
EFFECTIVE PRE-SCHOOL AND PRIMARY EDUCATION 3-11 PROJECT (EPPE 3-11)
**THE INFLUENCE OF SCHOOL AND TEACHING QUALITY ON CHILDREN'S
 PROGRESS IN PRIMARY SCHOOL**

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Introduction

The Effective Pre-School and Primary Education 3-11 (EPPE 3-11) project investigates the impact of pre-school, primary school and the family on a range of outcomes for a national sample of 2500+ young children in England between the ages of 3 and 11 years. This Research Brief presents analyses drawing on detailed observations of primary teachers' classroom practices in a sub-sample of 125 classes attended by EPPE 3-11 children during the time they were in Year 5 of primary school (age 10 years). It investigates the relationships between different classroom-level practices and children's progress in cognitive (Reading and Maths) and social/behavioural (Self-regulation, Hyperactivity, Pro-social and Anti-social behaviour) outcomes from Year 1 (age 6) to Year 5 (age 10). The analyses also explore associations between children's outcomes and broader measures of overall school characteristics derived from teacher questionnaires and Ofsted inspection reports.

Key Findings

- Both teachers' classroom practice and overall school-level factors make a significant difference to children's academic and social/behavioural progress during primary school after controlling for the influence of child, family and home factors and prior attainment.
- Classroom factors, particularly overall *Teaching quality* and *Child positivity* (which combines teacher-child and peer relationships and children's own self-reliance) and *Parental support* have an important influence on children's progress in Reading between Year 1 and Year 5. School-level factors were relatively less important for Reading. Progress in Maths, however, is relatively equally influenced by factors at classroom-level (overall *Teaching quality* and *Quality of pedagogy*) and school-level (*Quality of school leadership*, *School communication with parents*, *Use of homework and school standards*). This finding is in accord with EPPE 3-11 analyses for the full sample that indicate stronger school effects for children's progress in Maths (Sammons et al., 2008b).
- The influence of overall *Teaching quality* on Maths and Reading outcomes is stronger than the net influence of some background factors such as gender and family disadvantage (measured by eligibility for free school meals: FSM), but weaker than the influence of early years Home Learning Environment (HLE) and mothers' highest qualification level.
- The influence of primary schools upon children's social/behavioural development appears to operate more through school-level characteristics (measures of *Anti-academic ethos*, *Use of homework and school standards* and the extent of recent school *Improvement since last inspection*) rather than classroom-level factors. The exception is the *Quality of observed pedagogy*, which is beneficial both for reducing pupils' Hyperactivity, and promoting their Pro-social behaviour and Self-regulation (e.g. concentration, self-reliance).

What matters in the classroom

- The observations reveal considerable differences in teachers' and children's behaviours and classroom practices indicating significant variation in the quality of children's educational experiences during Year 5. We found that teachers can be classified into different groups in terms of overall *Teaching quality*, and that observed Year 5 overall *Teaching quality* is a significant predictor of better cognitive progress from Year 1 to Year 5 in both Reading and Maths.
- *Quality of pedagogy* in Year 5 (richness of instructional method, a positive climate, productive use of instructional time, the use of evaluative feedback, teacher sensitivity and lack of teacher detachment) was found to be a significant predictor of progress in Maths, but not in Reading. It was also important for children's progress in terms of reducing Hyperactivity, and promoting Pro-social behaviour and Self-regulation.
- Classroom *Attention and control* was related to better progress in Maths and better development in Self-regulation. *Child positivity* (which involved child-teacher relationships, children's co-operative skills and their self-reliance) was related to better progress in Reading.
- High levels of observed classroom *Disorganisation* in Year 5 (related to teachers' organisation and the behavioural climate of the classroom) were predictors of poorer progress in both Reading and Maths and increased Hyperactivity.

