

# The Early Years Transition & Special Educational Needs (EYTSEN) Project

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EYTSSEN is a linked study drawing on data collected by the DfES funded Effective Provision of Pre School Education (EPPE) Project

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## EXECUTIVE SUMMARY

The Department for Education and Skills (DfES) commissioned this investigation into aspects of special educational needs (SEN) in young children between the ages of 3 and 6 years (from pre-school to the end of Year 1 in primary school). The Early Years Transition and Special Educational Needs (EYTSEN) study builds on data collected as part of a larger, longitudinal study of pre-school provision (EPPE).<sup>1</sup> EYTSEN uses a range of information to identify children who may be 'at risk' of developing SEN in terms of either cognitive or social/behavioural development and investigates links with a variety of child, parent and family characteristics. It also describes variations in the policies and provision offered by different pre-school settings and primary schools designed to support children with special educational needs.

EYTSEN is the first research of its kind to follow up a large group of children from pre-school to the end of Year 1 in primary school, to focus specifically on the identification of children 'at risk' of SEN in pre-school for both cognitive and social/behavioural areas of development, and to investigate the influence of pre-school attendance on children's outcomes at entry to primary school. The study examined which children were subsequently reported by teachers as having SEN at primary school, and how such identification relates to measures of 'at risk' status. The study also explores parents' perceptions of SEN and their experiences of support and satisfaction with how needs are met.

The project draws together many different sources of data including individual assessments of different aspects of children's cognitive attainment, pre-school workers' and teachers' assessments of their social behaviour, parent interview and questionnaire data, and information about pre-school centres. The inclusion of an additional sample of 'home' children who had not attended a pre-school setting (or had minimal experience of pre-school) enables the EYTSEN study to explore whether such children are at greater 'risk' of SEN and are more likely to be identified as having special educational needs at primary school.

The EYTSEN study has identified children at risk of SEN for cognitive and social/behavioural measures and described their characteristics. For cognitive outcomes children with multiple disadvantage (in terms of child, family and home environment characteristics) are much more likely to be identified as 'at risk'. Background characteristics show weaker links with social behavioural development. The quality of the home learning environment (related to parents' reported activities with their pre-school child) shows a strong relationship with 'at risk' status. A more stimulating home learning environment benefits both cognitive and social behavioural development. The home learning environment is only moderately related to parents' education and socio-economic status (SES) and is shown to exert a significant independent effect.

Information from parents provides important new evidence concerning the identification of SEN and the characteristics and home circumstances of children who show particular needs or conditions. Parental satisfaction levels with the support their children received vary and particular areas where parents would like to have further support for their child are identified.

The research shows that pre-school attendance, especially in high quality settings, provides all young children with a better start to primary school (as also illustrated in the main EPPE research), but particularly those 'at risk' of SEN. Children are more likely to move out of cognitive 'at risk' status if they attend higher quality settings. 'Home' children are significantly more likely to be identified as 'at risk' when they start primary school than children who attended pre-school centres. Even when account is taken of the higher levels of disadvantage amongst the 'home' group, the EYTSEN study indicates they are more likely to be 'at risk' when they enter primary school, indicating that pre-school helps to promote both cognitive development and Peer

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<sup>1</sup>EPPE: The Effective Provision of Pre-School Education Project is a major longitudinal study (1997-2003) of a national sample of young children's progress and development through pre-school and into primary school until the end of Key Stage 1. For more information on this study contact Room 416, The Institute of Education, University of London on 0207 612 6219.

sociability, especially for more vulnerable groups of children. The positive impact of pre-school continues to remain evident at the end of Year 1. More 'home' children than those who had attended a pre-school centre were reported to have a special need and were receiving support for SEN during KS1. These findings have important implications for the identification and provision for children with SEN. Children who do not attend pre-school or who have had little or only poor quality pre-school experience remain more vulnerable to SEN. Good pre-school experience (in terms of quality and effectiveness) can be seen to offer continuing benefits during the early years.

## **Key Findings**

- A third of the sample showed low cognitive attainment at entry to pre-school and were classified as 'at risk' of SEN in relation to national norms for General Cognitive Ability (GCA). By entry to primary school this figure had dropped to a fifth of the sample, this suggests that pre-school has a positive impact on young children's cognitive development (in both language and non-verbal skills) This positive impact on cognitive attainment remains evident at the end of Year 1 in both better reading and mathematical skills.
- Those children in the sample who had had no pre-school experience (Home children) were more likely to be 'at risk' of SEN in terms of their cognitive development, even taking into account this group's higher levels of multiple disadvantage. The findings thus suggest that pre-school may be an effective intervention for the reduction of SEN, especially for the most disadvantaged and vulnerable groups of young children.
- Integrated/combined centres, local authority day nurseries and playgroups are most likely to have children 'at risk' of SEN on their roll. This may reflect the higher numbers of disadvantaged groups in the areas served by these centres. Understandings of what constitutes SEN varies in some settings and poor cognitive development may not always be recognised as constituting a need in pre-school.
- The results suggest that certain forms of provision may be of particular benefit to children who are 'at risk' of SEN for different reasons. For those 'at risk' of SEN in terms of poor cognitive development, integrated centres and nursery schools, were seen to be particularly beneficial, and for those 'at risk' of SEN in terms of poor social behaviour integrated centres, nursery classes and playgroups were particularly beneficial.
- Due to the variable use of 'systems' for identifying children with SEN across the different types of pre-school, some children 'at risk' of SEN may go unidentified and may, therefore, miss the opportunity for early interventions in these forms of provision.
- High quality pre-school centres may be seen as an effective intervention which can help improve cognitive development and thus provide more vulnerable children with a better start at primary school.
- The majority of parents were satisfied with the support their children were given for SEN, but where they were dissatisfied, they wanted more learning support on an individual basis.

## INTRODUCTION

The Early Years Transitions and Special Educational Needs (EYTSEN) Project builds on the work of the Effective Provision of Pre-School Education (EPPE) project, a major longitudinal study of a national sample of young children's progress and development through pre-school and into primary school until the end of Key Stage 1 (age 3+ to 7 years).<sup>1</sup> Both the EPPE and EYTSEN research studies are funded by the DfES. The EYTSEN study explores evidence of possible special educational needs (SEN) amongst pre-school children. It uses a range of information to identify children who may be considered 'at risk' in terms of cognitive or social behavioural development and investigates links with a variety of child, parent and family characteristics. It also describes variations in the policies and provision offered by different pre-school centres designed to support children with special educational needs. The project followed up the children to the end of Year 1 in primary school and explores the identification of children with SEN in Key Stage 1. In addition, parents' perceptions of whether their child has special educational needs and the support their child received to meet any needs were investigated.

The EYTSEN study investigates possible early indicators of SEN recognising that such needs can be viewed as social constructs, and that some aspects of need may be seen as particular points along a developmental continuum. Children may be perceived differently by parents, pre-school workers and teachers (Hay et al., 1999; Heiser et al., 2000). At some stages particular children may be identified as giving cause for concern or be seen to show particular 'needs' but not at others. Likewise different adults' understandings or perceptions of SEN can vary. Young children develop differently, so changes in status in terms of 'showing' some form of 'need' may be expected to take place between the ages of 3 and 6 years, the period covered in the EYTSEN research (for further discussion of the issues surrounding the identification of special educational needs of young children see Scott and Carran, 1989; Roffey, 1999). Change over time, in children's status, cannot be attributed directly to pre-school or other interventions unless an experimental randomised controlled trial (RCT) is conducted (such studies are not always practical nor ethically desirable). The children in the EYTSEN project were not involved in an experimental RCT but rather represent naturally occurring variation in a national sample of children in different types of pre-school provision. In contrast to an experimental design, the EYTSEN analysis provides a more realistic picture of pre-school experience and variation in young children's cognition and social/behavioural development. It can thus provide valuable insights into both the risk and incidence of SEN amongst different groups of young children at different ages. It also provides evidence concerning pre-school provision for SEN and the impact of different types of provision on children thought to be most 'at risk' of SEN.

### Aims of the EYTSEN project

EYTSEN seeks to address a range of research objectives:

- 1 To examine the impact of pre-school settings on the progress and development of children who may be seen as vulnerable or 'at risk' of developing SEN over the pre-school period and in transition to school until the end of Year 1.
- 2 To identify the characteristics of those children who are identified as 'at risk' for different measures of cognitive or social behavioural development.
- 3 To analyse the distribution of the 'at risk' groups of children across different types of pre-school provider.
- 4 To analyse patterns of progress and changes in cognitive and social/behavioural development of the various 'at risk' groups across the pre-school period and into KS1, including the extent to which 'at risk' groups are identified as having SEN at primary school.

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<sup>1</sup> Full details about the sample and results in the main EPPE study are given in a series of EPPE Technical Papers (listed in Appendix 1).

- 5 To identify pre-school centres' policies and practice in relation to the early identification of SEN as reported by centre managers.
- 6 To examine the relationship between pre-school centre quality characteristics and the subsequent progress and development of different 'at risk' groups.

In addition EYTSEN sought to:

- 7 Investigate parents' perceptions of whether their child has special educational needs and their views and experiences of provision to support their child's needs.

## **The Sample and Methodology**

A summary of the methods used in this research is presented below but for full details see EYTSEN Technical Paper 1 (see Appendix1).

Using the EPPE sample, information for over 2800 children attending 141 pre-school centres selected from five regions across England has been analysed. Centres were drawn from a range of types of pre-school providers: local authority day nurseries, integrated centres<sup>2</sup>, playgroups, private day nurseries, nursery schools and nursery classes. The research was designed to study the six main types of institutional provision (group care) and their impacts on young children. It did not study other forms of pre-school care such as relatives, childminders or nannies. One-to-one assessments of different aspects of young children's cognitive development were conducted by trained researchers at entry to the study (age 3 years+) and later at entry to primary school (rising 5 years). Standardised assessments of reading and mathematics were collected at the end of Year 1 (age 6 years+). In addition, ratings of each child's social and behavioural development were collected from pre-school workers at entry to pre-school, and from teachers when children entered primary school and at the end of Year 1. Details of the assessments used are shown in Appendix 2.

It is recognised that both *definitions of*, and *criteria for the identification* of SEN are contested concepts. The EYTSEN study pays particular attention to exploration of evidence of possible SEN using a variety of definitions and attempts to identify different categories of possible 'risk'. Children whose disability or medical condition require very specialist assistance or constant one-to-one supervision are more likely to attend a 'special' pre-school/school or hospital school than to be enrolled in the six types of provision included in the research.

In order to maximise the likelihood of identifying the effects of individual centres and also the effects of various types of provision, the EPPE sample was stratified by type of centre (playgroups, local authority day nurseries, private day nurseries, nursery schools, nursery classes and fully integrated centres) and geographical location. Six English local authorities were chosen strategically to participate in the research. These were selected to cover provision in urban, inner city, suburban and rural areas and communities representing a range of ethnic diversity and social disadvantage.

With regard to EYTSEN findings on the relationship between early child characteristics, family environment and pre-school experience with the development of special educational needs the findings are likely to be generalisable. This view of EYTSEN results is supported by the close correspondence with data from the main EPPE project results and those of longitudinal studies (such as the National Child Development Study and the Child Health and Education Study). The slight over-representation of children from disadvantaged areas in the EPPE sample enabled the EYTSEN research to study a larger sample of young children at risk for developing SEN in pre-school. One consequence is that the rates of SEN represented in EYTSEN may have slightly overestimated the rates in the 'general' population of children at age 3 plus years. However, the data for 6 year olds on the proportions with SEN in EYTSEN is broadly in line with national

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<sup>2</sup> Intergated/combined centres are those which fully combine education and care, hereafter referred to as integrated centres.



statistics for primary age pupils. This suggests that any overestimation of SEN within EYTSEN is likely to be small.

