vocational	.08	ns
18 academic	.04	ns
Degree or above	.18	.000
<i>Mothers' level of employment (compared with full time)</i>		
Part-time	-.10	.011
Unemployed	-.13	.002
<b>Home variables</b>		
Home Learning Environment	.09	.010
Event	.09	.008
<i>Home play (compared with none)</i>		
Low play	.11	.004
High play	.03	ns
<b>ELB area (compared with Southern)</b>		
Belfast	.04	ns
Western	-.10	.016
North-Eastern	-.00	ns
South-Eastern	-.04	ns

Age, gender and birth weight had significant effects with older children, girls and children with heavier birth weights attaining higher scores on independence/concentration.

Of the parent variables, mothers' qualifications and mothers' level of employment had significant effects. Children whose mothers had achieved a degree or above showed higher attainment on independence/concentration in comparison to children whose mothers have no qualifications. Children whose mothers are employed part-time or are unemployed attained lower scores on independence/concentration in comparison to children whose mothers are employed full-time.

The higher the rating on the home learning index, the higher the score attained on independence/concentration at the end of P1.

Children who had experienced any event that could be deemed as affecting development attained lower scores on independence/concentration at the end of P1. Children who participated in low levels of peer play at home attained higher scores on independence/concentration at the end of P1 in comparison with children who had experienced no peer play at home.

The ELB area in which children attended pre-school also had a significant effect with children from the Western ELB attaining lower scores on independence/concentration in comparison with children from the Southern ELB. Children from all other ELB areas appeared to be equivalent to children from the Southern ELB on independence/concentration attainment.

**Table 14: End of P1 Independence/Concentration Progress (Home versus Pre-school)**

R<sup>2</sup>=. 57

Adjusted R<sup>2</sup>=. 56

F (12,553)=61.44, p<.0001

	Beta	Significance
<b>Start of P1 social development</b>		
Independence/Concentration	.68	.000
<b>Child variables</b>		
Age	.11	.000
<b>Parent variables</b>		
<i>Mothers' quals. (compared with none)</i>		
16 vocational	.05	ns
16 academic	.09	.029
18 vocational	.10	.005
18 academic	.02	ns
Degree or above	.11	.004
<b>Childcare history</b>		
Relative care	.07	.014
<b>ELB Area (compared with Southern)</b>		
Belfast	.01	ns
Western	-.15	.000
North-Eastern	-.05	ns
South-Eastern	.03	ns

Children with higher independence/concentration at the beginning of P1 scored higher on this subscale at the end of P1. Older children made more progress on independence/concentration than younger children.

Mothers' qualifications also showed a significant effect, with children whose mothers have 16 academic, 18 vocational or degree or above qualifications making more progress on independence/concentration at the end P1 in comparison with children whose mothers have no qualifications.

Of the childcare variables, relative care had a significant effect. Children who had experienced more relative care prior to the study made more progress on independence/concentration at the end of P1.

The ELB area also had a significant effect with children who attended pre-school in the Western ELB making less progress on independence/concentration in comparison with children from the Southern ELB. Children from all other ELB areas appeared to be equivalent to children from the Southern ELB on independence/concentration progress.

There appeared to be no difference on independence/concentration progress between home children and children from different types of pre-school centre.

**Table 15: End of P1 Independence/Concentration Progress (Pre-school Type)**

R<sup>2</sup>=.58

Adjusted R<sup>2</sup>=.56

F(14,551)=53.149, p<.0001

	Beta	Significance
<b>Start of P1 social development</b>		
Independence/concentration	.68	.000
<b>Child variables</b>		
Age	.12	.000
<b>Parent variables</b>		
<i>Mothers' qualifications (compared with none)</i>		
16 vocational	.05	ns
16 academic	.08	.04
18 vocational	.10	.006
18 academic	.02	ns
Degree or above	.09	.019
<i>Mothers' employment (compared with full time)</i>		
Part-time	-.04	ns
Unemployed	-.08	.025
<b>Childcare history</b>		
Group care	-.07	.018
<b>ELB Area (compared with Southern)</b>		
Belfast	-.001	ns
Western	-.15	.000
North-Eastern	-.06	ns
South-Eastern	.02	ns

Children with higher independence/concentration at the beginning of P1 scored higher at the end of the P1 period. Older children showed more progress than younger children on independence/concentration across the P1 period.