What matters in the school

- Children made better progress in Maths and showed improvements in Self-regulation and Pro-social behaviour where teachers reported more consistent practice across their school in the setting and marking of *homework* and where *standards* were thought to be high.
- Where teachers reported an *Anti-academic ethos* in their school, this predicted increased Hyperactivity and Anti-social behaviour and poorer Pro-social behavioural progress.
- Similarly, where teachers indicated that pupils had greater opportunities to organise activities for themselves and that pupils' views were listened to in their school, this predicted increased Hyperactive and Anti-social behaviour in pupils. However, where this factor was moderate (but not the greatest) pupils made better progress in Reading and Self-regulation, although the results only approached statistical significance.
- Where teachers reported the school was active in *communication with parents*, children made better academic progress, and showed better Self-regulation. In addition, where teachers reported strong parental support, children made better progress in Reading and Pro-social behaviour.

Quality matters (Ofsted inspection measures)

- A number of measures of school quality obtained from Ofsted inspection judgements were found to be significant predictors of children's progress and development.
- The inspection measure of overall *School effectiveness* was a strong predictor of better child progress in Maths and Self-regulation after control for prior development and background factors.
- Judgements of the overall *Quality of school leadership* also showed a modest but positive relationship with Maths progress.
- The judgement of overall school *Improvement since last inspection* also showed a positive association with children's Maths progress, and development in Self-regulation, Pro-social and Anti-social behaviour after control for other factors.
- The percentage of pupils eligible for FSM in a school was also associated with poorer children's progress in Maths, and increased Hyperactivity, Self-regulation and Anti-social behaviour (comparing those in schools below and above the mean on this factor). However the effects are somewhat weaker than those found for the Ofsted measures of overall school effectiveness and improvement.

The EPPE 3-11 Research: Background

The original EPPE study investigated children's intellectual and social / behavioural development between the ages of 3-7 years (Sylva et al., 2004) and focussed on pre-school influences. The EPPE 3-11 study, funded by the Department for Children, Schools and Families (DCSF) has followed up the same sample of children to the end of primary school (age 11 years) and investigates both pre-school and primary school influences on children's attainment, progress and social/behavioural development. This project has now been funded to follow the same sample to the end of Key Stage 3 (age 14). The EPPE website: www.ioe.ac.uk/projects/eppe gives further details about the study and the sample.

The EPPE research adopts an educational effectiveness design using mixed methods including multilevel modelling for the analyses of child outcomes and case studies of effective practice. Earlier reports have documented the enduring impact of pre-school and the importance of early family experiences (particularly the Early years home learning environment [HLE]) on children's later attainment and social behavioural development up to age 10 in primary school (Sammons et al., 2007a; 2007b; Melhuish et al., 2008). In addition, during the pre-school phase the project explored the links between child outcomes and pre-school setting/classroom practices and processes through observations. This identified the features of pre-school experiences found to be linked with more positive developmental outcomes for young children up to age 5 years (see Sylva, 1999; Siraj-Blatchford, 2003; Sylva et al., 2006).

The analysis reported in this Research Brief investigates the way school and classroom processes influence the cognitive progress and social/behavioural development of children between the ages of 6 and 10 years old (Years 1 to 5) in a sub-sample of 1160 children (approximately 45% of the total EPPE 3-11 child sample) in 125 primary schools in England. The variation in primary teachers' classroom practice in these 125 schools has been described in Sammons et al., 2006. The findings here build on these earlier analyses, using the same classroom observational measures. The cognitive outcome measures were collected using standardised tests¹ of Reading and Maths (not national assessments) to avoid any possible influence associated with preparations for national

¹ NFER tests of Reading and Maths.

assessments. The social / behavioural measures were derived from teacher completed pupil profiles (covering the four dimensions of Hyperactivity, Self regulation, Anti-social behaviour and Pro-social behaviour). Children's progress was measured over a four year period and thus is likely to reflect the overall influence of schools and teachers across several school years, but the observational data were confined to Year 5. This strategy enables both school and class influences on children's academic and social/behavioural progress to be explored².

The aim is to establish whether particular features of classroom practices and school processes help to predict child outcomes after controlling for a range of background factors (child, family, HLE, prior attainment). Multilevel modelling and the use of Effect Sizes (ES) allow such comparisons to be made³. The research focuses on measuring children's progress and development in cognitive and social / behavioural outcomes between Year 1 to Year 5.

For further details on the research and analysis used in this study, see the Research Report (Sammons 2008a).