Table 1 gives the distribution of the sample by pre-school type. It should be noted that the original EPPE design over-sampled areas with ethnic diversity and above national average proportions of low socio-economic status (SES) families. This was to ensure that sufficient numbers of children from a variety of backgrounds were studied. At entry to pre-school the sample had significantly more low attaining children relative to national norms, but by primary school entry the sample's attainment profile was more broadly representative of national patterns.

**Table 1 Distribution of the Sample by Type of Provision**

|                            | Centres    |             | Number of Children                     |                         |                                  |
|----------------------------|------------|-------------|--|-------------------------|----------------------------------|
|                            | n          | n*          | Mean number of children in each centre | Standard deviation (sd) | Range of children in each centre |
| <b>Nursery class</b>       | <b>25</b>  | <b>588</b>  | <b>23.52</b>                           | <b>3.14</b>             | <b>13-28</b>                     |
| <b>Playgroup</b>           | <b>34</b>  | <b>609</b>  | <b>17.91</b>                           | <b>4.65</b>             | <b>10-28</b>                     |
| <b>Private day nursery</b> | <b>31</b>  | <b>516</b>  | <b>16.65</b>                           | <b>5.14</b>             | <b>6-27</b>                      |
| <b>LA day care</b>         | <b>24</b>  | <b>433</b>  | <b>18.04</b>                           | <b>5.01</b>             | <b>10-28</b>                     |
| <b>Nursery school</b>      | <b>20</b>  | <b>519</b>  | <b>25.95</b>                           | <b>2.37</b>             | <b>19-30</b>                     |
| <b>Integrated centre</b>   | <b>7</b>   | <b>192</b>  | <b>27.43</b>                           | <b>3.55</b>             | <b>25-35</b>                     |
| <b>All</b>                 | <b>141</b> | <b>2857</b> | <b>20.26</b>                           | <b>5.66</b>             | <b>6-35</b>                      |

\*based on children tracked from entry to pre-school to entry to primary school

In addition to child assessments, parental interviews conducted when children entered the study were used to collect detailed information about childcare history and health, and characteristics of children, their families and home environments. A follow up parental questionnaire was used to collect additional details from parents when the children were in school, particularly in relation to SEN. Thus a range of sources of information were available to explore young children's cognitive attainment and progress and their social behavioural development, and to explore SEN.

Interviews with centre managers of the pre-school settings attended by children provided details about pre-school settings including provision for SEN. Observations concerning aspects of centre 'quality', and measures of the environment experienced by children were made by trained researchers. The distribution of children in the sample identified as 'at risk' of SEN between different types of pre-school settings has been examined. In addition, the extent of variation in provision made for SEN between different centres and type of pre-school setting has been investigated.

The EYTSEN study analysed these different sources of information and the links between them with a view to informing policy and practice related to the characteristics of young children 'at risk' of SEN and pre-school centre practices associated with changes in risk status. In addition information about the identification of children at primary school (from teacher reports), the provision made and parents' perceptions of needs was examined to establish the relationship between pre-school experiences and the incidence of SEN.

The longitudinal nature of the data allowed the EYTSEN research to investigate possible SEN for the same group of children over three time points (at entry to pre-school, at entry to primary school and at the end of Year 1). The main pre-school sample of children was recruited to the project at age 3 years plus. An additional sample of over 300 'home' children who had not

attended a pre-school centre was recruited at entry to primary school<sup>4</sup>. The inclusion of a 'home' sample allows the study to establish whether children who had not attended a pre-school centre showed poorer cognitive or social behavioural development when they started primary school. Following children to the end of Year 1 (age 6 years+), it has been possible to monitor those 'at risk' of SEN and those identified by teachers as showing SEN and the relationship with pre-school experience, or lack of it.

Table 2 compares the characteristics of children in the main pre-school sample with those of the home group at entry to primary school. It can be seen that the home group differ in a number of aspects, generally including proportionately more children from low SES and minority ethnic groups. The relationships between such characteristics and the risk of SEN are explored in detail in EYTSEN Technical Paper 2.

**Table 2 The Characteristics of Home Children Compared with Children who attended a Pre-school Centre**

|   |                        | Children from target pre-schools centres |      | Home children (no pre-school) |      |
|---|------------------------|--|------|-------------------------------|------|
|   |                        | n  | %    | n                             | %    |
| <b>Gender:</b>                            | <b>male</b>            | 1489                                     | 52.1 | 146                           | 46.5 |
|   | <b>female</b>          | 1368                                     | 47.9 | 168                           | 53.5 |
| <b>Ethnicity*</b>                         | <b>White UK</b>        | 2127                                     | 74.5 | 168                           | 53.5 |
|   | <b>White European</b>  | 118                                      | 4.1  | 4                             | 1.3  |
|   | <b>Black Caribbean</b> | 116                                      | 4.1  | 0                             | 0    |
|   | <b>Black African</b>   | 64                                       | 2.2  | 2                             | 0.6  |
|   | <b>Black other</b>     | 22                                       | 0.8  | 0                             | 0    |
|   | <b>Indian</b>          | 55                                       | 1.9  | 12                            | 3.8  |
|   | <b>Pakistani</b>       | 75                                       | 2.6  | 102                           | 32.5 |
|   | <b>Bangladeshi</b>     | 25                                       | 0.9  | 15                            | 4.8  |
|   | <b>Chinese</b>         | 5  | 0.2  | 0                             | 0    |
|   | <b>Other</b>           | 62                                       | 2.2  | 4                             | 1.2  |
|   | <b>Mixed heritage</b>  | 185                                      | 6.5  | 7                             | 2.2  |
| <b>English as a Second Language</b>       |                        | 249                                      | 8.7  | 118                           | 38.2 |
| <b>Receiving free school meals</b>        |                        | 598                                      | 22.5 | 103                           | 33.9 |
| <b>3 or more siblings</b>                 |                        | 374                                      | 13.4 | 109                           | 39.5 |
| <b>Mother has no formal qualification</b> |                        | 501                                      | 18.1 | 146                           | 57.0 |
| <b>Area</b>                               | <b>East Anglia</b>     | 559                                      | 19.6 | 91                            | 29.0 |
|   | <b>Shire Counties</b>  | 594                                      | 20.8 | 10                            | 3.2  |
|   | <b>Inner London</b>    | 656                                      | 23.0 | 11                            | 3.5  |
|   | <b>North-east</b>      | 503                                      | 17.6 | 75                            | 23.9 |
|   | <b>Midlands</b>        | 545                                      | 19.1 | 127                           | 40.4 |

\* 'not known' excluded therefore valid percentages shown.

Special Educational Needs has been defined by the DfES as follows:

*"Children have special educational needs if they have a learning difficulty which calls for special educational provision to be made for them.*

<sup>4</sup> None or minimal pre-school experience i.e. under 10 weeks at 2 or fewer sessions per week i.e. fewer than 50 sessions.

*Children have a learning difficulty if they:*

- a) *have more significant delay in learning than children of the same age*
- b) *have a disability which prevents or hinders them from making use of educational facilities generally provided for children of the same age in schools within the area of the local education authority*
- c) *are under compulsory school age and fall within the definitions a) or b) above, or would do so if special educational provision was not made for them.*

*Children must not be regarded as having a learning difficulty solely because the language or form of language of their home is different from the language in which they will be taught.” (DfES 2001, SEN Code of Practice 2001, p. 6)*

The Code of Practice, while laying emphasis on cognitive attainment, also considers the child’s social and behavioural development. A child may receive a statement of SEN if their behaviour is such that it affects their attainment potential. The Code of Practice (2001) stresses the benefits of early identification of needs.

The EYTSEN project examines the concept of special educational needs within a framework of potential risk, during the pre-school period, rather than attempting to identify a fixed cognitive or social/behavioural problem. Both cognitive and social/behavioural measures of young children’s development are considered relevant. The project explores the relationships between the two domains and acknowledges the need to look at multiple outcomes within the education and care system and their association with different child, parent and family characteristics, particularly the impact of multiple disadvantage and the home learning environment. In addition, it investigates the nature and quality of pre-school experiences and their relationship with children’s subsequent attainments and development at primary school, the identification of SEN at school and whether children identified at ‘at risk’ in pre-school are more likely to be reported as having an SEN. It also examines parents’ perceptions and experiences of SEN.

### **The definition of ‘at risk’ status**

Developing a simple but robust definition of children who may be considered to be most ‘at risk’ of showing some form of SEN is an important component of the EYTSEN study. Several measures were used to explore the range of children’s cognitive and social behavioural development because it is recognised that individual children’s attainments can vary in different areas of learning and that, particularly at school, low attainment in specific areas of the curriculum may require additional forms of learning support. Aspects of both cognitive and social behavioural development were addressed.

The following measures were used to identify those children in the EPPE sample who were ‘at risk’ of SEN at three different time points.

- **Cognitive attainment**

#### *At entry to pre-school study (age 3 years plus)*

The British Abilities Scales (BAS) were used to provide a measure of General Cognitive Ability (GCA) that covered both verbal and non-verbal skills. The assessments were administered to children on a one-to-one basis by trained researchers.

#### *At entry to primary school (age rising 5 years):*

GCA scores derived from the BAS

Attainment in pre-reading (covering phonological awareness and letter recognition) and early number concepts (BAS) was assessed on a one-to-one basis by trained researchers.

#### *End of Year 1:*

Standardised tests in reading and maths (NFER) were administered by class teachers

**Identifying children ‘at risk’ of SEN in terms of cognitive development:** children whose

score on any of the above measures was 1 standard deviation below the **national** average score were said to be 'at risk' of SEN in terms of their cognitive development. For example, at entry to pre-school a third of the children in the sample scored below the national average on the GCA scores.

**Identifying children 'at strong risk' of SEN in terms of cognitive development:** the average GCA score for the sample was lower than the national average, reflecting the higher proportion of children drawn from disadvantaged areas and types of provision. Those children whose GCA score was 1 standard deviation below the **sample average** were therefore said to be 'at strong risk' of SEN in terms of their cognitive development.

- **Social behavioural development**

*At entry to pre-school:*

Scores on Adaptive Social Behavioural Inventory (ASBI) for peer sociability and anti-social/worried/upset behaviour. Assessments of individual children were by pre-school staff who were familiar with the child.

*At entry to primary school:*

Scores on an extended version of ASBI for Peer sociability and Anti-social/worried/upset behaviour. Assessments of individual children were made by class teachers.

*End of Year 1:*

Scores on Goodman 'Strengths & Weaknesses' instrument for Conduct problems, Emotional problems and Peer problems. Assessments of individual children were made by class teachers.

**Identifying children at risk for social behavioural measures:** For social behavioural development during the pre-school period, EYTSEN focused on two important areas – Peer sociability and Anti-social/worried upset behaviour derived from ASBI ratings (see EPPE Technical Paper 7 for details of the full range of social behaviours). Again, those children whose scores on these measures fell 1 standard deviation below the mean for the EPPE sample were classified as 'at risk'. No national figures on social behaviour are available for the ASBI.

The relationships between the identification of children who may be seen as 'at risk' on cognitive measures and those 'at risk' for social behaviour were explored at each time point. In addition, the characteristics of 'at risk' children in terms of key child, parent and home environment variables were compared with the whole sample. An index of multiple disadvantage was created (based on child, family and home environment factors showing a statistically significant link with low attainment). The characteristics of those 'at risk' were contrasted to those of children not identified as 'at risk'.

