

# The Effective Provision of Pre-School Education (EPPE) Project: Findings from the Early Primary Years

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## What is EPPE?

The Effective Provision of Pre-School Education (EPPE) project is the first major European longitudinal study of a national sample of young children's development (intellectual and social/behavioural) between the ages of 3 and 7 years. To investigate the effects of the child's home background and pre-school education<sup>1</sup> up to 7 years of age, the EPPE team collected a wide range of information on over 3,000 children, their parents, their home environments and the pre-school settings they attended. Pre-school settings (141) were drawn from a range of providers (local authority day nursery, integrated<sup>2</sup> centres, playgroups, private day nurseries, maintained nursery schools and maintained nursery classes). Centres were selected from five regions that were chosen to cover a range of socio-economic and geographical areas including rural, metropolitan, shire county and inner-city. The regions were selected to include ethnically diverse and socio-economically disadvantaged communities. A sample of 'home' children (who had no or minimal pre-school experience) was recruited to the study at entry to school for comparison with the pre-school group. EPPE has demonstrated the positive effects of provision on children's intellectual and social/behavioural development. High quality provision shows the greatest benefits. This brief focuses on the main findings related to pre-school effects on children's development up to age 7. The research methodology and key findings from the pre-school period have been reported in Research Brief No. RBX15-03.

## Summary of Key findings

### Impact of attending a pre-school centre

- ▶ Pre-school experience, compared to none, enhances children's development. These effects are still evident for intellectual and social development during the early years of primary school.
- ▶ The duration of attendance is (in months) is important with an earlier start (before 3 years) being related to better intellectual development at ages 6 and 7 and to improved independence, concentration and sociability at entry to primary school and age 6.
- ▶ Full time attendance led to no better gains for children than part-time provision.
- ▶ Disadvantaged children in particular can benefit significantly from good quality pre-school experiences, especially if they attend centres that cater for a mixture of children from different social backgrounds.

### The quality and practices in pre-school centres

- ▶ The quality of pre-school centres is directly related to better intellectual and social/behavioural development in children, and these effects persist in later assessments at age 6 years plus. For social/behavioural development this is no longer significant at the end of Key Stage 1.
- ▶ Children who experience high quality pre-school for a long duration have the most advantage in intellectual and social development when they start school.

- ▶ The advantages for a child's development of attending a particularly "effective" pre-school centre persist up to age 7.

### Home background

- ▶ Multiple disadvantage continues to affect children's development till age 7.
- ▶ Parents' education and social class remain important predictors of intellectual and social development.
- ▶ The effect of English as an Additional Language (EAL) is still present at 7 years of age but is much reduced compared to the strength of the effect at ages 3 and 5.

### The importance of home learning

- ▶ The quality of the home learning environment (activities with children providing learning opportunities e.g. teaching songs and nursery rhymes) promoted intellectual and social development in all children.
- ▶ Although parent's social class and levels of education were related to child outcomes, the home learning environment was more important. The effects of a good quality home learning environment persist at age 7. The home learning environment is only moderately associated with social class. What parents do is more important than who they are.
- ▶ There is evidence that overall parenting styles vary for girls and boys. Parents were more likely to engage in specific kinds of learning activities with girls.

<sup>1</sup> Pre-school centres in this document means those centres that included 3 and 4 year olds.

<sup>2</sup> 'Integrated' settings fully combines education and care and is referred to as 'combined' centres in early EPPE Technical Papers.

## The Aims of EPPE

EPPE set out to investigate:

- What is the impact of pre-school on young children's intellectual and social/behavioural development?
- Can the pre-school experience reduce social inequalities?
- Are some pre-schools more effective than others in promoting children's development?
- What are the characteristics of an effective pre-school setting?
- What is the impact of the home and childcare history (before age 3) on children's intellectual and behavioural development?
- Do the effects of pre-school continue through Key Stage 1 (ages 6 and 7 years)?

EPPE studied a range of different types of pre-school settings and 3,000 children from differing social backgrounds. An important element in the study has been to ensure that fair comparisons can be made between individual settings and types of provision. To do this, full account needs to be taken of differences in the characteristics of the children attending different settings and types of provision. Similarly, the study has taken into account the contribution to children's progress and development of background factors such as age, birth weight, gender, parental qualifications or occupations, home language and the home learning environment. The pre-school effects reported in this brief are therefore net of these important child and family factors. Only by using such "value added" methods can appropriate comparisons be made across individual settings. In identifying the "effectiveness" of individual settings the research also controlled for prior attainment and social/behaviour at entry to the pre-school settings.