What matters in the classroom

It was hypothesised that higher quality classroom experiences would predict better child outcomes in Year 5, taking account of children's prior attainment and social/behavioural development and background factors. School effectiveness research has drawn attention to the importance of the classroom level in accounting for variations in pupil outcomes but such research has generally only tested limited measures of classroom processes and usually only examined cognitive outcomes (Teddle & Reynolds, 2000). The EPPE research has studied a detailed set of classroom measures obtained from observations in Year 5 and a number of different indicators of children's outcomes and therefore can explore the relative strength of different features on children's progress in a wide range of outcomes.

² Ideally observations would have been conducted in all years in KS 2 but this was not practical so Yr 5 was chosen as representative KS2 experience in a school, and it was also the year when children's outcomes were assessed by EPPE.

³ An effect size is a statistical measure that can be used to illustrate the strength of impact of different factors used to predict variation in children's outcomes.

Overall Teaching Quality

Teachers' and children's observed behaviours were found to differ significantly across the 125 Year 5 classes (Sammons et al., 2006). The observation instruments identified significant variations in observed quality indicating that children's educational experiences in Year 5 classes differed significantly with some benefiting from higher quality experiences. The present analyses indicate that teachers could be divided into groups based on observations of their overall *quality of teaching*.

The classroom observation data revealed a number of underlying factors (dimensions) and these were tested to explore relationships with children's progress in a range of outcomes.

Aspects of teaching

A number of classroom processes were identified from the observational data such as *Quality of pedagogy*, *Disorganisation*, *Child positivity*, pupils' *Positive engagement* and the extent of *Attention and control*, as well as specific features of practice related to literacy and numeracy teaching. A measure of overall *Teaching quality* derived from these dimensions was constructed and teachers were grouped in terms of overall quality of practice. This measure of overall *Teaching quality* was a significant and moderately strong predictor of better Reading (ES=0.37) and Maths progress (ES=0.35)⁴.

It is possible to use effect sizes (ES) to compare the strength of different factors such as overall *Teaching quality* with that of other background influences on children's progress for this subsample of EPPE children. For example, the influence of overall *Teaching quality* (Maths ES=0.35; Reading ES=0.37) is smaller than the influence of early years *Home Learning Environment* (Maths ES=0.37; Reading ES=0.62) and *mothers' highest qualification level* (having a degree versus no qualifications, Maths ES=0.63; Reading ES=0.83) and larger than the net influence of either *gender* (Maths ES=0.10; Reading ES=0.05) or *eligibility for FSM* (Maths not significant; Reading ES=0.19). Further details of background effects are shown in the full report.

Quality of pedagogy: This more detailed measure was part of the *overall Teaching quality* assessment and included items such as richness of instructional method, a positive classroom climate, productive use of instructional time, the use of feedback, teacher sensitivity and lack of teacher detachment. This measure was significantly related to children's progress in Maths (ES=0.27). Overall, this factor describes a classroom where teachers provide a rich learning environment where pupils are challenged in their learning and provided with specific evaluative feedback on how to improve their work. Reviews of school and teacher effectiveness research have suggested that schools vary more in their effects on Maths than on Reading (Scheerens and Bosker, 1997; Muijs and Reynolds, 2005). The current results are in accord with such conclusions showing that variations in the Quality of pedagogy in Year 5 classes are particularly important in accounting for differences in children's Maths progress.

The factor *Disorganisation* was related to the observed behavioural climate of the classroom and results support earlier studies indicating that fostering a calm and orderly climate is important for learning and teaching. Previously, EPPE reported moderate associations between the level of socially disadvantaged pupils in a school and the extent of *Disorganisation* observed in Year 5 classes (Sammons et al., 2006). Higher levels of *Disorganisation* were significantly associated with poorer Reading (ES=0.21) and Maths (ES=0.34) progress and also increased Hyperactivity (ES=0.37). It may be harder for teachers to maintain good order in class in schools serving higher proportions of disadvantaged children. Also poorer classroom practice may be a contributory factor in explaining the poorer outcomes of children in more disadvantaged communities. Probably both explanations play a part. Our analyses controlled for a wide range of background measures, including parents' qualifications, occupations and income. Other research (Ross & Hutchings, 2003; Darling-Hammond, 2002) has suggested that schools in disadvantaged settings can find it harder to recruit and retain teachers and tend to be served by less experienced staff. This may play a part in the finding of a negative association between higher quality practice observed in Year 5 classes and overall level of disadvantage of pupil intake.