Each of the following sections explores the key findings and implications from each of the research aims. The final section summarises the main findings from the research. Further details are included in the Institute of Education's publications: EYTSEN Technical Paper 1 (pre-school period), Paper 2 (Primary school) and Paper 3 (parents' perspectives on SEN) available from the EPPE office (0207 612 6219). The research is also summarised in the DfES Research Brief available from [www.dfes.gov.uk/research](http://www.dfes.gov.uk/research)

## **Section 1: The impact of pre-school settings on the progress and development of children ‘at risk’ of SEN over the pre-school period and in transition to school until the end of Key Stage 1**

### **The impact of pre-school**

Four indicators relevant to the impact of pre-school on young children were explored:

- a) Attending a pre-school centre – Do children who have not attended a pre-school centre differ in terms of cognitive attainments and social behavioural development when they enter primary school from children who had attended a pre-school, taking account of any differences in child, family and home environment characteristics? For the EYTSen study it was of particular interest to establish whether proportionately more children identified as ‘at risk’ status for SEN were found in the ‘home’ sample.
- b) Reduction of risk - Does attendance at a pre-school centre reduce the proportion of children classified as ‘at risk’ in relation to national norms?
- c) Early start - Is an earlier start at pre-school related to higher cognitive scores or better social behavioural outcomes, taking other factors into account?
- d) ‘Duration’ (duration in months over which a child attended target centre) Does the amount of time children attend a pre-school centre relate to greater cognitive progress or better social behavioural development over the pre-school period?

The results of analyses of differences between the pre-school and the ‘home’ sample indicate that:

#### **a). Attending a pre-school centre**

- ‘Home’ children (those with little or no experience at a pre-school setting) were significantly more likely to be identified by the research as ‘at risk’ for all measures of cognitive development at entry to primary school and more were also at risk of poor social behavioural development in terms of Peer Sociability. For example, over 51% of home children were identified as ‘at risk’ in relation to national norms for cognitive attainment (GCA), when they started school, compared with only around 21% of children who had attended pre-school.
- Home children were more likely to be multiply disadvantaged than those who had attended pre-school. For example, a higher proportion received free school meals, were EAL (English as an additional language), had mothers who were not working and who had no educational qualifications. Nonetheless, taking account of the impact of multiple disadvantage, ‘home’ children were still more likely to show significantly lower levels of attainment and problems related to Peer sociability when they started school. These differences remained evident at the end of Year 1. Overall, around 44% of ‘home’ children were ‘at risk’ in relation to national norms for reading, and 37% for mathematics. In addition, home children were significantly more likely to be identified from teacher assessments as having Emotional and Peer problems at this age, although this was not the case for Conduct problems.
- More of the ‘home’ than the pre-school sample were identified as having some form of SEN at primary school during Key Stage 1. Teachers reported that over 4 in 10 (42%) ‘home’ children had a SEN, compared with around a quarter of children who had attended pre-school.

Analyses of the pre-school sample’s attainment and development over the pre-school period indicate:

#### **b). Reduction of risk status**

- One-third of the pre-school sample showed low cognitive attainment at entry to the target pre-school and can be considered ‘at risk’ of SEN in terms of national comparisons. This is almost double the proportion of children with low attainment in national norms (16-17%), and may be a reflection of the over-representation in the sample of children from more deprived areas. By the start of primary school the proportion of children with low cognitive attainment identified as ‘at risk’ in national

comparisons had reduced to one in five (21%). This provides an indication of substantial improvement for low attainers and suggests a positive impact of pre-school on young children's cognitive development.

- By the end of Year 1 in primary school the percentage of children who had attended pre-school and who were 'at risk' in national terms was just under 23% for reading, and in line with national norms (around 16%) for mathematics. This suggests that the positive impact of pre-school remains evident until at least the end of Year 1.
- The absence of pre-school experience can be seen as an additional factor increasing the likelihood that a child will be 'at risk' for cognitive and certain social behavioural outcomes, this is particularly striking for the most vulnerable groups of young children who experience multiple disadvantage.

#### **c) *Early start***

- The EYTSN analyses indicate that children who made an earlier start (below 3 years) at pre-school had higher cognitive attainments than other children at age 3+, even when controlling for the impact of child, family and home environment influences. This cognitive advantage remains evident at entry to primary school. On average children identified as 'at risk' in the cognitive assessments at entry to pre-school were likely to have started pre-school at a later age. However, a very early start (i.e. below 2 years) at pre-school was weakly associated with increased risk for Anti-social/worried/upset behaviour. Early start across the pre-school period (2+ years) was not associated with increased risk for Peer sociability in contrast.

#### **d) *'Duration'***

- Analyses of children's progress for the pre-school sample indicate that the experience of pre-school over a longer period of time (in months from entry to the study to entry to primary school) has a significant positive impact on cognitive attainment (see EPPE Technical Paper 8a) and thus may help reduce the risk of SEN.

### **Overlap between different definitions of 'at risk' status**

- There was an overlap between the identification of children in terms of 'strong cognitive risk' on GCA at entry to primary school and 'at risk' status for Pre-reading (children who have particular difficulties with early reading activities, such as letter recognition and phonological awareness). Nearly half of those identified at strong cognitive risk for GCA were also identified for Pre-reading risk. This represents just under 8% of the pre-school sample. For Early Number Concepts the overlap was greater, 69% identified as 'at strong cognitive risk' on the GCA were also identified as 'at risk' for Early Number Concepts. This group represents 11% of the pre-school sample.
- Children found to be 'at risk' on more than one area of cognitive attainment may be particularly vulnerable when they start primary school because of general learning difficulties or cognitive delay.
- Although there is some overlap between the cognitive and social/behavioural categories, the dimensions are fairly distinct and do not comprise the same group of children at entry to target pre-school. There is greater overlap between 'at risk' for Peer sociability than for Anti-social/worried/upset behaviour - those children 'at risk' for cognitive development are more likely to be also 'at risk' in terms of Peer sociability than Anti-social/worried/upset behaviour. Overall a quarter of children at 'strong cognitive risk' at entry to primary school were also found to be 'at risk' for Anti-social/worried/upset. Around a third of children who were 'at strong cognitive risk' were also categorised as 'at risk' for Peer sociability. Children who show both cognitive and social behavioural difficulties may benefit from a variety of additional types of support when they begin primary school.

- Around 8% of the pre-school sample of children who were identified as 'at risk' on a behavioural measure were also classified as at 'strong cognitive risk' at entry to pre-school. The proportion was very similar when children start primary school (9%). This suggests that the degree of overlap between the two categories of risk remains fairly constant across the ages measured.
- In Year 1 (age 6 years plus) around 7% of children were identified as 'at risk' for both low reading scores and low mathematics (in all around 47% of children classified as 'at risk' for reading were also 'at risk' for mathematics).
- At the end of Year 1, comparisons with national norms were possible for the three Goodman factors related to social behaviour (Emotional Symptoms, Conduct Problems and Peer Problems). The results show that the proportions of the pre-school sample identified as showing difficulties were in line with the national pattern for primary age pupils.
- The link between different social behavioural dimensions was stronger for Conduct problems and Peer sociability problems in Year 1. Just over a third of children 'at risk' for Conduct problems were also 'at risk' for Peer sociability (this represents 4.4% of the total child sample).
- There was some overlap between cognitive risk and social behavioural risk in Year 1, particularly for Conduct problems. In all 28% of children identified as 'at risk' for mathematics and 26% of those for reading were also at risk for Conduct problems. This represents between 3-4% of the total sample.

The EYTSN research shows that the proportions of young children at risk of SEN vary for different measures. One policy implication of this may be that sensitive assessment of individual children at entry to pre-school and at entry to primary school may help to identify those showing SEN or those 'at risk' of developing SEN in either cognitive or social behavioural domains. Sensitive assessment/screening at entry provides the opportunity to provide additional support and intervention that may help improve such children's educational outcomes in the longer term.

## **Section 2: The characteristics of those children identified in different 'at risk' categories for SEN**

### **Child, parent and home environment characteristics**

Detailed information about a wide range of child, parent and home environment characteristics of children at entry to pre-school (age 3+ years) was collected from parent interviews. The EYTSEN project sought to explore the relationships between these measures and children's 'at risk' classification at different time points. Research has consistently indicated that there are strong associations between certain factors (such as low SES, low income, mother's educational level, etc.) and poor cognitive attainment at school (for example, see Essen & Wedge, 1982, Mortimore & Blackstone 1982, Mortimore et al, 1988; Parsons & Bynner, 1998) The concept of the 'cycle of disadvantage' has been used to describe such associations and patterns of continuing disparities in attainment levels between different social groups. However, relatively few large-scale research studies have explored these associations in relation to concepts of 'at risk' status and definitions of SEN at different ages, and changes in 'at risk' status over time. The EYTSEN research has sought to explore associations with particular factors and developed an index of multiple disadvantage, to establish whether this shows good predictive validity in terms of children classified as having 'at risk' status. Appendix 3 shows the multiple disadvantage index used in the EYTSEN research.

Many factors are inter-related (e.g. the mother's qualification levels and employment status, father's SES, family size, premature birth, marital status, one parent family etc.). Therefore, it is important not to attribute causality to individual factors. For example, more children whose mothers were not working were identified as being 'at risk', but the link appears to reflect the higher qualification levels and smaller family size associated with mothers in employment. Likewise, the higher incidence of 'at risk' status amongst children whose mothers reported they were 'never married, single parent', is also likely to reflect the impact of other factors, including younger maternal age at giving birth, lower birth weight, lower qualification levels, and reduced employment levels for this group.

- Overall, child and parental factors (listed in the Glossary) were found to be more strongly associated with children's cognitive outcomes than with their social/behavioural development. Within the social/behavioural risk categories, Peer sociability showed slightly more association with these factors than Anti-social/worried/upset at age 3 years plus
- At entry to pre-school children from minority ethnic groups and boys were slightly over-represented in most of the 'at risk' categories for SEN. The research suggests that the influence of gender on cognitive attainment is independent of the impact of other child or family characteristics. The gender relationship (more boys 'at risk' and identified as having SEN) remain evident at entry to primary school and in Year 1.
- Pakistani and Bangladeshi children were more likely to be identified as 'at risk' for the cognitive and Peer sociability categories (including non-verbal assessments which are less dependent on language fluency), and the Black Caribbean children in the Anti-social/worried/upset category. There may be many reasons why these groups are over-represented in the 'at risk' categories, including institutional factors but it was not within the scope of this study to look at these. In particular, it should be noted that young children from minority ethnic backgrounds were more likely have child, parent and family characteristics associated with multiple disadvantage (discussed below).
- Children who did not have English as their first language (EAL children), showed a higher incidence of identification of cognitive 'at risk' status at entry to pre-school. This was most noted for the 'strong cognitive risk' measure, which includes a verbal component, but was less marked for non-verbal measures. At later ages the association of EAL with children's cognitive 'at risk' status for Pre-reading and Early Number was much weaker for the main pre-school sample. This suggests that EAL children who attend pre-school tend to catch up



as they get older (probably as fluency in English improves). Given that EAL children were over-represented in the 'home' group who did not attend pre-school, this finding has implications for practice because such children may have had fewer opportunities to interact with a wider circle of adults and peers and thus may find it more difficult to adjust to primary school. Increasing the uptake of pre-school places amongst EAL groups may help improve the educational outcomes of such children in primary school.