EPPE collected a wide range of data about children, their parents and home environments and the pre-school settings (individual pre-school

centres) they attended. The study investigates the impact of a wide variety of child, parent and family factors, including amount of care outside the family, and aspects of the home learning environment provided by parents in the pre-school period. The research seeks to establish whether different types of pre-school settings differ in their impact and effectiveness. Measures of the quality of centres were collected from observations by researchers and were found to be important in accounting for young children's development.

This brief focuses on literacy, numeracy and social development at ages 6 and 7 years. Literacy and numeracy were assessed by standardised assessments at age 6 years and by Key Stage 1 national assessments at age 7 years. Four measures of social behaviour are reported: Self regulation, Positive social behaviour, Anti-social behaviour and Anxious behaviour. These are based on class teachers' ratings of individual children in Years 1 and 2. The full findings for the early school period are reported in EPPE Technical Paper 9 (up to age 6) and 11 (the end of Key Stage 1 at age 7).

## Main findings for children at age 6 and 7 years

The analyses of child outcomes when children were 6 and 7 years of age point to the continued strength of background influences on young children's intellectual attainments and progress and also provide additional evidence concerning the impact of pre-school.

## The impact of pre-school

Comparison of children who had attended a pre-school centre with children with no pre-school experience showed that both the characteristics and attainments of home children vary significantly from those who had been in pre-school. It is not possible to conclude with certainty that the much lower attainments of the 'home' group are directly due to lack of pre-school experience. Nonetheless, statistical analyses and

comparisons of attainment and social behaviour at primary school, between the two groups, strongly suggest that pre-school provided significant benefits for cognitive development while the effects upon social behaviour, though evident at age 6 years, do not remain statistically significant up to 7 years.

Analyses of attainments at the end of Year 1 and Year 2 explored the impact of child, parent and home environment factors. Even when these important influences are controlled, home children's intellectual/cognitive attainments are poorer than those of children who had attended a pre-school centre. These findings, combined with those on the advantages of an early start date reported previously (EPPE Technical Paper 8a & 8b), add weight to earlier conclusions that pre-schooling has a beneficial impact on young children's cognitive attainment. Home children remain at a disadvantage throughout Key Stage 1 and evidence of a significant attainment gap remains up to age 7 years.

Differences between the home and pre-school group for the measures of social behaviour are no longer significant at age 7 except in relation to those who attended the most effective pre-school settings. This is in contrast to findings for the home group at entry to primary school and in Year 1. It appears therefore that the beneficial impact of pre-school on intellectual attainment is more long lasting than that on social behaviour. The latter may be more influenced by primary school peer group and classroom climate and practice.

Overall, the analyses for age 7 years suggest that the early intellectual boost given by pre-school on subsequent reading and mathematics attainment has not washed out by the end of Key Stage 1, nor have home children caught up. Thus the absence of pre-school can be seen as a continuing disadvantage for academic attainment.

The longitudinal follow up of EPPE children

confirms that pre-school continues to show a generally positive impact on developmental outcomes. It supports earlier conclusions that pre-school can play an important part in combating social exclusion and promoting inclusion by offering disadvantaged children, in particular, a better start to primary school. Pre-school experience can be viewed as a "package" with attributes of quality, effectiveness and duration. Analyses suggest that these aspects continue to influence child outcomes at the end of Key Stage 1 although the effects tend to be weaker than those found at entry to primary school (age rising 5 years) and for social behaviour only the effectiveness of the pre-school setting remains statistically significant in comparisons with the home group.

### **The continued impact of pre-school - quantity, quality and effectiveness**

Taken together, in all comparisons the attainment of the home group is significantly poorer than that of children who had attended a pre-school centre. It is not possible to separate fully the influence of quality, duration and effectiveness of pre-school attended in comparisons of the pre-school and home sample, since, in practice, pre-school is experienced as a "package" combining these different features. However, the findings support the conclusion that these three features generally remain predictors of better intellectual attainment during Key Stage 1. Also, measures of the effectiveness of the pre-school attended continue to show a measurable and significant positive impact on young children's subsequent intellectual and social development at 6 and 7 years of age.