Mothers' qualifications had a significant effect with children whose mothers obtained 16 academic, 18 vocational or degree or above qualifications making more progress on independence/concentration compared with children whose mothers have no qualifications.

Children whose mothers are unemployed made less progress on independence/concentration in comparison with children whose mothers are employed full-time.

Children who received higher levels of group care prior to the study, made less progress on independence/concentration.

Children from the Western ELB made less progress on independence/concentration compared with children from the Southern ELB. Children from all other ELB areas appeared to be equivalent to children from the Southern ELB on independence/concentration progress.

There seemed to be no difference between children who attended different types of pre-school in progress on independence/concentration .

## Conduct Problems

**Table 16: End of P1 Conduct Problems (Attainment)**

$R^2 = .14$

Adjusted  $R^2 = .114$

$F(18,651) = 5.76, p < .0001$

	Beta	Significance
<b>Child Variables</b>		
Gender	.09	.016
<i>Behavioural Problems (compared with none)</i>		
Low problems	.11	.003
High problems	.06	ns
<b>Pre-school centre (in comparison to Home children)</b>		
Nursery Class/School	.12	ns
Playgroup	.05	ns
Private Day Nursery	.15	.008
Reception Class	.09	ns
Reception Group	.12	.013
<b>Parental Characteristics</b>		
<i>Fathers' level of employment (compared with Full-time)</i>		
Part-time	.10	.006
Self employed	-.01	ns
Unemployed	.05	ns
<b>Home</b>		
<i>Peer play at home (in comparison to none)</i>		
Home Play Low	-.13	.002
Home Play High	-.05	ns
<b>Childcare</b>		
Group care	.17	.000
<b>ELB Area (in comparison with the Southern)</b>		
Belfast	-.17	.000
Western	.06	ns
North-Eastern	.01	ns
South-Eastern	-.03	ns

Girls attained lower scores on conduct problems than boys.

Children who had a low level of behaviour problems in the first three years attained higher scores on conduct problems at the end of P1 in comparison to children with no previous behavioural problems.

Children who attended private day nurseries and reception groups had more conduct problems at the end of P1 compared with home children. Children from nursery classes/schools, playgroups and reception classes did not attain significantly greater scores than home children on conduct problems.

Children whose fathers are employed part-time attained higher scores on conduct problems than children whose fathers work full-time. No difference was apparent on conduct problems between children whose fathers work full-time and children whose fathers are unemployed or self-employed.

Children who experienced low levels of peer play at home attained lower scores, indicating less conduct problems in comparison to children who had no peer play at home.

Children who experienced more group care prior to the study attained higher scores on conduct problems at the end of P1.

In comparison with children who attended pre-school in the Southern ELB, children from Belfast ELB were rated as showing less conduct problems. Children from the remaining ELB areas appeared to attain equivalent scores on conduct problems to children from the Southern ELB.

**Table 17: End of P1 Conduct Problems Progress (Pre-school versus Home)**

$R^2 = .40$

Adjusted  $R^2 = .39$

$F(12,553) = 31.30, p < .0001$

	<b>Beta</b>	<b>Significance</b>
<b>P1 social development</b>		
P1 Conduct Problems	.56	.000
<b>Childcare variables</b>		
Group care	.12	.001
<b>ELB area (in comparison to Southern)</b>		
Belfast	-.07	ns
Western	.11	.008
North-Eastern	.03	ns
South-Eastern	-.08	ns

Children who scored higher on conduct problems at the start of P1 scored higher at the end of the P1 year.

Children who received more group care prior to joining the study showed a relative increase in conduct problems compared to other children in the study during the P1 period.

Children from the Western ELB showed less of a decrease (relative increase) in conduct problems during the P1 period compared with children from Southern ELB. Children from the remaining ELB areas appeared to make similar progress to children from the Southern ELB area on conduct problems.

After allowing for the full range of background variables, there appeared to be no difference between the home children and pre-school groups on conduct problems progress at the end of P1.