- Children identified as 'at risk' for cognitive needs were more likely to be from a large family, to be of low birth weight or premature, to have mothers with no qualifications, and to be of lower socio-economic status. These factors are themselves associated. Mother's qualification levels showed a particular link with 'at risk' status for all cognitive measures, with children whose mothers reported they had no qualifications most likely to be identified as 'at risk', and those with degrees the least likely to be so categorised. These findings are in line with previous research showing the link between socio-economic factors and attainment at school (Mortimore & Blackstone 1982; Parsons & Bynner, 1998).
- The EYTSN research indicates that multiple disadvantage is strongly associated with low cognitive scores amongst young children, at age 3 years plus. Children scoring highly in terms of multiple disadvantage were much more likely to be identified in the strong cognitive risk category than others.
- Children identified as 'at risk' for social/behavioural needs were a less distinct group in terms of child, parent and home environment characteristics at all ages. However, those identified as 'at risk' for Peer sociability differed in a number of respects at entry to pre-school being more likely to be found amongst those with low birth weight or premature, a mother with no qualifications, or a mother or father not employed.
- Information about parents' home activities with their pre-school child was collected at interview. A variety of measures showed a significant positive link with cognitive attainment and to a lesser extent, with social behavioural measures (for example, frequency parents reported reading to child, teaching songs and nursery rhymes, painting and drawing, playing with letters and numbers, visiting the library, teaching alphabet, teaching numbers). A Home Learning Environment (HLE) index was created which showed a strong relationship with cognitive attainment at entry to pre-school, and at primary school entry. The Home Learning Environment also showed a link with greater cognitive progress over the pre-school period (EPPE Technical Paper 8a).
- Home Learning Environment was only moderately associated with mother's educational level or family SES ( $r=0.3$ ), indicating that this measure is not subsumed by other indicators of disadvantage. The HLE index was strongly associated with 'at risk' status in all assessments, at pre-school entry and at start of primary school. Those who scored poorly on the HLE scale (i.e. those who reported low levels of home learning activities) were over-represented among those identified as 'at strong cognitive risk' at entry to primary school. Conversely, those who scored highly on the HLE scale were far less likely to be classed as 'at risk' in cognitive terms. The results suggest that policies which improve parent education levels and encourage active parental involvement in their child's learning at home could play a positive role in helping to combat the impact of disadvantage and reduce the risk of SEN for children in the most vulnerable groups.
- The link between the Home Learning Environment index and children's social behaviour was weaker at all time points and only significant for Peer sociability. It was found that children with poor scores in terms of HLE were more likely to be categorised as 'at risk' for poor Peer sociability.
- The 'home' sample tended to have significantly lower scores on the HLE index, and as such, 'home' children may be especially vulnerable to SEN due to missing out on pre-school

experience and having fewer learning opportunities at home. Again this has important implications for policy, increasing the availability and quality of pre-school provision and the uptake by vulnerable groups is likely to improve cognitive development and Peer sociability and thus help to reduce the incidence of SEN. In addition, for children whose families do not use pre-school provision policies such as *Sure Start* which provide programmes for parents to help improve the quality of the home learning environment may benefit children most 'at risk' of developing SEN and facilitate a better start to school.

- Further analyses were conducted for the EYTSEN study to investigate the incidence of *multiple disadvantage* and its association with 'at risk' status. An index of multiple disadvantage was created based on ten indicators in total (3 child, 6 parent and one related to home learning environment). All indicators were chosen because they showed a statistically significant association when tested individually with 'at risk' status. Where indicators were closely related (e.g. ethnicity and first language) only the most significant was selected (See Appendix 3).
- In total 24% of the sample had no factors related to disadvantage at entry to pre-school, while 21% experienced 3-4 factors. Under 6% experienced a very high level of multiple disadvantage on this index (5 plus factors).

**Table 3 Multiple disadvantage and percentage of children identified at cognitive risk at pre-school entry**

| Number of factors | All children |      | Cognitive risk<br>% of the sample | Strong cognitive risk<br>% of the sample |
|-------------------|--------------|------|-----------------------------------|--|
|                   | n            | %    |                                   |  |
| 0                 | 637          | 23.5 | 11.3                              | 7.0                                      |
| 1-2               | 1345         | 49.6 | 43.9                              | 38.1                                     |
| 3-4               | 575          | 21.3 | 34.1                              | 40.0                                     |
| 5+                | 151          | 5.5  | 10.7                              | 15.0                                     |

- Children experiencing multiple disadvantage (classed as 3 or more factors) were found to be significantly more likely to be identified in all the cognitive risk categories at entry to pre-school. For example, a quarter of the sample experienced no disadvantage factors and only 7% of these children were classified in the 'strong cognitive risk' category at entry to preschool. However, over half (55%) of those who were in the 'strong cognitive risk' category at entry to pre-school had experienced 3 or more disadvantage factors. The impact of multiple disadvantage on cognitive development continued through to primary school entry although less so for pre-reading scores than early number concepts scores.
- Proportionately more 'home' children had higher scores in terms of the multiple disadvantage index. However, even controlling for this difference, 'home' children were more likely to be identified as 'at risk' when they entered primary school for cognitive measures and Peer sociability. This indicates that pre-school can act as a protective factor against being 'at risk' of developing SEN for those children from multiply disadvantaged backgrounds.
- The relationships between multiple disadvantage and 'at risk' status for social behavioural outcomes were weaker than those found for cognitive measures. Nonetheless, multiple disadvantage was found to be predictive for 'at risk' status on Peer sociability at entry to primary school.
- The relationship between different child, family and home environment factors and 'at risk' status in reading and mathematics at the end of Year 1 remained broadly stable, although the proportion of EAL children showing the lowest levels of attainment amongst those who had attended pre-school had fallen. This again suggests that as children move through primary school the impact of EAL on cognitive outcomes is reduced.

### **Section 3: The distribution of the ‘at risk’ groups of children across different types of pre-school provider**

The EYTSEN study examined the distribution of ‘at risk’ children in the pre-school sample according to type of pre-school provider. Given the differences in geographical location and admissions policies between different providers we would not expect ‘at risk’ children to be equally distributed. The EYTSEN study sought to establish whether certain types of provider are more likely than others to be used by the parents of young children who may be seen as ‘at risk’ in cognitive or social behavioural terms.

- Private day nurseries are less likely to serve children at cognitive risk, only 21% of our sample in this form of provision were classified as ‘at risk’ in terms of national norms for GCA at entry to pre-school, compared with a third of the total sample. This reflects differences in the communities served (private day nurseries tend to serve more affluent families due to the paid for nature of provision) By contrast, the majority of children in integrated centres were identified as ‘at risk’ (58%). Integrated centres tend to be located in highly disadvantaged areas and provision is intended to support vulnerable families and children. Fairly substantial proportions of children from local authority day nurseries (42%) and playgroups (41%) were also identified as ‘at risk’ in relation to national norms for cognitive attainment at age 3 years plus.
- For the more stringent *strong cognitive risk* measure, 40% of the sample of children in integrated centres was classified as ‘at risk’ at entry to pre-school. The figures were much lower for other forms of provision (around 20% for nursery schools and local authority day nurseries, 15% for nursery classes, 18% for playgroups and under 7% for private day nurseries).
- For social behavioural measures more children in integrated centres were classified as ‘at risk’ for Peer sociability (26%), followed by nursery classes (20%) and playgroups (just under 20%). Fewer children in private day nurseries (11%) or local authority day nurseries (14%) were classified as ‘at risk’ for Peer sociability at entry to the pre-school study.
- For the Anti-social/worried/upset measure significantly more children in local authority day nurseries were classified as ‘at risk’ at entry to pre-school (29%) followed by integrated centres (22%). This is likely to be related to the higher incidence of disadvantage amongst such groups and also their earlier start at pre-school. A weak but significant link between an early start at pre-school and increased Anti social/worried/upset behaviour has been noted, although an earlier start was also associated with significantly better cognitive attainment (see EPPE Technical Papers 7, 8a and 8b for further discussion).

#### **Children with SEN at school**

The information above details the distribution of children who may be ‘at risk’ as identified by the EPPE assessment. In addition to this, information was obtained from class teachers on children’s SEN status. The information below details the kinds of need identified, and provision made, to support children who were identified as SEN by class teachers.

EYTSEN explored the relationship between ‘at risk’ status and SEN identification by school, and whether the ‘home’ group who had not attended pre-school were more likely to have been identified as having SEN at school.

- In all just under 3 in 10 children were identified as having had or currently having SEN at school (27%), this is somewhat higher than in the Warnock (DES 1978) definition, at 1 in 5 but is broadly in line with national figures (DfES 2002) for primary age pupils.
- Far more of the ‘home’ group had been recognised as showing SEN (42.3%) than of the

sample who had attended a pre-school centre (25.5%). This is in accord with findings at entry to primary school which revealed that significantly more of the 'home' group were classified as 'at risk' of SEN based on low scores in a range of cognitive assessments. These findings provide further evidence that children who miss out on pre-school are more likely to experience learning difficulties and can be viewed as particularly vulnerable in terms of showing SEN at school.

- Just over 2% of all children had a statement of SEN this is only slightly higher than the national proportion of children with statements in primary schools (approx. 1.6%) (DfES 2002). While only 2% of the main pre-school sample were reported to have a statement the incidence was higher (4%) for the home group.
- Most children identified with SEN received extra help to support their needs in their current school. However, a small number (under 1 in a 100) attended a special class outside school.. Small group and individual support were the most common forms of provision made (reported for just under 22%). Such within school provision could involve a learning support assistant. Around 1 in 10 pupils received support through a special class in school, and around 7% were taught by a special teacher for some of the time. Proportionately more 'home' children attended a special class or were taught by a special teacher for some of the time.

For cognitive development there was a significant overlap between those that had been identified through the EYTSEN research as being 'at risk' and those who were formally identified as having SEN at primary school. Over two thirds (67%) of children classified as 'at risk' for reading had been identified as *currently* showing a SEN, and over 72% had been recognised or given special help at some point in primary school. The relationship for mathematics was only slightly weaker (63% of those 'at risk' for mathematics were identified as showing a SEN currently, and nearly 70% had been recognised or received special help at some point in primary school.) Children identified by teachers showed particularly low scores in reading and mathematics at the end of Year 1. This suggests that schools tend to identify children with more extreme difficulties (very low scores) below the EYTSEN 'at risk' cut off point (1 sd below the sample mean). Also there appear to be some children with poor cognitive attainments whose needs may not be identified at school and who do not receive any extra support during Key Stage 1.

For social behavioural the overlap between the EYTSEN research definition and identification at school was less marked. A little over a half of children identified as 'at risk' for one of the three social factors studied in Year 1 were reported to be recognised as having SEN (52% for those 'at risk' for Emotional symptoms, 55% for those 'at risk' for Conduct problems and 55% for those 'at risk' for Peer problems).

The characteristics of children identified as having SEN at school were compared with those of children not identified. The results are generally in accord with the findings described earlier on 'at risk' groups for cognitive measures.

More children reported by class teachers to have a SEN at school were boys (61% compared with 52% of all children), EAL (12.8% of SEN compared with 7.5% of all children) and had mothers who had no qualifications (28% compared with under 18% for all children). Children reported to have SEN at primary school had significantly higher scores on the multiple disadvantage index (over 41 % scored on 3 or more factors compared with under 25% of all children). They also tended to have lower scores on the home learning environment index (mean score 21.3 compared with 23.6 for all children).

## Section 4: Patterns of progress and changes in cognitive and social/behavioural development of the various ‘at risk’ groups across the pre-school period and to the end of KS1.

### Movement in and out of ‘at risk’ status

The EYTSEN study examined whether children identified as ‘at risk’ at entry to target pre-school were also identified as ‘at risk’ when they started primary school. Due to the use of ‘cut offs’ to identify risk it should be noted that some children might show only small changes but move from just below to just above the cut off (or vice versa) between different assessment points. In view of this, any change in an individual child’s ‘at risk’ status must be interpreted with caution. Where change in ‘at risk’ status forms a consistent pattern for particular groups of children, however, we can be more confident in interpretation.