⁴ The strength of predictors can be reported in terms of Effect sizes (ES) these provide a summary measure of the strength of prediction of an outcome net of other predictors. An ES of 0.1 is relatively weak, one of 0.35 moderately strong, one of 0.7 strong, for example.

In addition the factor *Attention and control* was found to be linked to better Maths progress (ES=0.27) and Self-regulation (ES=0.36) while *Child Positivity*, (the nature of child-teacher relationships, children's co-operative skills and their self-reliance) was a predictor of better Reading progress (ES=0.39).

What matters in the school

In addition to classroom observations, the teachers of the observed classes completed a questionnaire. From this questionnaire several measures were constructed.

Use of homework and school standards

Teachers' perceptions of the *Use of homework and school standards* (including such items as teachers set homework every week for their class, most teachers mark and return homework promptly, and whether the overall standards set for pupils at the school were perceived to be high enough) also showed a significant association with better progress in Maths with the most positive impact for the medium versus low group (ES=0.27). Higher scores here were also associated with improvements in Self-regulation (ES=0.32) and Pro-social behaviour (ES=0.33).

Pupil agency and voice

The factor based on teachers' perceptions of *Pupil agency and voice* (such as pupils organise activities for themselves and whether pupils' views are listened to and taken seriously) was associated with better Reading progress (where medium amounts showed the most positive effect, ES=0.26) and with Self-regulation (ES=0.27, where higher amounts were best).

It was hypothesised that children would show positive social behaviour in schools where their views are listened to and accommodated, however, the findings suggest otherwise. Contrary to expectations, EPPE children's Hyperactive and Anti-social behaviour was significantly increased in schools where teachers reported High levels of *Pupils' agency and voice* (ES=0.30 and ES=0.38 respectively). These schools may be responding to poor pupil behaviour by giving more emphasis to pupils' voice so *Pupils' agency and voice* may be seen as a constructive response by schools seeking to counter negative behaviour. Alternatively, some moderate amount of *involvement* and *autonomy* may be optimum, and beyond a certain point, children at this age may not respond well to high levels of autonomy because such strategies may adversely affect the disciplinary climate. Further study of *Pupil Agency and voice* is needed to

explore these associations and their impact in more depth.

Anti-academic ethos

Where teachers reported an *Anti-academic ethos* amongst pupils in their school, children in the sample also showed poorer progress in Reading (ES=0.31) and Maths (ES=0.37), increased Hyperactivity (ES=0.36) and Anti-social behaviour (ES=0.31) and poorer Pro-social behavioural (ES=0.38) development.

Parental communication and support

Two aspects of the home-school relationship (*School communication with parents* and *Parental support for their child's learning*) were significant predictors of better child outcomes.

Teachers' perceptions of the *school's communication with parents* was the stronger of these two predictors (Reading ES=0.38, Maths ES=0.34) with children making better progress in schools where teachers reported good communication (such as *parents being regularly informed about their child's progress / achievements* and *the school being good at communicating its expectations of pupils to parents*). This factor also predicted better developmental progress for Self-regulation (ES=0.27).

Teachers' judgements of *overall level of parental support for children's learning* also showed a positive relationship with pupils' progress in Reading (ES=0.28) and their Pro-social development (ES=0.38).

Quality matters (Ofsted inspection measures)

In addition to investigating the impact of observed classroom processes, further analyses explored the predictive power of more global indicators of school quality, based on Ofsted inspectors' judgements. Several classroom process factors derived from the classroom observations were positively related to Ofsted measures of overall school effectiveness, improvement and leadership. The observed measure of overall *Teaching quality* was found to be higher in schools independently identified by inspectors as showing better quality in overall judgements of effectiveness, improvement and leadership (Sammons et al., 2006).

