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Effective Pre-School and Primary Education 3-11 Project (EPPE 3-11)

A longitudinal study funded by the DfE
(Formerly known as the Department for Children Schools and Families)

(2003 – 2008)

**The effect of starting pre-school at age 2 on long
term academic and social-behavioural outcomes in
Year 6 for more deprived children:
Analyses conducted for the Strategy Unit**

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The views expressed in this report are the authors' and do not necessarily reflect those of the Department for Education

N.B

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In April 2012 it was updated following a request for information from the DfE.

The main EPPE results on pre-school effects, up to the end of primary school are summarised in Sylva et al (2010).

Details of the findings on academic outcomes are also provided by Melhuish et al, 2008, Sammons et al, 2004; 2008).

The research has also explored the impact of pre-school as a protective factor in relation to children 'at risk' (Hall et al, 2009) and in the reduction of SEN in primary school (Taggart et al, 2006, Anders et al, 2011).

The extended study, the Effective Pre-school, Primary and Secondary Education Project (EPPSE 3 – 16+) has reported on the longer term benefits of pre-school education to age 14 and factors that influence students' academic, social-behaviour, dispositions and views of school (Sylva et al., 2012). Appendix 1 (Additional sources of information) contains a list of EPPSE publication with electronic links).

This report on the impact of age at starting school should be interpreted in the light of the overall findings on pre-school influences.

Executive Summary

The research reported here examines whether age of starting pre-school has a significant effect on children's later academic and social-behavioural outcomes in Year 6 for more disadvantaged children. The EPPE 3-11 reports on Year 6 academic and social-behavioural outcomes showed that the duration of pre-school does not have any main effect on outcomes in Year 6 (Sammons et al., 2008a; 2008b). However, the analysis reported in this paper explored whether or not age of starting pre-school has a differential effect for certain groups of children.

The findings showed that differential effects of attending pre-school at age 2 compared to age 3+ were not evident, in either academic or social-behavioural outcomes, for children eligible for Free School Meals (FSM), and for children whose mothers have low educational qualifications compared to those with mothers who have higher educational qualifications.

There was a difference, however, between attending pre-school at age 2 compared to age 3+ in English attainment in Year 6 for children classified as being of high multiple disadvantage¹, with those starting earlier showing higher attainment (ES=0.19). Also, children from families with medium income and children from families of medium SES (i.e. skilled manual/skilled non-manual) had better 'self-regulation' in Year 6 if they started pre-school at age 2 compared to those who started pre-school later at age 3+ (ES=0.18 for medium SES and ES=0.22 for medium income level). Note that this is the largest SES category in the sample and they represent what might be called "typical families". However, there was a difference between children from families with no earned salary (i.e., unemployed families): those who started pre-school at age 2 showed somewhat lower 'pro-social' behaviour in Year 6 compared to children from these families who started pre-school at age 3+ (ES=-0.35). In interpreting this last negative finding, we are aware that there may have been pressing reasons for an early start for this sub-group (e.g., social service referral) but we have no data to examine these possibilities further.

As mentioned above, the findings from reports on academic or social-behavioural outcomes in Year 6 showed that duration of pre-school (reflecting early start) has no continuing main effect for either academic or social-behavioural outcomes in Year 6. However, the findings reported here show that duration has a modest differential effect for certain groups of children for some academic and social-behavioural outcomes. Previous research conducted by EPPE has shown that the combination of early start (age 2) at pre-school and attending a high quality pre-school has the greatest benefit for Year 1 and 2 outcomes in reading and maths (Sammons et al., 2004a; 2004b). Significant positive effects for pre-school duration were identified at this age and at start of primary school. However, Sammons et al (2008a; 2008b) has shown that the *quality* of pre-school has the strongest effect on Year 6 outcomes of all pre-school measures. For this reason, the effect of pre-school duration from age 2 should be combined alongside the effects of attending pre-school of high quality, because quality appears to be especially important for disadvantaged groups (both in later academic and social-behavioural outcomes in Year 6; Sammons et al., 2008a; 2008b).

¹ Multiple disadvantage is an EPPSE 3-14 index summarising measures based on various child, family and 'home learning environment' (HLE) predictors, viz: English not first language; 3 or more siblings; low birth weight (below 2500 grams); mother has no qualifications; Socio Economic Status of Father in terms of current or most recent employment – semi or unskilled, never worked; absent father; father not currently employed; mother currently not working/ unemployed; mother below 18 years of age at child's birth; single parent; low Early years HLE index (bottom quartile). It does not include eligibility for Free School Meals.