- Over three quarters (76%) of children were not identified as at ‘strong cognitive risk’ at entry to target pre-school, nor at the start of primary school. These may be seen as at relatively low risk of showing SEN related to learning/attainment. By contrast, just under one in ten children were identified as at strong cognitive risk on both occasions. These children may be viewed as at greater risk of showing SEN in school in terms of learning/attainment difficulties. Around 8% moved out of risk and 6% into the ‘at risk’ group over the pre-school period.
- For social behavioural development 69% were not identified as ‘at risk’ for Peer sociability at either time point, whereas nearly 7% were identified as ‘at risk’ on both occasions. In all, 74% were not classified as ‘at risk’ for Anti-social/worried/upset at either point whereas nearly 6% were identified as ‘at risk’ both at entry to pre-school and at entry to primary school.

**Table 4 Movement in and out of ‘at risk’ status from pre-school entry to primary school entry for cognitive and social behavioural measures**

|                                  | Out of risk |     | Into risk |     | Never ‘at risk’ |      | Always ‘at risk’ |     |
|----------------------------------|-------------|-----|-----------|-----|-----------------|------|------------------|-----|
|                                  | %           | n   | %         | n   | %               | n    | %                | n   |
| <b>General Cognitive Ability</b> | 7.8         | 208 | 6.3       | 168 | 76.4            | 2046 | 9.6              | 256 |
| <b>Pre- reading</b>              | 10.5        | 281 | 10.2      | 272 | 72.7            | 1939 | 6.6              | 176 |
| <b>Early Number Concepts</b>     | 8.7         | 233 | 10.5      | 281 | 73.7            | 1971 | 7.0              | 188 |
| <b>Peer sociability</b>          | 13.2        | 338 | 10.9      | 279 | 68.9            | 1757 | 6.9              | 177 |
| <b>Anti-social/worried/upset</b> | 11.8        | 308 | 8.9       | 227 | 73.6            | 1882 | 5.7              | 146 |

It appears that around 10% of children may be seen as at high risk in terms of showing low cognitive attainment during the pre-school period and at school entry, while a rather smaller proportion is likely to show a continuing behaviour problem (6-7%). The identification and follow-up of such children at school entry may be necessary to ensure they make the best start at school (for more detailed discussion of the characteristics of these high risk groups see EYTSEN Technical Papers 1 and 2).

- When change in ‘at risk’ status during the first years of primary schooling is explored, around three quarters of children were not identified as ‘at risk’ either at entry to school or at the end of Year 1 for reading and a similar proportion for mathematics. Only a relatively small percentage was classified as at risk on both occasions. The proportion was somewhat higher for mathematics (7.9%) than reading (5.9%).
- Turning to behaviour by the end of Year 1, the greatest consistency was in the identification of children with Conduct disorders and earlier ‘at risk’ status for Anti social/worried/upset behaviour at the start of primary school. In all 6.4% of children were ‘at risk’ on both occasions, for Peer problems the figure was a little lower at 4.1%.

The extent of change in 'at risk' status for all outcomes points to the relatively fluid nature of potential SEN for many young children. Children identified on several occasions and or by different individuals are likely to be those who require most support and regular monitoring by pre-school and school staff.

### **Movement in and out of risk by pre-school type**

- Children who attended integrated centres and nursery school were more likely to move out of 'at risk' status in terms of the strong cognitive risk definition (based on GCA 1 sd below sample mean). Children from integrated centres were also much more likely to move out of 'at risk' status for Pre-reading, by the time they started primary school. Children from nursery schools were also more likely to move out of 'at risk' status for Early Number Concepts.
- By contrast, proportionately more children who attended nursery classes moved into 'at risk' status for GCA, Pre-reading and Early Number Concepts. Children who attended local authority day nurseries showed a greater likelihood of moving into 'at risk' status for Early Number concepts.
- Overall more children in all forms of provision tended to move out of than into 'at risk' status for Anti-social/worried/upset. For Peer sociability relatively more children in integrated centres, playgroups, and nursery classes moved out of, than into 'at risk' status.
- These results suggest that certain forms of pre-school provision may be of particular benefit to children aged 3 plus who are 'at risk' or more vulnerable in terms of low cognitive attainment and poor social behaviour. Integrated centres and nursery schools show the most positive outcomes for movement out of risk for several measures, especially for cognitive outcomes. Integrated centres, Nursery classes and playgroups show most positive movement for the social behavioural outcome Peer sociability. (EPPE Technical Papers 8a and b provide further information about the impact of pre-school type on young children's progress and development for all children, rather than a particular focus on those 'at risk').

It is worth noting that, of the six different types of provider studied, centres were not equally distributed among the regions in the research design, reflecting historic patterns of differences in provision. Some areas have a strong playgroup tradition whereas for others, local authority day nurseries or nursery schools were more common. Quality of provision varied significantly between individual centres and 'types' of providers. The links between quality and child outcomes are explored in section six.

## Section 5: Pre-school centres' policies and practice in relation to the early identification of SEN

Aspects of practice relevant to special educational needs and variations in reported policy or practice between different types of pre-school provider were investigated. In addition, EYTSEN explored the distribution of children in the sample identified as 'at risk' in cognitive or social behavioural measures at entry to pre-school, and whether 'at risk' children were more likely to attend certain types of pre-school provision. Such variations are likely to be highly relevant to policies designed to target those most 'at risk', or to promote early identification.

### Distribution of 'at risk' children by pre-school type

Over three-quarters of centre managers reported that they currently had children on roll with some type of 'special need.' The extent to which managers reported the presence of children with any special educational needs in their centres differed significantly across type of setting. Managers in the maintained sector (nursery classes, local authority day nurseries, nursery schools and integrated centre provision) reported higher incidences of having children with some type of special need (80+%). The rates of reporting were lower in private day nurseries (68%), and lowest of all in playgroups (53%). Case study data also suggests that some private day nurseries are less likely to enrol children with SEN (EPPE Technical Paper 10). The accuracy of centre managers' reports of SEN cannot be ascertained directly. However, the numbers and proportions of children in the study sample classified as 'at risk' of SEN was examined at the centre level and by type of provider illustrated below. Table 3 shows the numbers and percentages of children identified as 'at risk' for different measures at entry to pre-school.

**Table 3 Distribution of 'at risk' children across pre-school type at entry to pre-school**

| Entry to pre school | Cognitive risk |     | Strong cognitive risk |     | Peer sociability risk |     | Anti-social/Worried/Upset risk |     |
|---------------------|----------------|-----|-----------------------|-----|-----------------------|-----|--------------------------------|-----|
|                     | %              | n   | %                     | n   | %                     | n   | %                              | n   |
| Nursery Class       | 25.5           | 148 | 16.0                  | 93  | 20.3                  | 119 | 17.7                           | 104 |
| Playgroup           | 40.7           | 242 | 18.2                  | 108 | 19.5                  | 119 | 18.8                           | 114 |
| Private Day         | 21.2           | 109 | 6.8                   | 35  | 11.3                  | 58  | 19.4                           | 100 |
| Local Authority     | 42.0           | 177 | 21.1                  | 89  | 14.1                  | 61  | 28.8                           | 124 |
| Nursery schools     | 31.1           | 161 | 20.3                  | 105 | 18.7                  | 96  | 15.8                           | 81  |
| Combined Centres    | 58.0           | 109 | 39.9                  | 75  | 26.2                  | 49  | 22.0                           | 41  |

A number of children identified by the EYTSEN research as being 'at risk' of SEN were not recognised formally as having SEN at pre-school. There was no clear link between the proportion of 'at risk' children in a centre and the likelihood that managers reported they had any SEN children on roll. In particular, quite high proportions of 'at risk' children for cognitive attainment were found to attend playgroups, but only around half of playgroups reported they had any children with SEN on roll. This result suggests that understandings of what may constitute SEN in some settings vary and that poor cognitive development may not always be recognised as constituting a special educational need in some pre-school centres.

### Mechanisms for the identification of SEN

Most centre managers (91%) said that they had a system for identifying children with special educational needs but this varied across pre-school type. Centre managers from the whole of the maintained sector reported having systems for identifying children who had special educational needs. On the other hand, there were fewer private day nurseries (77%) and playgroups (82%) reporting a system. This suggests that some children 'at risk' of special educational needs may go unnoticed and miss the opportunity for early intervention. Staff in such centres in the voluntary sector may benefit from information and training about a range of identification systems for SEN appropriate for very small children.

In pre-school centres the three most frequently used identification systems were:

- Observation schedules (52.1% of centre managers reported using this method).
- Consulting professionals (reported by 43% of centre managers).
- Consulting parents (reported by 39% of centre managers).

Parental consultation highlights the role of pre-school settings in fostering 'partnerships' with parents. In view of the sensitivity of the label of 'special educational needs', pre-school centres need to consider how they can best retain parental co-operation, especially if some parents feel a sense of 'blame' for their child's difficulties. For some parents, their child's particular SEN may be apparent for the first time only when their child enrolls at pre-school. They may feel that discussions with the centre workers are intrusive or possibly critical of their style of parenting, family circumstances or dynamics. In order to make consultation valid, language and cultural diversity also needs to be respected. This has considerable implications for appropriate training of pre-school centre staff in working with parents.

The nursery schools, classes and integrated centres were more likely to report the use of the Code of Practice or a nominated person responsible for SEN (SENCO) than the voluntary sector. The most commonly reported strategies for supporting children with SEN were:

- Consulting other professionals for guidance  
This was much more likely to be used by integrated centres and local authority day care.
- Meeting with parents  
This was common across all pre-school types.
- Using Individual Education Plans or the Code of Practice  
This was more likely to be used in the maintained rather than the voluntary sector.



## **Section 6: The relationship between pre-school centre quality characteristics and the subsequent progress and development of different 'at risk' groups**

### **Measures of pre-school centre quality**

An important question for the EYTSEN research is whether higher quality pre-school provision helps to promote the cognitive and social behavioural development of young children. Different types of pre-school centre vary in terms of their quality characteristics. Pre-school quality was measured using three scales:

- Early Childhood Environment Rating Scale R (ECERS-R) which measures quality in terms of a range of aspects of provision including language and reasoning, social interactions etc.; and
- Early Childhood Environment Rating Scale Extension (ECERS-E) that measures quality in terms of provision of literacy, maths, science, environment and diversity.
- The Caregiver Interaction Scale (CIS or Arnett).

Integrated centres and nursery school provision had the highest average scores on pre-school environmental quality, while playgroups, private day nurseries and local authority day nurseries had the lowest average scores. Value added analyses of children's cognitive progress have shown that higher quality scores on the ECERS-E scale are associated with greater cognitive progress over the pre-school period for all children. Children from low socio-economic status backgrounds and boys were found to benefit particularly from higher quality provision as measured by this instrument. Quality measures from the main ECERS-R scale also showed a significant link with social behavioural development (see EPPE Technical Papers 8a and 8b for further details). In addition, information from observations of adult-child interactions showed a significant link with young children's cognitive progress and social behavioural development (see glossary for more details of the centre 'quality' measures).

The EYTSEN project investigated whether children who attended centres rated more highly in terms of quality provision were more likely to move out of 'at risk' status by the time they started primary school.