**Table 18: End of P1 Conduct Problems Progress (Pre-school Type)**

$R^2 = .43$

Adjusted  $R^2 = .41$

$F(18,446) = 18.63, p < .0001$

	Standardised Beta	Significance
<b>P1 Social Development</b>		
P1 Conduct Problems	.56	.000
<b>Pre-school centre attended by child</b> ( <i>in comparison with reception classes</i> )		
Nursery Class/School	-.06	ns
Playgroup	-.25	.007
Private Day Nursery	-.01	ns
Reception Group	-.10	ns
<b>Childcare variables</b>		
Group care	.13	.001
<b>ELB Area</b> ( <i>in comparison to Southern</i> )		
Belfast	-.07	ns
Western	.10	.033
North-Eastern	.04	ns
South-Eastern	-.12	ns
<b>Pre-school characteristics</b>		
Duration at pre-school	-.21	.004
Pre-school leader qualifications ( <i>in comparison with none</i> )		
NIPPA qualifications	-.04	ns
Montessori	-.07	ns
Btec/NNEB	-.12	ns
BA/BSc	-.14	.009
BEEd	-.36	.000
<b>Compositional sub-scales</b>		
Cooperation/conformity	-.13	.001

Children with higher scores on conduct problems at the start of P1 showed higher scores at the end of the P1 period.

Children who received more group care prior to the study showed higher levels of conduct problems and therefore a relative increase in conduct problems across the P1 period.

Children from the Western ELB showed an increase across the P1 year relative to the pattern of change for the children from the Southern ELB, however this difference was relatively small. Children from the remaining ELB areas appeared to make similar progress to children from the Southern ELB area on conduct problems.

The longer the time period children spent at pre-school, the less conduct problems children displayed over the P1 year.

Children who attended a pre-school where the pre-school leader had a Bachelor of Arts or Bachelor of Science qualification or a Bachelor of Education qualification, decreased in conduct problems across the P1 year in comparison with children who attended a pre-school where the leader had no qualifications.

The more co-operative/conforming the peer group overall were in the pre-school setting, the less the conduct problems across the P1 period, indicating that conduct problems decreased across the P1 period.

After accounting for an extensive range of background variables, the type of pre-school centre the child attended was significant for progress on conduct problems at the end of P1. In comparison to children from reception classes, children who attended playgroups showed a decrease in conduct problems at the end of P1: i.e. the conduct problems of children who attended playgroups decreased over the P1 year more than that of children from reception classes.

## Attainment Summaries

### Home verses Pre-school

#### Child Variables:

- Age showed significant effects for all sub-scales except conduct problems. In each case older children attained higher social/behavioural scores.
- Gender had an effect with girls having more independence/concentration, co-operation/conformity, empathy and less conduct problems than boys.
- Birth weight only showed effects for independence/concentration and confidence. Children with heavier birth weights generally had higher scores.
- Behaviour problems during the first three years were significant for confidence, conduct problems, co-operation/conformity and sociability. Children with low levels of behaviour problems attained lower scores on confidence and had more conduct problems compared with children with no behaviour problems. Children with high levels of behaviour problems were less sociable, whilst children who had low behavioural problems appeared equal to those with no problems on sociability. Children with any level of reported behavioural problems were less co-operative/conforming than children with no problems.
- Health problems affected sociability and co-operation/conformity. For sociability, children who had low levels of health problems scored lower than children who had no previous health problems. For cooperation/conformity, children who had low levels of health problems attained lower scores than children who had no problems whilst children who had high levels of previous health problems appeared equivalent to children with no problems.

#### Parent Variables

- Mothers' qualifications were significant for independence/concentration, with children whose mothers obtained a degree or above attaining higher scores on independence/concentration compared with children whose mothers have no qualifications.
- Fathers' qualifications showed significant effects for empathy, confidence, sociability and co-operation/conformity. The trend is for children whose fathers obtained 18 academic qualifications and above to attain higher scores on sociability, confidence, and empathy than children whose fathers have no qualifications. Children whose fathers obtained 16 academic qualifications, 18 academic qualifications or above were seen to have higher co-operation/conformity.
- Fathers' employment level showed effects for empathy, co-operation/conformity and conduct problems. Children whose fathers work full-time scored higher on co-operation/conformity and empathy and had less conduct problems than children whose fathers work part-time.
- Mothers' employment level was significant for confidence, sociability, empathy and independence/concentration. Children whose mothers work full-time generally scored higher on confidence and empathy than those whose mothers work part-time. Children whose mothers work full-time scored higher on sociability and independence/concentration than children whose mothers are unemployed or work part-time.