Analysis Strategy and Main Findings

The following analyses were conducted in order to explore if age of starting pre-school has a significant effect on academic outcomes in Year 6 (English and maths; National Assessments Key Stage 2) and social-behavioural outcomes for more deprived children. EPPE reports on Year 6 academic and social-behavioural outcomes showed that the duration of pre-school does not have any effect on outcomes in Year 6 (Sammons et al., 2008a; 2008b). However, the analysis presented in this paper explores whether or not age of starting pre-school has a differential effect for certain groups of children. Differential effects of age of starting pre-school were tested for:

- Socio-Economic Status (SES) (grouped as: low - unskilled; medium - skilled; and high - professional).
- Level of mother's qualification (grouped as: low - none and 16 academic; and high - 18 academic to higher degree).
- Salary (grouped as: no earned salary; low - below £15000 p.a; medium - £15001-£35000 p.a.; and high - £35001 p.a. and above).
- Eligibility for Free School Meals (FSM) (as an indicator of poverty).
- Multiple disadvantage (low versus high).

The analyses were conducted by testing interaction effects between each of these variables and the age of starting pre-school (below age 2, age 2 to 3 and age 3+).

Academic Outcomes

Controlling for significant background characteristics, differential effects of attending pre-school at age 2 compared to age 3+ on attainment in either English or maths, were not evident for the first four indicators of disadvantage/advantage identified above.

We also tested whether or not there is a differential effect of age of starting pre-school for children with low versus high multiple disadvantage. The Multiple Disadvantage Index (MDI) is a summary measure based on various child, family, and HLE predictors, such as low birth weight or living in a family with low socio-economic status (SES), which are associated with an increased risk for lower attainment and poor social-behavioural outcomes. Since the MDI already contains information about various background characteristics, in this analysis we only controlled for gender, age and ethnicity of the child.

In this analysis there was a slight but positive and significant differential effect of attending pre-school at age 2 (n =190) compared to age 3+ (n=368) in terms of English attainment (ES=0.19), but not for maths, for the high multiple disadvantaged pupils. It should be note the effect is reduced if control for FSM in Year 6 is included, which is not itself part of the MDI.

Social-behavioural Outcomes

Controlling for significant background characteristics, differential effects of attending pre-school at age 2 compared to age 3+ were only evident for children who came from families with no earned income (i.e., unemployed families²). Children from these families who started pre-school at age 2 had worse 'pro-social' behaviour in Year 6 compared to children from similar families who started pre-school at age 3+ (ES=-0.35). There were no other significant differential effects on social-behavioural outcomes for other measures of disadvantage tested in these analyses. In summary, these findings suggest that attending pre-school at younger age (i.e., age 2 to 3 compared to age 3+) does not have an effect on social-behavioural outcomes in Year 6 for children who are more disadvantaged (in terms of lower mother's qualifications, low SES, no income and receiving FSM).

However, there were two significant differential effects of age of starting pre-school for children who come from families with medium SES (i.e., skilled SES group³) and children from families with medium earned household income (i.e., household annual income between £15001 and £35000⁴). For these groups of children, age of starting pre-school did matter: if they started pre-school at age 2 they had better 'self-regulation' in Year 6 than children who started pre-school at age 3+ (ES=0.18 for medium SES and ES=0.22 for medium income level). There were no other significant differential effects on social-behavioural outcomes for any other levels of disadvantage/advantage tested in these analyses.

We also tested whether or not there is a differential effect of age of starting pre-school for children with low versus high multiple disadvantage. The MDI is a summary measure based on various child, family, and HLE predictors, such as low birth weight or living in a family with low SES, which are associated with an increased risk for lower attainment and poor social-behavioural outcomes. Since the MDI already contains information about various background characteristics, in this analysis we only controlled for gender, age and ethnicity of the child. Similar to the findings reported above, differential effects were not evident for any of the social-behavioural outcomes in Year 6.

Overall, these findings suggest that children who are more disadvantaged (only in terms of coming from families with no earned household income) have *poorer* 'pro-social' behaviour in Year 6 if they started pre-school earlier at age 2 (compared to those who started pre-school at age 3+). On the contrary, children from families with medium earned household income and children from skilled SES families had *better* 'self-regulation' in Year 6 if they started pre-school at age 2 (compared to those who started pre-school at age 3+). These findings on differential effects of duration of pre-school showed a modest effect on social-behavioural outcomes but only for certain groups of children.

The full report on Year 6 social-behavioural outcomes (Sammons et al, 2008b; 2008c) did show that there is a differential effect of quality of pre-school for children who are more disadvantaged. Children who are more disadvantaged benefit more from attending a high quality pre-school than these children who do not attend pre-school or attend low or medium quality pre-schools.