- Children who moved out of strong cognitive risk status generally attended higher quality provision than those who moved into 'at risk' status. The results for Pre-reading also indicated that children who moved out of 'at risk' status attended higher quality provision than those who moved into 'at risk' status by entry to primary school. For Early Number Concepts the patterns were similar, but only reached statistical significance for three of the Caregiver Interaction Scale (CIS) sub-scales, which assess quality of adult-child interactions.
- Higher quality pre-school provision was significantly associated with greater movement out of 'at risk' status for cognitive measures, whereas poorer quality is associated with more movement into 'at risk' status by entry to primary school.
- For social behavioural outcomes, no clear trends were found that suggest children moving in or out of 'at risk' status for Peer sociability or Anti-social/worried/upset attended centres which differed in terms of measures of centre quality.

It appears that higher pre-school centre quality has a positive role in promoting cognitive development for children who are at the lowest end of the attainment spectrum at entry to pre-school. High quality provision may be seen as an effective intervention that can help improve cognitive development and thus provide more vulnerable children with a better start at primary school. This is an important finding and suggests that policy makers and practitioners should

focus on developing ways to improve the quality of pre-school centres, particularly those which serve higher numbers of disadvantaged children who are at greater risk of SEN.

### **The relationship between quality and movement in an out of risk**

Centres varied in terms of their environmental quality as rated by trained observers using special observational instruments (EPPE Technical Paper 6). Overall, young children who attended higher quality provision tended to make more cognitive progress and show better social behaviour development during pre school. There is also evidence that children attending higher quality pre-school centres are more likely to move out of strong cognitive 'at risk' status by the time they start primary school.

### **Pre-school experience and children's attainment and social behaviour in Key Stage 1**

The longitudinal nature of the study allowed the follow up of children across Year 1. The EYTSEN research investigated whether the quality of pre-school setting attended continued to show a relationship with children's subsequent attainment and social behaviour measured at age 6 years plus (end of Year 1 in primary school).

- Children who attended higher quality centres showed higher reading attainment, after controlling for the impact of child, family and home environment characteristics. The relationship was significant for a range of quality measures including the overall ECERS-E and ECERS-R measures of centre quality and also for the literacy subscale (ECERS-E) and Positive relationships (CIS) scale. The ECERS-E literacy measure showed the strongest relationship.
- For mathematics, the quality measures were not statistically significant predictors of attainment at the end of Year 1, but the effectiveness of the pre-school setting in promoting children's progress in Early Number Concepts, in Pattern construction and in Verbal outcomes during the pre-school period were all related to higher mathematics attainment at the end of Year 1. Pre-school centres effectiveness in promoting young children's Early Number Concepts progress showed the strongest relationship with later mathematics attainment in year 1.
- Children who had attended pre-school centres which were more effective in promoting Peer sociability and Co-operation and conformity showed fewer Emotional symptoms in Year 1 of primary school (based on teacher assessments on the Goodman scale)
- For Conduct problems, children who had attended pre-school centres which were more effective in promoting all areas of social behavioural development were less likely to show Conduct problems in Key Stage 1. The relationship was strongest for centres that had promoted better outcomes for Anti-social/worried/upset behaviour (i.e. a reduction in such behaviour by primary school entry). In addition several pre-school quality measures showed a significant positive association, with reduction in Conduct problems. Children who had attended a pre-school setting with higher scores on several ECERS-R subscales (better space and furnishings, better scores for language and reasoning and for staff-child interactions) showed fewer Conduct problems.
- For Peer Problems in Year 1, the results showed that children who had attended pre-school settings which were more effective in promoting Cooperation and conformity and those more effective in reducing Anti-social/worried/upset behaviour during the pre-school period had fewer Peer problems in primary school.

These findings indicate that the benefits of more effective and higher quality pre-school provision on children's cognitive and their social behavioural development have not 'washed out' by Year 1. Children who attended pre-school settings which were of higher quality/more effective continue to show better attainment and social behavioural outcomes in primary school.

## **Section 7: Parents' perceptions and experiences of special educational needs**

The follow up parental questionnaire included a specific section on 'My Child is Special' to explore parents' perceptions of SEN and their experiences of provision made for such needs in pre-school and primary school. The response rate was over 80%.

### *Identification and Distribution of children with SEN*

- The percentage of children with special educational needs, as reported by their parents, is roughly in line with the general primary school population, being just over 20%.
- The parents of children who had attended a pre-school setting were more likely to report their children being in need of help than parents whose children did not attend pre-school.
- The highest proportion of parents with SEN concerns (whose children had pre-school provision), were found in integrated centres and the lowest in private day nurseries.
- Parents of the 'home' children were the least likely to report incidence of special educational needs in their children. However, when the 'home' children were considered for their 'at risk' status of developing SEN through assessments of cognitive and social/behavioural development there were proportionately far more children 'at risk' of SEN in this group than in the group of children who had attended a pre-school centre.
- The identification of a special need was most likely to occur within the household, however, children who attended pre-school were more likely to be identified as having a special need by someone outside of the family than those children in the 'home' group.
- Teachers were the most likely people outside the household to identify SEN, followed by Doctors (GPs). Teachers were most likely to identify early signs of cognitive difficulties (reading, numeracy) and doctors most likely to pick up on physical delays (hearing, speech/language).
- Only 30 per cent of parents who thought their child has a special need said that this need had been recognised during the pre-school period.

### *Type of SEN*

- The most common type of medical conditions reported across the sample as a whole was asthma followed by eczema. Many children had both conditions. The most common physical condition reported across the sample as a whole was speech or language difficulties followed by hearing difficulties.
- More children were likely to be reported by parents as having difficulties with reading than with numeracy.
- The most common form of behavioural difficulties reported by parents was 'stubborn and disobedient' behaviour. Parents on the whole reported less incidence of social/behavioural difficulties in their children than medical conditions, physical or learning difficulties. Children with behavioural problems were more likely to have difficulties affecting a number of SEN domains than children with learning or physical difficulties.

### *Was the type of special need related to pre-school recognition?*

- There was a fairly high level of recognition (over 50%) for medical, physical and learning difficulties by pre-school staff, as reported by parents (given in order of recognition).
- Pre-school staff were less likely to recognise behavioural problems reported by parents, as opposed to medical, physical or learning difficulties. The behavioural problems least likely to be recognised by pre-school staff were hyperactivity, and spiteful/aggressive behaviour.
- The least likely condition reported by parents to be recognised by pre-schools was eating disorders. This latter may reflect the sessional nature of pre-schools where not all children stay on site for lunch.

### *Once recognised was help given?*

- The children most likely to be reported by parents to have been given some sort of extra help in pre-schools were those with blood, heart and ENT problems (medical conditions), a learning/mental disorder (learning difficulties), were shy, had toileting difficulties, were unhappy going to school or were spiteful/aggressive (behavioural needs).
- Those children who were given help, but to a lesser degree, were children with skin conditions, lung and eye problems (medical conditions), problems with speech/language, hearing, poor co-ordination and other physical disabilities (physical conditions). Also those children with difficulties with reading and numeracy, a specific learning difficulty and general slow development (learning difficulties). Children with behavioural difficulties who received this level of help were clingy, nervous, lonely, had sibling rivalry, tantrums, were stubborn/disobedient, hyperactive or with eating problems.
- Children who received only moderate amounts of help were those who had a behavioural problem defined as a medical condition and those with sight difficulties (physical conditions).
- The children who received the least help were those with sleeping difficulties.

### *Characteristics of children with special educational needs in relation to family characteristics.*

Gender: Boys were more likely than girls to be reported by parents as:

- having a learning (mental) disability.
- being hyperactive.
- being unhappy going to school
- having eating problems.

### Marital status

- There were more 'SEN' children reported by parents who were divorced and less than expected coming from married backgrounds.

### Socio-economic status

- There were more 'SEN' children reported by parents from the father 'never worked' group and less than expected coming from the professional father group.

### Life events

- There were significant relationships between a child being exposed to a 'life event' and parents reporting concern for SEN. The 'life events' with a significant association with SEN reporting by parents were not settling at school, being hospitalised or suffered family conflict. Other events, which were significant were: separation/divorce, moving home and sibling rivalry. This may reflect the association between life events and disadvantage and the greater disadvantage of the 'at risk' group.
- It should be noted that some children had experienced a number of 'life events' i.e. may have had family conflict and moved home. Having experienced a number of life events when very young may be cumulative and may make a child more 'at risk' of developing SEN.

### Child's activities at home

- Children whose parents thought they had 'SEN' tended to play on the computer by themselves more often than children not reported as having any SEN. It was also found that parents of 'SEN' children tend to play computer games with their children more often than children who had no 'SEN'.
- Children whose parents reported them as having 'SEN' were less likely to engage in dance, music and movement than children whose parents reported them as having no concern of 'SEN'. This may reflect type of need including the extent of physical, medical problems reported by parents.

- The results indicate that children whose parents reported 'SEN' received less homework than children without 'SEN' and these parents were less likely to report helping their child with homework.

#### *Support for children whose parents reported they had special educational needs*

The study explored how satisfied parents were with the help their children had been given and ways in which they think their children could be better supported. It also considers children who have been supported via a 'statement' of special educational needs.

#### *Help during the pre-school period*

- The most commonly reported type of help given during the pre-school period for children with any kind of need (medical, physical, learning and behavioural) was speech therapy, which was provided off-site.
- The most common form of help given for medical and physical needs was a mixture of one-to-one tuition and general additional educational support<sup>2</sup> with some emotional and behavioural support.
- Children were more likely to receive the help of a learning support assistant<sup>3</sup> if they had a learning difficulty as opposed to a medical or physical condition.
- Children with behavioural difficulties were most likely to receive on-site support during their time at pre-school by a combination of emotional and behavioural support, extra educational support and feedback and advice.

#### *Help during the school period*

- In primary school children were more likely to be offered on-site help for their physical conditions than was the case in the pre-school (where the dominant form of help was off-site speech therapy).
- Children were much more likely to receive the help of a learning support assistant than any other type of help (either on a one-to-one basis or within a group).
- The only group of children who had a physical condition and reported receiving one-to-one tuition was those who still had poor co-ordination or 'walked late'.
- Parents also reported children being given additional 'general educational activities', e.g. the teacher differentiating the work on offer to the 'SEN' child so that they could more easily access the curriculum, at a stage suited to their stage of development, also having some specialised equipment appropriate to their special need.
- Parents whose children had hearing impediments reported their children being sat near the front of the class, but this was not reported by any parents of children with visual impediments.
- Children with behavioural difficulties in school were much more likely to receive one-to-one tuition and attention from a learning support assistant. In primary school children's special educational needs were most likely to be recognized by a class teacher or by the teacher and parent in discussion together. Support staff also had a role to play in the recognition of SEN.

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<sup>2</sup> General extra educational support usually meant curriculum differentiation or one-to-one tuition.

<sup>3</sup> Learning support assistants were most likely to be found in the types of pre-school settings that are able to make available additional resourcing to employ a dedicated learning support (or teaching) assistant. In general, this type of provision would be more likely to be seen in nursery schools, nursery classes attached to primary schools and fully integrated centres rather than in private day nurseries, Local authority day nurseries or playgroups.

#### *Help from other professionals (outside of pre-school/school)*

- More parents of children with pre-school education reported having received help from 'other professionals' outside of pre-school/school compared to the 'home' group of children (46% compared to 40%).
- Both pre-school and 'home' groups of parents reported making use of speech therapy services (the largest form of outside help).
- Pre-school children's parents appear to have access to a wider range of help than the home group.
- A remarkable 35.7% of home children were referred to the educational psychologist as opposed to just 19.7% of children who had pre-school experience.

#### *Help given by parents*

- Where parents of children with SEN helped their child at home they were most likely to report they gave assistance with reading, followed by help with a mixture of literacy and numeracy. Parents also reported they supported their children's social / behavioural / emotional development with a mixture of encouragement and praise and simply talking to the child about their difficulties.
- Some parents mentioned encouraging their child to be more independent by carrying out specific tasks for themselves e.g. doing the talking in shops, brushing own teeth etc. A small number reported completing exercises at home with their child that had been set by a speech therapist.