Children who had attended higher quality pre-school provision tended to show better outcomes at ages 6 and 7 years, although quality effects for intellectual outcomes were stronger where children had also attended for longer durations (starting under 3 showed long term benefits). This suggests that for high quality to show a strong continued

impact it is important that it is combined with a longer duration for intellectual outcomes. A longer time in high quality provision confers a larger advantage for both reading and maths than a shorter duration. The advantages of a longer duration and high quality pre-school show a stronger impact for mathematics than reading at age 6 years plus. For social behaviour, children who had attended high quality provision showed significantly better outcomes in terms of Self-regulation, Positive social behaviour and reductions in Anxious behaviour at age 6. For Anti-social behaviour children who had attended low quality provision showed significantly poorer outcomes than those who had attended high quality provision.

## The impact of a child's background

The impact of child background factors is broadly in line with that found at earlier time points in the EPPE study (at age 3 years plus and rising 5 years). EPPE developed an 'index of multiple disadvantage' for families in the study. Families that were "multiply disadvantaged" scored higher on a range of factors such as low socio-economic status (SES), low parental qualifications, low birth weight etc. Multiple disadvantage continues to show significant negative associations with all outcomes at age 6 and 7 years. Background characteristics continue to show a significant relationship with attainment in both reading and mathematics. Child and family factors that were important for intellectual attainment in pre-school tend to show consistent relationships. Age, at the time of testing, remains significant but its effect is reduced for intellectual outcomes in comparison with relationships at earlier time points.

Nevertheless, more children "young" for their year group (summer born) were identified as having a special educational need in Key Stage 1. The negative impact of English as an Additional Language (EAL) is also reduced. Girls show significantly better reading results but gender is not

significant for mathematics attainment at age 7 years. Mother's education level remains very influential; children whose mothers have a degree or higher degree show higher attainment. Likewise family SES is also significant, with those from semi-skilled and unskilled manual backgrounds or whose parents had never worked showing relatively lower attainment, and those from professional non-manual group relatively higher results in national assessments. Low income, as indicated by free school meals, also has a moderate impact (similar in size to gender differences). As a group, children from poor families have lower attainments.

Taken together, background characteristics are weaker predictors of reading and mathematics attainment at age 6 and 7 years than of intellectual attainment at age 3 or 5 years. In particular the impact of EAL status has reduced, probably reflecting improvements in fluency in English as children move through pre-school and primary school. Both pre-school and school influences may be acting together to help reduce the power of background influences on attainment in subjects such as reading and mathematics, in comparison with earlier assessments of intellectual ability. By contrast, the impact of background on social behaviour (which was much weaker during the pre-school period than was found for cognitive outcomes) shows somewhat stronger influences on Positive Social behaviour and Anti-social behaviour as children move through Key Stage 1. In general older children and girls show better social behaviour at the end of Key Stage 1, especially for Self-regulation. Self-regulation is associated with better attainment.

## Home learning environment

The home learning environment (HLE) as reported by parents in the pre-school period was found to exert a strong and significant net impact on intellectual development and a weaker positive

impact on aspects of social behaviour at earlier time points, even when parental education, SES and income are controlled. Aspects of the home learning environment experienced by children during the pre-school period continue to show significant positive effects on attainment and social behaviour at age 7 years plus, net of the influence of child and parental background influences such as family SES and mothers' qualification levels. For example, parents reading to their child, teaching letters and numbers, visiting the library, and teaching songs and nursery rhymes continues to be related to better outcomes at age 6 and 7 years. Boys and girls have significant differences in the home learning environment they experience, with boys tending to have lower scores on HLE. Such differences in this feature of parenting may account for some of the gender differences in cognitive attainment and social behaviour evident from age 3 years onwards. The results on HLE confirm that such home experiences remain statistically significant predictors of later educational outcomes at age 6 and 7 years.

Overall pre-school experience continues to influence children's development during the early primary school years. Children who attend effective, high quality pre-school centres for a longer duration show better intellectual and social profiles by the end of Key Stage 1.

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## Further information

For further information on the EPPE Project and published Technical Papers visit [www.ioe.ac.uk/projects](http://www.ioe.ac.uk/projects) or ring 020 7612 6219.

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