² The sample size for no earned income groups is N=155 for starting pre-school at age 2-3 and N=243 for starting pre-school at age 3+.

³ The sample size for skilled SES groups is N=330 for starting pre-school at age 2-3 and N=489 for starting pre-school at age 3+.

⁴ The sample size for medium earned household income groups is N=218 for starting pre-school at age 2-3 and N=305 for starting pre-school at age 3+.

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Appendix 1: **Additional sources of information**

The EPPSE website: <http://eppe.ioe.ac.uk> contains information on the sample, methodology, and many other aspects of the project. The website also contains links to the information listed below (see the 'Publications' sections of each phase of the study). For further information contact Brenda Taggart, Principal Investigator/Research Co-ordinator, 0207 612 6219, b.taggart@ioe.ac.uk

The Pre-school phase:

End of pre-school phase report and research brief

Final report of the pre-school phase:

<http://www.education.gov.uk/publications/eOrderingDownload/SSU-FR-2004-01.pdf>

Research brief on the pre-school phase:

<http://www.education.gov.uk/publications/eOrderingDownload/SSU-SF-2004-01.pdf>

There are twelve technical papers associated with this phase of the research - see

<http://eppe.ioe.ac.uk>

Technical Paper 1 (1999)

An Introduction to the Effective Provision of Pre-School Education (EPPE) Project.

Technical Paper 2 (1999)

Characteristics of the Effective Provision of Pre-School (EPPE Project sample at entry to the study.

Technical Paper 3 (1999)

Contextualising EPPE: Interviews with local authority co-ordinators and manager.

Technical Paper 4 (1999)

Parent, family and child characteristics in relation to type of pre-school and socio-economic differences.

Technical Paper 5 (2000)

Characteristics of the centres in the EPPE sample: Interviews.

Technical Paper 6 (1999)

Characteristics of the centres in the EPPE sample: Observation profiles.

Technical Paper 6A (1999)

Characteristics of pre-school environments.

Technical Paper 7 (2001)

Social/Behavioural and cognitive development at 3-4 years in relation to family background.

Technical Paper 8a (2002)

Measuring the impact of pre-school on children's cognitive progress over the pre-school period.

Technical Paper 8b (2003)

Measuring the impact of pre-school on children's social/behavioural development over the pre-school period.

Technical Paper 9 (2004)

Report on age 6 assessments.

Technical Paper 10 (2003)

Intensive case studies of practice across the Foundation Stage.

Intensive case studies of practice across the Foundation Stage. Research Brief No RBX16-03

Technical Paper 11 (2004)

Report on the continuing effects of pre-school education at age 7

Technical Paper 12 (2004)

The final report

Sammons, P., Elliot, K., Sylva, K., Melhuish, E., Siraj-Blatchford, I. and Taggart, B. (2004). 'The impact of pre-school on young children's cognitive attainments at entry to reception'. *British Education Research Journal*, 30 (5), 691-712.

Pre-school pedagogy

Researching Effective Pedagogy in the Early Years (REPEY - 2002): Research Report 356

<http://www.education.gov.uk/publications/eOrderingDownload/RR356.pdf>

The Primary Phase:

End of primary school phase report and research brief

Final report from the primary phase: Pre-school, school and family influences on children's development during Key Stage 2 (2008). Research Report RR061

<http://www.education.gov.uk/publications/eOrderingDownload/DCSF-RR061.pdf>

Final Report from the Primary Phase: Pre-school, School, and Family Influences on Children's development during Key Stage 2 (Age 7-11 (2008). Research Brief RB061

<http://www.education.gov.uk/publications/eOrderingDownload/DCSF-RB061.pdf>

Cognitive/Academic outcomes:

Year 5

Influences on children's attainment and progress in Key Stage 2 (2007) Cognitive outcomes in Year 5. Full Report

<http://epps.ioe.ac.uk/epps3-11/epps3-11%20pdfs/eppsapers/DCSF-RR048.pdf>

Summary Report (2007): Influences on children's attainment and progress in Key Stage 2 Cognitive outcomes in Year 5. Research Report RR828

<http://www.education.gov.uk/publications/eOrderingDownload/RR828.pdf>

Influences on children's attainment and progress in Key Stage 2 (2007) Cognitive outcomes in Year 5. Research Brief RB828

<http://www.education.gov.uk/publications/eOrderingDownload/RB828.pdf>

Year 6

Influences on children's attainment and progress in Key Stage 2 (2008) Cognitive outcomes in Year 6. Research Report RR048