School effectiveness

School effectiveness as judged by Ofsted was found to be a strong predictor of better outcomes for children after control for prior attainment or prior social behaviour and other background

factors. Attending a school judged by Ofsted as more effective made a significant difference to Maths progress (ES=0.41) and for Self-regulation (ES=0.39). The results for Reading also indicated that children made more progress in schools judged to be more effective by Ofsted (ES=0.30). All other progress measures show effects that were in a similar direction but were not statistically significant.

Improvement since last inspection

The *Improvement since last inspection* indicator also showed a very similar pattern to findings on overall school effectiveness with schools that had shown most improvement being significantly associated with better progress for our sample in Maths (ES=0.35), Self-regulation (ES=0.49), Pro-social behaviour (ES=0.43) and improvements in terms of reduced Anti-social behaviour (ES=0.31).

Leadership

The findings for the Ofsted School *Leadership* indicator also showed a significant positive relationship with better progress in Maths (ES=0.32), and similar benefits for reduced Hyperactivity (ES= -0.22) and Anti-social behaviour (ES= -0.23), but these latter two results only approached statistical significance.

Measures of social disadvantage (Free school meals - FSM)

The level of disadvantage of the school's pupil intake (% of pupils eligible for FSM) was related to children's cognitive and social/behavioural progress (for Maths, Hyperactivity, Self-regulation and Anti-social behaviour). A higher level of social disadvantage was a predictor of poorer progress. These analyses controlled for all other significant child, family and HLE characteristics including the individual child's family income (measured in Year 1 at age 6) and eligibility for FSM. However, the effects are somewhat weaker and less significant (ES range 0.23-0.29) than those found for the Ofsted measures of school effectiveness and improvement (ES range 0.27-0.49). Nonetheless, these findings support other research on the influence of school composition and indicate that the challenges in raising attainment are greater for schools in areas of higher disadvantage.

Elsewhere we have shown that only one of the classroom observation measures was associated with level of disadvantage (Sammons et al., 2006). Classroom *Disorganisation* was weakly negatively associated with overall social disadvantage of pupil intake to a school (% pupils eligible for FSM, Correlation $r = -0.36$).

Conclusions and Implications

Reviews of school and teacher effectiveness research have pointed to the importance of a range of school and classroom features that promote better educational outcomes for students, see Teddlie & Reynolds (2000), Scheerens & Bosker (1997) and Sammons (2007c). These include a positive school culture, good leadership, creating a positive learning environment, high expectations and good quality teaching.

The analyses of classroom observations show that it is possible to group teachers in Year 5 primary classes in terms of their overall *Teaching quality* across a range of observed classroom behaviour and practices. Overall *Teaching quality* was a significant predictor of better cognitive progress for children across the period Years 1 to 5, and this is particularly evident in comparing the High and Low groups. In other words, children in schools where Year 5 overall *Teaching quality* was observed to be High do significantly better in both Reading and Maths progress than those attending schools where Year 5 overall *Teaching quality* was observed to be Low. However, overall *Teaching quality* was not associated with social/behavioural progress. It appears that the overall quality of teaching as measured by the observation instruments has a greater influence on children's academic progress, than on other social/behavioural outcomes.

With regard to other school measures, children who attended more effective and improved schools, as measured by earlier Ofsted judgements made during regular school inspections, showed longer term benefits on a range of social / behavioural outcomes as well as academic outcomes. The judgement of school leadership also showed a significant though weaker positive influence. This supports the conclusions of school effectiveness research that *schools matter*. Even when the powerful influences of child, family and home are controlled, going to a 'better' primary school exerts a positive net influence on children's academic progress and also on social / behavioural outcomes.

In addition, the results indicate that teachers' perceptions of a number of features of their schools (such as communication with parents, parental support, consistent emphasis on homework, pupil agency and voice, and anti-academic ethos) are also significant predictors of children's academic progress and social / behavioural progress from Year 1 to Year 5.

The findings confirm that there are significant variations in the overall observed quality of teaching in Year 5 classes and such variations are important predictors of children's progress in Reading and Maths. Specific features of teachers' practice and children's responses are also predictors of better social / behavioural outcomes. In addition, some aspects of organisation such as the school's emphasis on communication with parents and homework, and level of parental support also show a significant impact in promoting better progress. In combination with the findings on teacher quality, the results point to important features of schools and classroom processes that help to explain differences in children's outcomes and thus provide evidence on successful practice.