### **Home Variables**

- Home Learning Environment (HLE) was significant only for confidence and independence/concentration. The higher the ratings on the HLE index, the higher the children's score.
- Life events that might affect development influence co-operation/conformity and independence/concentration, in that children who had experienced such a life event during their first 3 years had lower scores on independence/concentration and co-operation/conformity.
- Children who had low levels of peer play at home had more independence/concentration, and less conduct problems than children who had no peer play at home. Children with any amount of home play scored higher on co-operation/conformity, empathy and sociability compared with children who had no peer play at home.
- Where there were rules about watching TV and video in the home, children were generally more sociable.
- The number of siblings that a family has also had a significant effect, with children who have 3 or more siblings attaining lower scores on confidence than children who have no brothers or sisters.

### **Childcare Factors**

- Children with more group care prior to joining the study showed less empathy and more conduct problems compared with those children who had no previous group care.
- Children with more relative care prior to the project were more confident than other children.

### **Area**

In comparison with the Southern ELB, children from;

- Belfast ELB had more empathy, were more co-operative/conforming and were rated as showing less conduct problems.
- Western ELB scored lower on empathy, independence/concentration and confidence. Children from the North Eastern and South Eastern ELB areas appeared to have similar attainment scores on all subscales.

### **Pre-school Effects**

In comparison with home children, children who attended;

- Playgroups had higher confidence, empathy and sociability.
- Nursery Schools/Classes had more confidence and sociability. However they also had less co-operation/conformity.
- Private Day Nurseries were more sociable and more confident, had more conduct problems and less co-operation/conformity.
- Reception Classes were less co-operative/conformative but more sociable.
- Reception Groups had more conduct problems and showed less co-operation/conformity.

## Progress Summaries

### Home Vs Pre-school

#### P1 social/behavioural outcomes

- The start of P1 cooperation/conformity score had significant effects for cooperation/conformity scores at the end of P1. Those scoring higher on this measure at the start of P1 made more progress on cooperation/conformity at the end of P1.
- Children scoring higher on the conduct problems score at the start of P1 had more conduct problems at the end of P1.
- Children scoring higher on empathy at the start of P1 showed more empathy at the end of P1.
- Children scoring higher on sociability at the start of P1 were found to make more progress on sociability during P1.
- Children scoring higher on independence/concentration at the start of P1 also made more progress on independence/concentration during P1.
- Children scoring higher on confidence at the beginning of P1 made more progress on confidence across the P1 year.

#### Child variables

- Age showed significant effects for sociability and independence/concentration with older children making more progress on both of the subscales mentioned.
- On empathy, girls made more progress than boys.
- Health problems affected sociability with children who had low levels of health problems making less progress on sociability than those who had no health problems.
- Behaviour problems affected sociability with children who had high levels of behaviour problems making less progress than children without behaviour problems on sociability.

#### Parent variables

- Mothers' qualifications had significant effects on independence/concentration and confidence progress. Children whose mothers obtained a degree or above made more progress on confidence at the end of P1. Children made more progress on independence/concentration when mothers had 16 academic, 18 vocational or a degree or above qualification. All these findings were in comparison to children whose mothers had no qualifications.
- Mothers' employment level showed significant results for sociability. Children whose mothers work full-time made more progress on sociability compared with children whose mothers are unemployed.
- Fathers' employment level showed significant results for empathy. Children whose fathers work full-time made more progress on empathy than children whose fathers work part-time or are unemployed.

#### Home variables

- Children who had any level of peer play at home were found to make more progress on empathy in comparison to children who had no peer-play at home.

### **Childcare variables**

- Children who experienced more group care prior to joining the study showed more of an increase in conduct problems compared with other children, and made less progress on cooperation/conformity.
- Children who experienced more relative care prior to joining the study made more progress on empathy and independence/concentration.

### **Family characteristics**

- Children from a lone parent family made more progress on empathy than children from a two-parent family.

### **Area**

In comparison with the Southern ELB, children from:

- Western ELB made less progress on confidence, empathy, co-operation/conformity, independence/concentration, and sociability and had more conduct problems at the end of P1.
- North Eastern ELB made less progress on sociability.

Belfast and South Eastern ELB areas appeared to make similar progress on all subscales.

### **Pre-school effects**

In comparison with home children, children from;

- Playgroups made more progress on empathy and sociability.
- Reception Classes and Reception Groups made more progress on empathy.

Private Day Nurseries and Nursery Classes/Schools appeared to make similar progress to home children on all six subscales.