<http://www.education.gov.uk/publications/eOrderingDownload/DCSF-RR048.pdf>

Influences on children's cognitive and social development in Year 6 (2008). Research Brief RB048-049

<http://www.education.gov.uk/publications/eOrderingDownload/DCSF-RB048-049.pdf>

Social- behavioural outcomes:

Year 5

Influences on children's development and progress in Key Stage 2 (2007) Social/behavioural outcomes in Year 5. Research Report RR007

<http://www.education.gov.uk/publications/eOrderingDownload/DCSF-RR007.pdf>

Influences on children's development and progress in Key Stage 2 Social/behavioural outcomes in Year 5 (2007). Research Brief RB007

<http://www.education.gov.uk/publications/eOrderingDownload/DCSF-RB007.pdf>

Year 6

Influences on children's development and progress in Key Stage 2 (2008) Social/behavioural outcomes in Year 6. Research Report RR049.

<http://www.education.gov.uk/publications/eOrderingDownload/DCSF-RR049.pdf>

Influences on children's cognitive and social development in Year 6 (2008). Research Brief RB048-049

<http://www.education.gov.uk/publications/eOrderingDownload/DCSF-RB048-049.pdf>

Affective attributes and outcomes

Year 5 only

Relationships between pupils' self-perceptions, views of primary school and their development in Year 5 (2008)

<http://epps.ioe.ac.uk/epps3-11/epps3-11%20pdfs/eppsapers/RelationshipSelfPercepViewSchool16Sept08.pdf>

Pupils' self-perceptions and views of primary school in Year 5 (2008). Research Brief RBX-15-08.

<http://www.education.gov.uk/publications/eOrderingDownload/DCSF-RBX-15-08.pdf>

Influences on pupils' self-perceptions in primary school: Enjoyment of school, Anxiety and Isolation, and Self-image in Year 5 (2008)

<http://epps.ioe.ac.uk/epps3-11/epps3-11%20pdfs/eppsapers/Influences16Sept08.pdf>

Exploring pupils' views of primary school in Year 5 (2008)

<http://epps.ioe.ac.uk/epps3-11/epps3-11%20pdfs/eppsapers/PupilsViewsYr5.pdf>

Study of Year 5 classrooms/schools

Variations in Teacher and Pupil Behaviours in Year 5 Classes. Full Report (2006).

<http://epps.ioe.ac.uk/epps3-11/epps3-11%20pdfs/eppsapers/Tier%203%20full%20report%20-%20Final.pdf>

Summary Report: Variations in Teacher and Pupil Behaviours in Year 5 Classes (2006). Research Report RR817

<http://www.education.gov.uk/publications/eOrderingDownload/RR817.pdf>

Variations in Teacher and Pupil Behaviours in Year 5 Classes (2006), Research Brief RB817.

<http://www.education.gov.uk/publications/eOrderingDownload/RB817.pdf>

The Influence of School and Teaching Quality on Children's Progress in Primary School. (2008) Research Report RR028

<http://www.education.gov.uk/publications/eOrderingDownload/DCSF-RR028.pdf>

The Influence of School and Teaching Quality on Children's Progress in Primary School. (2008) Research Brief RB028

<http://www.education.gov.uk/publications/eOrderingDownload/DCSF-RB028.pdf>

Effective Primary Pedagogical Strategies in English and Mathematics in Key Stage 2: A study of Year 5 classroom practice drawn from the EPPSE 3-16 longitudinal study

Research Report:

<https://www.education.gov.uk/publications/standard/publicationDetail/Page1/DFE-RR129>

Research Brief

<https://www.education.gov.uk/publications/standard/publicationDetail/Page1/DFE-RB129>

The Secondary Phase:

End of secondary school phase report and research brief

Effective Pre-school, Primary and Secondary Education 3-14 Project (EPPSE 3-14) - Final Report from the Key Stage 3 Phase: Influences on Students' Development form age 11-14

(2012) Research Report RR202

<https://www.education.gov.uk/publications/standard/publicationDetail/Page1/DFE-RR202>

Effective Pre-school, Primary and Secondary Education 3-14 Project (EPPSE 3-14) - Final Report from the Key Stage 3 Phase: Influences on Students' Development form age 11-14

(2012) Research Brief RB202

<https://www.education.gov.uk/publications/standard/publicationDetail/Page1/DFE-RB202>

Academic outcomes in Year 9

Influences on students' attainment and progress in Key Stage 3: Academic outcomes in English, maths and science in Year 9.