Taken together these results demonstrate those aspects of teachers' classroom practice and overall features of schools, including inspection judgements of school quality that have predictive validity in terms of better child outcomes at age 10. They support conclusions from previous school and teacher effectiveness studies that point to important variations between teachers and schools in their effects on pupils' progress and social/behavioural development. The quality of classroom teaching and the overall quality of the school both matter, while contextual influences and communication with parents are also significant. We conclude that initiatives that place a stronger emphasis on promoting the overall quality of teaching and creating a more orderly classroom climate are likely to improve educational outcomes for all children and may be particularly important for schools with higher proportions of disadvantaged children (because these schools are more likely to have higher levels of classroom disorder).

After taking account of other influences it is clear that the quality of classroom teaching matters, and the overall school characteristics also matter. Children in the EPPE sample who had the benefit of attending a primary school independently judged by Ofsted to be more 'effective and improved' showed both better academic progress and social / behavioural development. The findings also provide some independent confirmation that inspection judgements of effectiveness and improvement provide useful indicators of differences in school quality that have a measurable impact on a range of pupil outcomes. Both the quality of teaching and the overall effectiveness of the school are found to be significant predictors of better cognitive progress and social/behavioural development. Given that

many studies (including EPPE 3-11) have demonstrated links between pupil disadvantage (such as low SES and family income) and significantly poorer educational outcomes, enhancing the quality of teaching and the overall effectiveness of the school are likely to be particularly important for disadvantaged groups of pupils. A major research review by Scheerens & Bosker (1997) concluded that school effects are larger for ethnic minority and disadvantaged groups (our sample size does not allow detailed analysis of school effects for specific sub-groups here) and is supported by findings for all primary schools in England (Melhuish et al., 2006). Therefore improving the quality of teaching and overall effectiveness of the school is likely to be necessary to promote better long term educational outcomes for disadvantaged groups of pupils in particular. This conclusion is also supported by recent Ofsted findings of schools in disadvantaged areas (Ofsted, 2007).⁵ The EPPE 3-11 findings support the view that quality of classroom practices and overall quality of schools and their leadership make an important difference to children's academic and social/behavioural progress. The results suggest the need to reduce the variation in the quality found between class practices and school processes in order to raise overall standards and promote greater equity.

This longitudinal study is the first of its kind in England (educational effectiveness) to provide recent and robust evidence on the role of classroom influences such as teaching quality and school processes in shaping primary children's progress and development (on a wide range of outcomes) during Key Stage 2. Confidence in findings is enhanced by the extent of controls for the impact of other background factors in the models used.

Methodology

The EPPE 3-11 study is the first large-scale longitudinal study to combine a wide range of data that explore the relationship between detailed measures of child, family and home learning environment (HLE) and children's progress (in both cognitive and social / behavioural outcomes) and to link this detailed information to what teachers do in the classroom and measures from inspection judgements (Ofsted). This has enabled the exploration of the predictive power of different measures in accounting for variation in children's progress across a wide range of outcomes, both academic and social behaviour.

⁵ See Ofsted Annual Report 2006/2007 (para. 282-284, p. 69 -70).

This report describes the results of quantitative analyses based on a sub-sample of 1160 EPPE 3-11 children across Years 1 to 5 of primary education (age 6 to 10 years), representing approximately 45% of the total EPPE child sample. The research builds on the earlier analyses of children's Reading and Maths attainments and social/behavioural outcomes in Year 5 for the full EPPE 3-11 sample (see Sammons, 2007a; 2007b), by investigating relationships between children's outcomes and measures of classroom processes, collected through observation of Year 5 classes in 125 focal schools chosen from the wider EPPE 3-11 data set. The focus on progress and development across four successive years is likely to enhance the chances of identifying school influences as well as those relating to teachers' classroom practices.