## **Pre-school Type**

### **P1 social/behavioural outcomes**

- Children scoring higher on cooperation/conformity at the start of P1 made more progress on cooperation/conformity at the end of P1.
- Children scoring higher on conduct problems at the start of P1 showed more conduct problems at the end of P1.
- Children scoring higher on empathy at the start of P1 made more progress on empathy at the end of P1
- Children who scored higher on confidence at the start of P1 made more progress on confidence at the end of P1.
- Children scoring higher on sociability at the start of P1 were more sociable at the end of P1.
- Children scoring higher on independence/concentration at the start of P1 made more progress on independence/concentration at the end of P1.

### **Child variables**

- Age showed significant results for sociability and independence/concentration. Results showed that older children made more progress than younger children.
- Gender was only significant for empathy with girls again making more progress than boys.

- Previous health problems were significant for sociability. In this case, children with low health problems made less progress on sociability than children with no health problems.

#### **Parent variables**

- Fathers' qualifications were significant for sociability. Children whose fathers obtained 18 academic qualifications made more progress on sociability at the end of P1 compared with children whose fathers have no qualifications.
- Mothers' qualifications were significant for independence/concentration with children whose mothers have 16 academic, 18 vocational or degree or above qualifications making more progress on independence/concentration than children whose mothers have no qualifications.
- Mothers' employment was significant for independence/concentration. Children whose mothers work full-time made more progress on independence/concentration than children whose mothers are unemployed.
- Fathers' employment level had a significant effect with children whose fathers work part-time or are unemployed making less progress on empathy compared with children whose fathers work full time.

#### **Home variables**

- Children who had any level of peer play at home made better progress on empathy during P1 compared with children who had no peer play at home.

#### **Childcare variables**

- Children with more group care prior to joining the study increased more in conduct problems, were less empathetic, and less cooperative/conforming and had less independence/concentration.

#### **Pre-school variables**

- The number of sessions children were enrolled in at pre-school had a significant effect on sociability. Children who attended pre-school full-time made more progress on sociability over the first year of primary school compared with those attended part time.
- The longer the time period children attended pre-school, the more conduct problems decreased over the first year of primary school.
- Children who attended a pre-school where the pre-school leader had a Bachelor of Arts or Bachelor of Science qualification or a Bachelor of Education qualification, decreased in their conduct problems in comparison with children who attended pre-school where the leader had no qualifications.

There appeared to be no difference on progress on the remaining sub-scales, between children who attended pre-schools where the leader has no qualifications and children who attended pre-schools where the leader has NIPPA, Montessori or a BTec/NNEB qualification.

#### **Education and Library Boards**

In comparison with the Southern ELB, children from;

- Western ELB made less progress on co-operation/conformity, sociability, independence/concentration, confidence, empathy and showed less improvement on conduct problems.
- South Eastern ELB made more progress on sociability at the end of P1.

- Belfast ELB and North Eastern ELB appeared to make similar progress on all subscales.

#### **ECERS and ECERS sub-scales**

- The ECERS-R sub-scale, ECERS-R/care, was significant for confidence and cooperation/conformity. Children who attended pre-school centres rated higher on ECERS-R/care made less progress on confidence and more progress on co-operation/conformity.

#### **Compositional variables**

- The more co-operation/conformity the peer group displayed in the pre-school setting, the less progress children made on conduct problems during the P1 period, indicating a decrease in conduct problems across the P1 period.
- The more sociable the peer group was in the pre-school setting, the more progress children made on confidence at the end of P1.

#### **Pre-School Effects**

In comparison to children from reception classes, children from;

- Nursery Classes made less progress on empathy.
  - Private Day Nurseries made less progress on empathy.
  - Playgroups showed more improvement on conduct problems, i.e. decreased more.
- Children from Reception Groups appeared to make similar progress to children from Reception Classes on all six subscales.