#### *Parental satisfaction with the help they received*

- The majority of parents were generally satisfied (65%) with the help their children received. Around 18% were quite or very dissatisfied.
- More parents of children who had attended a pre-school centre were satisfied with the help they were given than the 'home' group's parents, but more were also dissatisfied. On the whole, more of the home group parents indicated that the level of support they received was 'OK'.

#### *What did dissatisfied parents want?*

- Dissatisfied parents wanted more additional learning support or tuition time given to their children, including one-to-one tuition, additional tuition in reading and more time spent with a learning support assistant.
- Dissatisfied parents also wanted more feedback on their child's progress and more frequent meetings with teachers.
- Some parents were dissatisfied because they felt they were being denied access to an educational psychologist (specialised assessment) or felt the statementing process took too long.

## SUMMARY

The EYTSEN study is the first research of its kind to follow up a large group of children from pre-school to the end of Year 1 in primary school to focus *specifically* on the identification of children 'at risk' of SEN in pre-school for both cognitive and social behavioural areas of development, including investigation of the influence of pre-school attendance on children's outcomes at entry to primary school. The study also examined which children were subsequently reported by teachers as having SEN at primary school, and how such identification relates to measures of 'at risk' status. The study also explored parents' perceptions of SEN and their experiences of support for, and satisfaction with, how their child's needs were met.

The project draws together many different sources of data including assessments of different aspects of young children's cognitive attainment, pre-school workers' and teachers' assessments of social behaviour, parent interview and questionnaire data, and information about pre-school centres. The inclusion of an additional sample of 'home' children who had not attended a pre-school setting (or had minimal experience of pre-school) enables the EYTSEN study to explore whether such children are at greater 'risk' of SEN and are more likely to be identified as having needs at primary school.

Full details of the EYTSEN study are found in three Technical Papers (see Appendix 1). Paper 1 covers the pre-school period and focuses on the identification and characteristics of children 'at risk' of SEN and links with types of provision and the impact of quality. Paper 2 focuses on the first year of primary school, following children up to the end of Year 1. It compares the main pre-school sample with a sample of home children (who had not attended a pre-school centre) and examines the characteristics of children identified as showing some form of SEN at school. Paper 3 reports information from a survey of parents and explored their experiences of SEN provision.

The EYTSEN study developed a simple but robust definition to identify children who may be seen as 'at risk' of SEN for cognitive and social behavioural measures and described their characteristics. For cognitive outcomes, children with multiple disadvantage (in terms of child, family and home environment characteristics) were much more likely to be identified as 'at risk'. Background characteristics showed weaker links with social behavioural development. The quality of the home learning environment (related to parents' reported activities with their pre-school child) showed a strong relationship with 'at risk' status. A more stimulating home learning environment benefits both cognitive and social behavioural development. The home learning environment was only moderately related to parents' education and SES.

Information from parents provides important new evidence concerning the identification of SEN and the characteristics and home circumstances of children who show particular needs or conditions. Parental satisfaction levels with the support their children received varied and the research identifies particular areas where parents would like to have further support for their child, specifically on a one-to-one basis.

The research shows that pre-school attendance, especially in high quality settings, provides all young children with a better start to primary school (as also illustrated in the main EPPE research), but particularly those 'at risk' of SEN. Children are more likely to move out of cognitive 'at risk' status if they attend higher quality settings. 'Home' children are significantly more likely to be identified as 'at risk' when they start primary school than children who attended pre-school centres. Even when account is taken of the higher levels of disadvantage amongst the 'home' group, the EYTSEN study indicates they are more likely to be 'at risk' when they enter primary school, suggesting that pre-school helps to promote both cognitive development and Peer sociability, especially for more vulnerable groups of children. The positive impact of pre-school continues to remain evident at the end of Year 1. More 'home' children, than those who had attended a pre-school centre, were reported to have a special need and were receiving support for SEN during KS1. These findings have important implications for the identification and

provision for children with SEN. Children who do not attend pre-school or who have had little or only poor quality pre-school experience remain more vulnerable to SEN. Good pre-school experience (in terms of length of time experienced and importantly in both quality and effectiveness) can be seen to offer continuing benefits during the early years.

When comparisons of pre-school type are made it is found that fewer children in private day nurseries were classified as 'at risk' of SEN. This reflects the paid for nature of the provision and more affluent families using such centres. By contrast integrated centres (those combining care and education) target disadvantaged communities and families. Such centres were most likely to serve children classified as 'at risk' of SEN. There were links between pre-school type and quality of provision. More children who moved out of cognitive 'at risk' status over the pre-school period attended integrated centres or nursery schools.

The EYTSEN research provides important new information about the characteristics of children identified as showing SEN at primary school in Year 1 and how this relates to 'at risk' status at entry to pre-school and at primary school. It also provides new evidence concerning the identification of SEN in pre-school settings in different types of provision. There are a number of implications for both policy and practice concerning ways to improve the quality of pre-school provision and uptake by vulnerable groups. In addition further research on the best ways to screen for and identify and meet special educational needs for pre-school children would be desirable.



## IMPLICATIONS FOR POLICY

The key findings from this research throws up a number of implications for policy. These are briefly summarised below:

- Programmes that increase the take-up of pre-school places by parents who would not usually send their children to preschool (usually found in geographical clusters or within specific minority ethnic groups) are likely to provide these vulnerable groups of children with a better start to school and therefore reduce their risk of developing SEN.
- Pre-school and school workers/teachers should be aware that boys may be at increased risk of developing SEN for cognitive development and aspects of social development. The development of programmes which seek to focus on the specific needs of boys, as learners, linked with appropriate staff development may have long-term benefits and help reduce the gender gap in SEN.
- Policies and practices that foster active parental engagement with children and involvement in play activities that promote children's language, spatial skills and creativity, in particular, are likely to benefit children's subsequent cognitive and social development and attainment at school.
- Given the strong links between 'at risk' status on cognitive measures and multiple disadvantage, ways of effectively targeting additional resources to pre-school settings and primary schools that serve high proportions of young children from multiply disadvantaged families should be explored.

## **APPENDIX 1: LIST OF EPPE AND EYTSEN TECHNICAL PAPERS**

### **EYTSEN Technical Papers**

EYTSEN Technical Paper 1: Special Educational Needs across the Pre-School Period

EYTSEN Technical Paper 2: Special Educational Needs in the Early Primary Years: Primary School entry up to the end of Year One.

EYTSEN Technical Paper 3: Special Educational Needs: The Parents' Perspective

### **The Effective Provision of Pre-School (EPPE) Project Technical Papers in the Series**

*Please note that some papers are now into re-prints which are slightly more expensive than the listed price below.*

Technical Paper 1 - An Introduction to the Effective Provision of Pre-school Education (EPPE) Project ISBN: 085473 591 7 **Published: Autumn 1999 Price £3.50**

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Technical Paper 3 - Contextualising EPPE: Interviews with Local Authority co-ordinators and centre managers ISBN: 085473 593 3 **Published: Autumn 1999 Price £3.50**

Technical Paper 4 - Parent, family and child characteristics in relation to type of pre-school and socio-economic differences. ISBN: 085473 594 1 **Published: Autumn 1999 Price £4.00**

Technical Paper 5 – Characteristics of the Centre in the EPPE Study: (Interviews) ISBN: 085473 595 X **Published: Autumn 2000 Price £5.00**

Technical Paper 6 - Characteristics of the Centres in the EPPE Sample: Observational Profiles ISBN: 085473 596 8 **Published: Autumn 1999 Price £5.00**

Technical Paper 6A - Characteristics of Pre-School Environments ISBN: 085473 597 6 **Published: Autumn 1999 Price £3.50**

Technical Paper 7 - Social/behavioural and cognitive development at 3-4 years in relation to family background ISBN: 085473 598 4 **Published: Spring 2001 Price £5.00**

Technical Paper 8a – Measuring the Impact of Pre-School on Children's Cognitive Progress over the Pre-School Period. ISBN: 085473 599 2 **Published: Autumn 2002 Price £8.50**

Technical Paper 8b – Measuring the Impact of Pre-School on Children's Social/behavioural Development over the Pre-School Period. ISBN: 085473 683 2 **Published March 2003 Price £8.50**

Technical Paper 9 - Report on age 6 assessment ISBN: 085473 600 X **Publication Date: Summer 2003**

Technical Paper 10 - Intensive study of selected centres ISBN: 085473 601 8 **Publication Date: Summer 2003**

Technical Paper 11 - Report on the continuing effects of pre-school education at age 7 ISBN: 085473 602 6 **Publication Date: Autumn 2003**

Technical Paper 12 - The final report ISBN: 085473 603 4 **Publication Date: Spring 2004**  
Related Publications

**Related Publications**

The Early Childhood Environment Rating Scale :Revised Edition (1998). Harms, Clifford and Cryer ISBN: 08077 3751 8 Available from Teachers College Press. Columbia University. 1234 Amsterdam Avenue. New York. NY10027

The Early Childhood Environment Rating Scale: ECERS-E (2003) Sylva, Siraj-Blatchford and Taggart (2003) Trentham Books. London.

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## APPENDIX 2: CHILD ASSESSMENTS

Three common points of assessment were used to measure cognitive attainment and social behavioural development for the EYTSEN research. The assessments were collected as part of the longitudinal EPPE study. 'Cut off' points of 1 sd below the national mean (where applicable) and 1 sd below the sample mean) were used to identify children at possible risk of SEN.

- **Entry to Pre school study (age 3.0 to 4 years 3 months)**

### Entry to Target Pre-school Assessments

| Name of Assessment  | Assessment Content  | Administered by:   |
|---|---|--|
| British Ability Scales Second Edition (BASII) (Elliot et al., 1996):<br><ul style="list-style-type: none"> <li>• Block Building</li> <li>• Verbal Comprehension</li> <li>• Picture Similarity</li> <li>• Naming Vocabulary</li> </ul> | Cognitive development battery<br><ul style="list-style-type: none"> <li>• Spatial skills</li> <li>• Verbal skills</li> <li>• Pictorial reasoning skills</li> <li>• Verbal skills</li> </ul> | EPPE Researcher<br>EPPE Researcher<br>EPPE Researcher<br>EPPE Researcher |
| Adaptive Social Behavioural Inventory (ASBI) (Hogan et al., 1992)   | Social behaviour and emotional adjustment   | Centre Staff   |
| <u>Children not fluent in English:</u> Assessed only on the non-verbal BAS II scales (Block Building and Picture Similarity) and social and emotional behaviour.  |   |  |

These assessments were chosen to provide a baseline against which later progress and development can be compared. The British Ability Scales (BAS subscales) are designed for use with this age range. Research Officers were trained in their use and checked for reliability. They assessed children on a one-to-one basis. Where possible an interpreter was recruited who spoke the child's home language if the child was not fluent in English. Centre staff who were familiar with the child completed an Adaptive Social Behaviour Inventory (ASBI) for each sample child to provide measures of social and behavioural development.

### Entry to primary school (age rising 5 years)

All children were assessed at entry to school (usually at the start of reception, though some children went straight into a year 1 class). These assessments provide both a measure of current attainment and development at exit from pre-school and serve as a baseline for entry to school. The assessments were chosen to be compatible with the Desirable Outcomes for Pre-School Education (DfEE 1996).