Two instruments were used for classroom observations: the Classroom Observation System for Fifth Grade (COS-5, NICHD/Pianta 2001) and The Instructional Environment Observation Scale (IEO, Stipek, 1999). For detailed descriptions of these instruments see Sammons et al., (2006). Observations were conducted in Year 5 to avoid any influence associated with end of Key Stage 2 National assessments (this reduces the likelihood that any teaching to the test might affect results). Field work was carried out during spring and summer terms of 2004 and 2005. In addition, teachers were asked to complete a questionnaire with a 94% response rate.

Multilevel models were used to test the predictive power of different measures of classroom processes and overall quality of teaching. It should be noted, that the models of children's progress control for prior attainment (or prior social behaviour) measured in Year 1, as well as a wide range of child, family and HLE influences. The progress and developmental gains are thus measured over a four year period in primary school. The outcomes studied include Reading and Maths (measured by NFER standardised tests) and four social / behavioural measures derived from teachers' ratings of individual children (Hyperactivity, Self-regulation, Anti-social behaviour and Pro-social behaviour).

In addition global measures of overall *Teaching quality* were derived and tested to establish whether there were meaningful groupings of classes on the basis of overall quality.

It was hypothesised that children would make more cognitive progress and show more positive

social/behavioural development in schools that had been rated more favourably on Ofsted indicators of quality in previous inspection reports, taking into account other influences. Ofsted measures were tested in the multilevel models of children's outcomes in Year 5 and the results supported the hypothesis.

References

- Darling-Hammond, L. (2002), *Access to quality teaching: An analysis of inequality in California's public schools*: Santa Clara Law Review.
- Melhuish, E., Romaniuk, H., Sammons, P., Sylva, K., Siraj-Blatchford, I. & Taggart. (2001) *The Effective Pre-school, Primary and Education Project (EPPE 3-11): The Effectiveness of Primary Schools in England in Key Stage 2 for 2002, 2003 and 2004*. Full Report London: Institute of Education, University of London <http://www.ioe.ac.uk/schools/ecpe/epe/epe3-11/epe3-11pubs.htm>
- Melhuish, E., Sylva, K., Sammons, P., Siraj-Blatchford, I., Taggart, B. and Phan, M. (2008), 'Effects of the Home Learning Environment and pre-school center experience upon literacy and numeracy development in early primary school.' *Journal of Social Issues*, 64, 157-188.
- Muijs, D. and Reynolds, D. (2005), *Effective Teaching*. London: Sage.
- NICHD. (2001), *Fifth Grade School Observation Procedures Manual.* NICHD Study of Early Child Care and Youth Development: NICHD Study of Early Child Care and Youth Development. Developed by R. Pianta.
- Ofsted. (2007), *The Annual Report of Her Majesty's Chief Inspector of Education, Children's Services and Skills 2006/07*. London: The Stationery Office.
- Ross, A. and Hutchings, M. (2003), *Attracting, Developing and Retaining Effective Teachers in the United Kingdom and Northern Ireland: OECD Country Background Report*: Institute of Policy Studies in Education, London Metropolitan University.
- Sammons, P., Taggart, B., Siraj-Blatchford, I., Sylva, K., Melhuish, E., Barreau, S. and Manni, L. (2006), *Effective Pre-school and Primary Education 3-11 (EPPE 3-11) Summary Report: Variations in Teacher and Pupil Behaviours in Year 5 Classes. Research Report No. 817*. Nottingham: DfES Publications.

Sammons, P., Sylva, K., Melhuish, E., Siraj-Blatchford, I., Taggart, B. and Barreau, S. (2007a), *Effective Pre-school and Primary Education 3-11 Project (EPPE 3-11): Influences on Children's Development and Progress in Key Stage 2: Social/behavioural Outcomes in Year 5. Research Report no. DCSF-RR007*. Nottingham: DfES Publications.

Sammons, P., Sylva, K., Melhuish, E., Siraj-Blatchford, I., Taggart, B., Grabbe, Y. and Barreau, S. (2007b), *Effective Pre-school and Primary Education 3-11 Project (EPPE 3-11) Summary Report: Influences on Children's Attainment and Progress in Key Stage 2: Cognitive Outcomes in Year 5. Report No. RR828*. Nottingham: DfES Publications.