## References

- Arnett, J. (1989) Caregivers in Day-Care Centres: Does training matter? *Journal of Applied Developmental Psychology*, 10, 541-552.
- Ball, C. (1994) *Startright: The Importance of Early Learning*, London: RSA.
- Borge, A., & Melhuish, E., (1995) A Longitudinal Study of Childhood Behaviour Problems, Maternal Employment and Day-care in Rural Norwegian Community, *International Journal of Behavioural Development*, 18, 23-42.
- Davies, J. & Brember, I. (1992) The Effects of Gender, Attendance Period and Age on Children's Adjustment to Nursery Classes, *Research in Education*, 47, 89-103.
- Davies, J. & Brember, I. (1997) The Effects of Pre-School Experience on Reading Attainment: a four year cross-sectional study, *Educational Psychology*, 178, 3, 255-266.
- Elliott, C.D., Smith, P. & Mc Culloch, K. (1996). *British Ability Scales II*. Berkshire: NFER-NELSON.
- Feinstein, L., Robertson, D. & Symons, J. (1998) *Pre-school Education and Attainment in the NCDS and BCSI Centre for Economic Performance*, London
- Goldstein, H. (1987) *Multilevel Models in Educational and Social Research*, London: Charles Griffin and Co.
- Goldstein, H. (1995) *Multilevel Statistical Models (2nd Edition)*, London: Edward Arnold.
- Goodman, R. (1997) The Strengths and Difficulties Questionnaire: A Research Note. *Journal of Child Psychology and Psychiatry*, 38, 581-586.
- Harms, T., Clifford, R. & Cryer, D. (1998) *Early Childhood Environment Rating Scale Revised*, New York and London: Teachers' College Press.
- Hogan, A.E., Scott, K.G. and Bauer, C.R. (1992) The Adaptive Social Behavior Inventory (ASBI): A new assessment of social competence in high risk three year olds. *Journal of Psychoeducational Assessments*, 10, 3, 230-9.
- House of Commons Select Committee (1989) *The Education of Children 3-5*, London: HMSO.
- Melhuish, E.C. (1993) Pre-school care and education: Lessons from the 20th and the 21st century, *International Journal of Early Years Education*, 1, 19-32.
- Melhuish, E.C., Lloyd, E., Martin, S. & Mooney, A. (1990) Type of day-care at 18 months: II Relations with Cognitive and Language Development, *Journal of Child Psychology and Psychiatry*, 31, 861-870.
- Melhuish, E., Quinn, L., Sylva, K., Sammons, P., Siraj-Blatchford, I., Taggart, B., McSherry, K. & McCrory, M. (2001) *Cognitive and Social/behavioural Development at 3-4 years in Relation to Family Background*. N.I.: Stranmillis University Press.

- Melhuish, E., Quinn, L., Sylva, K., Sammons, P., Siraj-Blatchford, I., Taggart, B. & Currie, G. (2002) *Pre-school Experience and Social/behavioural Development at the Start of Primary School*. N.I.: Stranmillis University Press.
- Melhuish, E., Quinn, L., Sylva, K., Sammons, P., Siraj-Blatchford, I., Taggart, B. & Shields, C. (2002) *Pre-school Experience and Cognitive Development at the Start of Primary School*. N.I.: Stranmillis University Press.
- National Institute of Child Health & Development (1997) 'The effects of infant child care on infant-mother attachment security: Results of the NICHD study of early child care', *Child Development*, 68, 5, 860-879.
- Rumbold, A. (1990) *The Report of the Committee of Inquiry into the Quality of the Educational Experience offered to 3- and 4-year olds*, Department of Education & Science. London: HMSO.
- Schweinhart, L.J. & Weikart, D.P., (1997) *Lasting Differences, The High/Scope preschool curriculum comparison through age 23*. High/Scope Press, Ypsilanti, Michigan.
- Siraj-Blatchford, I. (1995) Expanding Combined Nursery Provision: Bridging the gap between care and education, in P Gammage and J Meighan *The Early Years: The Way Forward*, Nottingham: Education New Books.
- Sylva, K. (1994) A Curriculum for Early Learning. In Ball, C. (Ed.) *Startright: The Importance of Early Learning*, London: RSA.
- Sylva, K. & Wiltshire, J. (1993) 'The Impact of Early Learning on Children's Later Development. A review prepared for the RSA enquiry 'Start Right', *European Early Childhood Education Research Journal*, 1, 1, 17-40.
- Sylva, K., Siraj-Blatchford I. & Taggart B. (2003) *Assessing Quality in the Early Years, Early Childhood Environment Rating Scale Extension (ECERS-E): Four Curricular Subscales*. Trentham Books. Stoke on Trent UK