(2011) Research Report

<http://eppe.ioe.ac.uk/eppse3-14/eppse14pdfs/Final%20EPPSE%20cogs%2026March2012.pdf>

(2012) Research Brief DfE RB184a

<https://www.education.gov.uk/publications/eOrderingDownload/DFE-RB184a.pdf>

Social-behavioural outcomes in Year 9

Influences on students' development in Key Stage 3: Social-behavioural outcomes in Year 9.

(2011) Research Report

<http://eppe.ioe.ac.uk/eppse3-14/eppse3-14pdfs/Final%20EPPSE%203%2014%20socs%20%2027march2012.pdf>

(2012) Research Brief DfE RB 184b

<https://www.education.gov.uk/publications/standard/publicationDetail/Page1/DFE-RB184B>

Affective attributes and outcomes in Year 9

Influences on students' dispositions in Key Stage 3: Exploring enjoyment of school, popularity, anxiety, citizenship values and academic self-concepts in Year 9

(2011) Research Report <http://eppe.ioe.ac.uk/eppse3-14/eppse3-14pdfs/Final%20EPPSE%203-14%20Dispositions%2025%20Jan%202012.pdf>

(2012) Research Brief DfE RB 184c

<https://www.education.gov.uk/publications/eOrderingDownload/DFE-RB184c.pdf>

Views of School in Year 9

Students' Reports of Their Experiences of School in Year 9.

(2011) Research Report <http://eppe.ioe.ac.uk/eppse3-14/eppse3-14pdfs/Final%20EPPSE%203-14%20Reports%20of%20school%20exp%2025Jan2012.pdf>

EPPSE as a programme of research

Effective pre-school provision in Northern Ireland (EPPNI Study)

See Department of Education, Northern Ireland (DENI) http://www.deni.gov.uk/rb_3_2006-2.pdf

Effectiveness of primary schools in England (Reading and Maths)

The Effectiveness of Primary Schools in England in Key Stage 2 for 2002, 2003 and 2004. Full Report (2006)

<http://eppe.ioe.ac.uk/eppe3-11/eppe3-11%20pdfs/eppepapers/Tier%201%20full%20report%20-%20Final.pdf>

The Effectiveness of Primary Schools in England in Key Stage 2 for 2002, 2003 and 2004, (2006) Research Brief RBX06-06

<http://www.education.gov.uk/publications/eOrderingDownload/RBX06-06.pdf>

English and Maths

Not available electronically:

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Equality

The Equalities Review. (2007), *Fairness and Freedom: The Final Report of the Equalities Review* http://www.theequalitiesreview.org.uk/upload/assets/www.theequalitiesreview.org.uk/equality_review.pdf

Promoting Equality in the Early Years: Report to The Equalities Review <http://www.equalitiesreview.org.uk>

Impact on policy and practice

Siraj-Blatchford, I., Taggart, B., Sylva, K., Sammons, P. and Melhuish, E. (2008). 'Towards the transformation of practice in Early Childhood Education: The Effective Provision of Pre-school Education (EPPE) project'. *Cambridge Journal of Education*, 38 (1), 23-36.

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Mixed methods research

not available electronically

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Mobility

Tracking pupil mobility over the pre-school and primary school period (2008): Evidence from EPPE 3-11.

<http://eppe.ioe.ac.uk/eppe3-11/eppe3-11%20pdfs/eppepapers/TrackingMobility16Sept08.pdf>

Pedagogy

Researching Effective Pedagogy in the Early Years (REPEY - 2002): Research Report 356

<http://www.education.gov.uk/publications/eOrderingDownload/RR356.pdf>

Effective Primary Pedagogical Strategies in English and Mathematics in Key Stage 2: A study of Year 5 classroom practice drawn from the EPPSE 3-16 longitudinal study

Research Report:

<https://www.education.gov.uk/publications/standard/publicationDetail/Page1/DFE-RR129>

Research Brief

<https://www.education.gov.uk/publications/standard/publicationDetail/Page1/DFE-RB129>

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What makes a successful transition from primary to secondary school? (2008) Research Report
RR019

<http://www.education.gov.uk/publications/eOrderingDownload/DCSF-RR019.pdf>

What makes a successful transition from primary to secondary school? (2008) Research Brief
RB019

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Special educational needs

Early Transitions and Special Educational Needs Study

This sub-study produced 3 technical reports See <http://eppe.ioe.ac.uk>

Technical Paper 1 (2002)

Special needs across the pre-School period

Technical Paper 2 (2004)

Special educational needs in the early primary years: Primary school entry to the end of Year 1

Technical Paper 3 (2004)

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The Early Years Transition and Special Educational Needs (EYTSEN) Project (2003) Research
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