Sammons P (2007c) *School Effectiveness and Equity: Making connections*. CfBT Education Trust. Reading.
www.cfbt/evidenceforeducation.com

Sammons, P., Sylva, K., Melhuish, E., Siraj-Blatchford, I., Taggart, B., Barreau, S. and Grabbe, Y. (2008), *The Influence of School and Teaching Quality on Children's Progress in Primary School. Report No. DCSF-RR028*. Nottingham: DfES Publications.

Scheerens, J. and Bosker, R. (1997), *The Foundations of Educational Effectiveness*. Oxford: Pergamon.

Siraj-Blatchford, I., Sylva, K., Taggart, B., Sammons, P., Melhuish, E. C. and Elliot, K. (2003), *The Effective Provision of Pre-School Education (EPPE) Project: Technical Paper 10 - Intensive Case Studies of Practice across the Foundation Stage*. London: DfES / Institute of Education, University of London.

Stipek, D. (1999), *Instructional Environment Observation Scale*. University of California: MacArthur Pathways through Middle Childhood Network.

Sylva, K., Siraj-Blatchford, I., Melhuish, E. C., Sammons, P., Taggart, B., Evans, E., Dobson, A., Jeavons, M., Lewis, K., Morahan, M. and Sadler, S. (1999), *The Effective Provision of Pre-School Education (EPPE) Project: Technical Paper 6 - Characteristics of the Centres in the EPPE Sample: Observation Profiles*. London: DfEE / Institute of Education, University of London.

Sylva, K., Melhuish, E. C., Sammons, P., Siraj-Blatchford, I. and Taggart, B. (2004), *The Effective Provision of Pre-School Education (EPPE) Project: Final Report*. London: DfES/ Institute of Education, University of London.

Sylva, K., Siraj-Blatchford, I., Taggart, B., Sammons, P., Melhuish, E., Elliot, K. and Totsika, V. (2006), 'Capturing Quality in Early Childhood Through Environmental Rating Scales'. *Early Childhood Research Quarterly* 21 (1), 76-92.

Teddlie, C. and Reynolds, D. (2000), *The International Handbook of School Effectiveness Research*. London: Routledge/Falmer.

Additional Information

Copies of the full report (DCSF-RR028) - priced £4.95 - are available by writing to DCSF Publications, PO Box 5050, Sherwood Park, Annesley, Nottingham NG15 0DJ.

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The views expressed in this report are the authors' and do not necessarily reflect those of the Department for Children, Schools and Families.

Summary table of relationships between different class and school predictors and children's progress in Cognitive and social/behavioural outcomes (Year 1 - Year 5)

	Reading	Maths	Hyperactivity	Self-regulation	Pro-social	Anti-social
COS-5 (Pianta)						
Overall teaching quality	0.37	0.35				
Quality of pedagogy		0.27	0.28	0.17	0.27 Low-Med gp	
Disorganisation	0.21	0.34	0.37			
Child Positivity	0.39					
Positive engagement					0.33 Low-Med gp	
Attention and control		0.27		0.28		
IEO (Stipek)						
Literacy						
Global indicator						
Pedagogy	0.23	0.45				
Subject development						
Learning linkages						
Numeracy						
Global indicator						
Pedagogy		0.23				0.28
Subject development	0.32 Med gp		0.28			
Learning linkages						
Teacher perceptions						
School communication with parents	0.38	0.34		0.27		
Parental support of their child's learning	0.28				0.38	
Use of homework and school standards		0.27 Medium grp		0.32	0.33	
Pupils' agency and voice	0.26 Med-high grp		0.30	0.27		0.38
Anti-academic ethos	0.31	0.37	0.36		0.38	0.31
Ofsted judgements						
School effectiveness	0.30	0.41	0.27	0.39	0.37	0.35
Improvements since last inspection	0.31	0.35	0.34	0.49	0.43	0.31
Quality of assessment		0.28				
Leadership		0.32	0.22			0.23
Attendance						
% of pupils eligible for FSM		0.23	0.25	0.25		0.29
Reference group: High						
Effect sizes represent differences between the lowest and highest scoring groups unless otherwise stated.						
*p<0.05 appears in BOLD , others are approaching significance. blank cells indicate non significance						