## Appendices

### Appendix 1

#### EPPNI Project

##### Child Social Behaviour Questionnaire-Year 1

Name \_\_\_\_\_ Date of Birth \_\_\_\_\_

Name of Centre \_\_\_\_\_ Date of Administration \_\_\_\_\_

	Rarely/ Never	Not Often	Sometimes	Usually	Almost Always
Understands others feelings. Like when they are happy, sad or mad	1	2	3	4	5
Thinks things out before acting					
Is helpful to other children					
Tries to be fair in games					
Is obedient and compliant					
When you give him/her an idea for playing, he/she frowns, shrugs shoulders, pouts or stamps foot					
Follows rules in games					
Gets upset when you don't pay enough attention					
Is sympathetic to other children's distress, tries to comfort others when they are upset					
Can behave appropriately during less structured sessions, with no more than one reminder					
Waits his/her turn in games or other activities					
Is open and direct about what he/she wants					
Co-operates with your requests					
Easily distracted, concentration wanders					
Can easily get other children to pay attention to him/her					
Says nice or friendly things to others, or is friendly towards others					
Can move to a new activity on completion of a task					
Will join a group of children playing					
Can independently select and return equipment as appropriate					
In social activities, tends to just watch others					
Follows school rules					
Says please and thank you when reminded					
Constantly fidgeting or squirming					
Asks or wants to go and play with other children					
Is calm and easy-going					
Can work easily in a small peer group					
Plays games and talks with other children					
Shares toys or possessions					
Teases other children, call them names					
Is confident with other children					
Will invite others to join in a game					
Prevents other children from carrying out routines					
Preservers in the face of difficult or challenging tasks					
Tends to be proud of things he/she does					
Accepts changes without fighting against them or becoming upset					
Likes to work things out for self/can work independently					
Bullies other children					
Is interested in many and different things					
Apologises spontaneously after a misdemeanour					
Is worried about not getting enough					
Is bossy, needs to have his/her way					
Restless, overactive, cannot stay still for long					
Enjoys talking with you					
Offer to help other children who are having difficulty in the classroom					
Sees tasks through to the end, good attention span					



## Appendix 2

### Pre-School Effects in Comparison with Home Children

	Co-op/Conformity		Sociability		Confidence		Empathy		Indep/Concentration		Conduct problems	
	Attainment	Progress	Attainment	Progress	Attainment	Progress	Attainment	Progress	Attainment	Progress	Attainment	Progress
Compared to home group												
Nursery class/school	-		+		+							
Playgroup	-		+	+	+		+	+				
Private Day Nursery	-		+		+						+	
Reception Class	-		+					+				
Reception Group								+			+	

The above table shows the impact of pre-school type compared with home children on social/behavioural attainment and progress.

In analysing attainment the child, socio-economic (area & parent), parent, family, home, childcare, and type of pre-school attended affecting the child's level of attainment at the end of primary one were considered. The child's earlier level of social/behavioural functioning is not taken into account.

In analysing progress, all possible predictor variables used in attainment were analysed, but, in addition, the child's level of social/behavioural functioning at the start of P1 is taken into account.

Key;

‘+’ = Children from this particular type of pre-school appeared to attain significantly higher scores or make more progress across the P1 period than home children, on the social/behavioural subscale concerned. For example, children who attended playgroups appeared to attain significantly higher scores and make more progress across the P1 period on Sociability than home children.

‘-’ = Children from this particular type of pre-school appeared to attain significantly lower scores or make less progress across the P1 period than home children, on the relevant subscale. For example, children who attended nursery classes/schools, playgroups, private day nurseries or reception classes appeared to attain significantly lower scores on co-operation/conformity than home children.

Where a cell remains blank, this means that there appeared to be no difference between children who attended pre-school and home children in their attainment or progress on the social/behavioural subscale concerned

### Appendix 3

Pre-School Type Effects.

In comparison to	Co-operation/Conformity	Sociability	Confidence	Empathy	Independence/Concentration	Conduct problems
Reception Class	Progress	Progress	Progress	Progress	Progress	Progress
Private Day Nursery				-		
Nursery School/Class				-		
Playgroup						-
Reception Group						

The above table shows the impact of each type of pre-school provision on children's social/behavioural progress by comparing the scores of children who attended reception class provision with children who attended the other main types of pre-school provision on each of the subscales.

Key;

- = Children from this particular type of pre-school appeared to make significantly less progress across the P1 period than children who attended reception class, on the relevant subscale. For example, children who attended private day nurseries appeared to make significantly less progress than children who attended reception classes on empathy.

Where a cell remains blank, this means that there appeared to be no difference in the progress of children who attended reception class and other types of pre-school provision on the social/behavioural subscale concerned.