### Entry to Primary School Assessments

| Name of Assessment  | Assessment Content  | Administered by:   |
|---|---|--|
| British Ability Scales Second Edition (BASII) (Elliot et al., 1996):<br><ul style="list-style-type: none"> <li>• Verbal Comprehension</li> <li>• Picture Similarity</li> <li>• Naming Vocabulary</li> <li>• Pattern Construction</li> </ul> | Cognitive development battery<br><ul style="list-style-type: none"> <li>• Verbal skills</li> <li>• Pictorial reasoning skills</li> <li>• Verbal skills</li> <li>• Spatial skills</li> </ul> | EPPE Researcher<br>EPPE Researcher<br>EPPE Researcher<br>EPPE Researcher |
| BAS Early Number Concepts   | Reasoning ability   | EPPE Researcher  |
| Letter Recognition  | Lower case letters  | EPPE Researcher  |
| Phonological Awareness (Bryant and Bradley, 1985)   | Rhyme and Alliteration  | EPPE Researcher  |

|   |  |               |
|---|--|---------------|
| Adaptive Social Behavioural Inventory (ASBI - R) (Hogan et al., 1992) | Social and emotional behaviour, hyperactivity and settling-into-school | Class Teacher |
|---|--|---------------|

Children not fluent in English: Assessed only on two of the non-verbal BAS II scales (Picture Similarity and Pattern Construction) and social behaviour. In addition they were assessed on BAS II Copying, a measure of spatial ability, (Elliot et al. 1996), which was also administered by the EPPE researcher.

The ASBI was also adapted and extended by the EPPE team to cover a greater range of behaviours considered appropriate for school age children by incorporating selected additional items from other published tests, covering hyperactivity and pro-social behaviour.

- **End of Year 1 in Primary (age 6 years plus)**

**Outcome Assessments at end Year 1:**

| <b>Name of Assessment</b>   | <b>Assessment Content</b>   | <b>Administered by:</b> |
|---|---|-------------------------|
| Primary Reading: Level 1 (NFER-Nelson)                                      |   | Class Teacher           |
| Maths 6 (NFER-Nelson)   |   | Class Teacher           |
| Strengths and Difficulties Questionnaire (Goodman, 1997) for extended study | Hyperactivity, conduct problems, peer problems, emotional problems and pro-social | Class Teacher           |

### APPENDIX 3: MULTIPLE DISADVANTAGE INDEX

A multiple disadvantage measure was calculated comprising child, parent and family factors but not including home learning environment in this analysis due to the relatively small numbers of 'home' children for whom data were available (home learning environment details are reported separately).

#### Multiple disadvantage indicators used to make up the overall multiple disadvantage indices

| Child variables  | Disadvantage indicator  |
|--|---|
| <ul style="list-style-type: none"> <li>• First language</li> <li>• Large family</li> <li>• Pre-maturity/low birth weight</li> </ul>  | English not first language<br>3 or more siblings<br>Premature at birth or below 2500 grams  |
| Parent variables   |   |
| <ul style="list-style-type: none"> <li>• Mother's highest qualification level</li> <li>• Social class of Father's occupation</li> <li>• Father's employment status</li> <li>• Young mother</li> <li>• Lone parent</li> <li>• Mother's employment status</li> </ul> | No qualifications<br>Semi-skilled, unskilled, never worked, absent father<br>Not employed<br>Age 13-17 at birth of sample child<br>Single parent<br>Not working |

The following table illustrates the relationship between multiple disadvantage and 'at risk' status for cognitive attainment at entry to the pre-school study. It can be seen that proportionately children with higher scores on the index are more likely to have very low scores, in the strong cognitive risk category, than those who have low scores.

#### Multiple disadvantage and percentage of children identified at cognitive risk at entry to pre-school

| Number of factors | All children |      | Cognitive risk % | Strong cognitive risk % |
|-------------------|--------------|------|------------------|-------------------------|
|                   | n            | %    |                  |                         |
| 0                 | 637          | 23.5 | 11.3             | 7.0                     |
| 1-2               | 1345         | 49.6 | 43.9             | 38.1                    |
| 3-4               | 575          | 21.3 | 34.1             | 40.0                    |
| 5+                | 151          | 5.5  | 10.7             | 15.0                    |

## GLOSSARY OF TERMS

**Age standardised scores** – Assessment scores that have been adjusted to take account of the child's age at time of testing.

**Anti-social/worried** – This is measured on the ASBI scale (see social/behavioural development in this glossary). Items on the scale which identify anti-social behaviour would be: teases other children, calls them names.

**'at risk'** – The report acknowledges that the term 'at risk' is a complex one which will differ depending on the particular criteria used. In this study we have referred to **cognitive risk** (1 sd below national average) and **strong cognitive risk** (1 sd below sample average). These provide definitions of children who may be seen to be 'at risk' on the basis of their cognitive attainment at entry to pre-school. For social/behavioural 'at risk', we use one standard deviation below the mean for the sample, as measured on the ASBI (see social/behavioural in this glossary) as a 'cut off' (see 'cut off' in this glossary) for the factors, Anti-social/worried/upset and Peer sociability. The EPPE definitions of 'at risk' (using standardised assessments) could therefore be said to be 'actual' rather than 'perceptual' risk. However, the views of parents, pre-school workers and teachers about whether or not a child falls into an 'at risk' category are based more on 'perceptual' than 'actual' risk.

**British Ability Scales (BAS)** – This is a battery of assessments specially developed by NFER/Nelson to assess very young children's abilities. The assessments used at entry and end of pre-school were :-

Block building which measures Visual-perceptual matching, especially in spatial orientation

Naming Vocabulary – Expressive language and knowledge of names

Pattern construction – Non-verbal reasoning and spatial visualisation.

Picture Similarities – Non-verbal reasoning

Early number concepts – Knowledge of, and problem solving using pre-numerical and numerical concepts.

Copying – Visual/perceptual matching and fine-motor co-ordination. Used specifically for children without English as a first language or who are not fluent in English.

Verbal comprehension – Receptive language: understanding of oral instructions involving basic language concepts.

**The Caregiver Interaction Scale (CIS)** is a rating scale consisting of 26 items completed by an observer of the interactions between caregivers and children. The items are grouped to produce 4 subscales: positive relationships, punitiveness, permissiveness and detachment.

- Positive relationships is a subscale made up of 10 items indicating warmth and enthusiasm in interaction with children by the caregiver.
- Punitiveness is a subscale made up of 8 items indicating harsh or over-controlling behaviour in interaction with children by the caregiver.
- Permissiveness is a subscale made up of 4 items indicating avoidance of discipline and control of children by the caregiver.
- Detachment is a subscale made up of 4 items indicating lack of involvement in interaction with children by the caregiver.

**Child/parent factors** – Examples of child factors would be age, gender, ethnicity etc. Examples of parent factors would be mother's and father's employment and qualifications.

**Cognitive development** – Children's intellectual and conceptual development, measured on the EPPE project by assessments which quantified: Verbal Ability, Non-verbal Ability and Spatial Ability, at entry to Pre- school. Subsequent assessments measure children's pre-reading abilities, phonological awareness (knowledge of alphabetic sounds) and number awareness. For information on assessments see British Ability Scales in this glossary.

**Cut off** – The score below which children are deemed to be ‘at risk’, 1 standard deviation below the mean (see standard deviation in this glossary).

**The Early Childhood Environment Rating Scale – Revised (ECERS-R)** is a rating scale consisting of 43 items completed by an observer that assesses the overall quality of the childhood setting. The items are grouped to produce 7 subscales: space & furnishings, personal care practices, language & reasoning, pre-school activities, social interaction, organization & routines, adults working together.

**The Early Childhood Environment Rating Scale – Extension (ECERS-E )** is a new rating scale developed specifically for the EPPE project to supplement the ECERS-R consisting of 18 items. It is based on the Desirable Learning Outcomes for 3 and 4 year olds and pedagogical practices associated with it and consists of items completed by an observer of the childhood setting’s activities. The items are grouped to produce 4 subscales: literacy, maths, science/environment, diversity.

**General Cognitive Ability (GCA)** – a measure of children’s overall cognitive ability, incorporating non-verbal and verbal BAS subscales. At entry to the study the BAS subscales that made up the ‘GCA’ were: Block Building, Naming Vocabulary, Picture Similarities and Verbal Comprehension. At entry to Primary School, ‘GCA’ was made from Naming Vocabulary, Picture Similarities, Verbal Comprehension, Early Number Concepts and Pattern Construction. (See cognitive development and British Ability Scales in this glossary).

#### **Goodman Strengths and Difficulties Questionnaire**

(Goodman 1997) is made up of five sub-scales: Pro-social, hyperactivity, emotional problems, and Peer sociability.

**Home learning environment** – A composite score derived from reports from parents (at interview) about what children do at home, combining seven types of home learning activities; reading, library visits, playing with letters or numbers, painting and drawing, playing/teaching alphabet or letters, playing/teaching with numbers/shapes and playing/teaching of songs/nursery rhymes. The composite scores identifies households which have a rich or more impoverished home learning environment for children.

**Intervention study** – This is a study in which researchers ‘intervene’ in the sample to control variables i.e. control by setting, the adult / child ratios in order to compare different specific ratios in different settings. EPPE is not an intervention study in that it investigates naturally occurring variation in pre-school settings.

**Peer sociability** – This is the ability to ‘get on’ with other children. It is an important milestone in young children’s social development and includes the ability to empathise, sympathise and relate to peers. Children with poor Peer sociability can often be withdrawn and isolate. Examples of Peer sociability on our rating scale were: willing to join a group of children playing, understands others’ feeling, like when they are happy, sad or mad, asks or wants to go and play with other children etc.

**Multiple Disadvantage Index (MDI)**- An index based on three child variables, six parent variables, and one related to the home learning environment which were considered ‘risk’ indicators when looked at in isolation. A child’s MDI was calculated by summing the number of indicators the child was ‘at risk’ on.

**Sampling profile/procedures** – The EPPE sample was constructed by :

Five regions (six LEAs) randomly selected around the country, but being representative of urban, rural, inner city areas. Pre-schools from each of the 6 types of target provision (nursery classes, nursery schools, Local authority day care, private day nurseries, play groups and integrated centres that combine care and education) randomly selected across the region. Children



randomly selected within each target centre, of the required age who met criteria for eligibility (i.e. assessed within 10 weeks of entry if over 3, assessed just after third birthday if already at centre at a younger age).

**Social/behavioural development** – A child’s ability to ‘socialise’ with other adults and children and their general behaviour towards others. EPPE, unlike other studies, has considered both social and cognitive development of young children. Children’s social/behavioural development considers children’s social competence, pro-social behaviour (social skills) and anti-social behaviour. Social/behavioural development was measured by the Adaptive Social Behavioural Inventory (ASBI), specifically developed for use with very young children was completed by child care workers and provided measures of social/behavioural development at entry to pre-school. Subsequent assessments measure any peer sociability and emotional problems children may be experiencing. In Year 1 of primary school the Goodman Strengths and Difficulties instrument completed by class teachers was used to measure aspects of social behaviour.

**Special Non-verbal Composite (SNC)** - Created from the non-verbal BAS scores (see British Ability Scales in this glossary)

**Standard deviation** – A measure of the spread around the mean. In a normal distribution 68 percent of cases fall within one, plus or minus standard deviation of the mean and 95 percent of case fall within two standard deviations.

**Stress factor loading** – Level of perceived stress associated with a particular life event i.e. divorce, bereavement, taken from McCubbin, H., & Patterson J. (1991) (see reference section of this report).

#### **Value added analyses of progress**

The analyses use statistical (multilevel) models to explore individual children’s progress over time and variations in centre effectiveness, taking account of their prior attainment at entry to pre-school using attainments at entry to primary school as outcomes.

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