Department for Education

# Influences on students' social-behavioural development at age 16

## Effective Pre-School, Primary & Secondary Education Project (EPPSE)

## Research Brief

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# Contents

# List of tables

# Introduction

The Effective Pre-school, Primary and Secondary Education study (EPPSE) has investigated the academic and social-behavioural development of a national sample of approximately 3,000 children across different phases of education, from the age of 3+ years to age 16. This Research Brief focuses on the relationships between a range of individual student, family, home, pre-school, primary and secondary school characteristics and students' social- behavioural development at age 16, the end of compulsory education.

The social-behavioural development of young people is important in its own right because it contributes to well-being, and also because it can influence current and future academic achievement, and shape developmental pathways. EPPSE derived four measures of social behaviour from individual student assessments made by teachers. These are *'self-regulation'* (problem-solving, motivation, self-confidence, assertiveness etc.), '*pro-social behaviour'* (peer empathy, co-operation, altruism etc.), *'hyperactivity'* (reduced self-control, impulsiveness etc.) and *'anti-social behaviour'* (verbal abuse, aggression etc.).

For the full details of the these and other analyses of EPPSE students' GCSE results, attitudes, social behaviour, and secondary school experiences at age 16, and their destinations after Year 11 see Sammons et al., 2014a, b, c and d; Taggart et al, 2014; Siraj et al., 2014 and Sylva et al., 2014

# Key findings

**1)** Four distinct dimensions of social behaviour were identified: Two positive behaviours (Self -regulation and Pro-social behaviour) and two negative behaviours (Hyperactivity and Anti-social behaviour).

**2)** Most students were rated favourably by their teachers in all these measures; and only a small minority of Year 11 students were identified as showing poor social-behavioural profiles.

**3)** Overall, girls were rated more favourably by teachers in terms of all four measures of social behaviour and made more developmental progress than boys from Year 6 to Year 11.

## Individual student, family and home characteristics influence social behavioural outcomes

**4)** Students younger within their year group (Summer-born rather than Autumn-born) generally showed poorer social-behavioural outcomes and progress.

**5)** Students with Special Educational Needs (SEN) were rated as having significantly poorer behaviour for all four outcomes.

**6)** Socio-economic status (SES[1]), family poverty (FSM - Free School Meal status) and parents' educational qualification level predicted social-behavioural outcomes and developmental progress across five years secondary school. On average those from more disadvantaged or less well educated families were rated as showing poorer behaviour in school,

**7)** Coming from a single-parent household or a larger family (3 or more siblings) were weaker, but statistically significant predictors of poorer social behaviour and progress.

**8)** Students who had experienced a more positive early years Home Learning Environment (HLE) during the pre-school period continued to show better social-behavioural outcomes in Year 11. The experience of a more favourable HLE during Key Stage 3 (KS3) in terms of 'academic enrichment' also predicted better social-behavioural outcomes at age 16 and developmental progress across secondary school.

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[1] Based on the Registrar General social classification of occupations

9) Living in a neighbourhood with higher levels of disadvantage (e.g. %children living in poverty) deprivation or a higher proportion of White British residents predicted poorer social-behavioural outcomes and less favourable developmental progress.

## High quality pre-school influences social behaviour, but effects are weaker than in the past

10) There was some evidence of statistically significant continuing pre-school effects on social behavioural outcomes at age 16 but these were weaker than at younger ages. Having attended a high quality pre-school predicted better social-behavioural outcomes in the longer term, though the effects were small.

## Secondary school influences social behavioural outcomes

11) The composition of the student intake of their secondary school predicted differences in EPPSE students' outcomes in Year 11. Attending a secondary school with a higher percentage of students recorded as having a SEN in the student intake predicted poorer social-behavioural outcomes (reduced Self regulation, Pro-social beghaviour and increased Anti-social behaviour schools) for the EPPSE sample. Though statistically significant these compositional effects were weak.

12) Several self-report measures of students' views of their experiences of secondary school were found to influence social behavioural outcomes and progress. These findings are in line with those found in earlier analyses of social behaviour in KS3.

13) In particular, attending a secondary school that was rated more highly in terms of the overall ' 'emphasis on learning' in KS3 (in terms of the value teachers and other students place on learning) predicted better social behavioural outcomes, while having attended a school with an overall 'poor behaviour climate' (disobeying rules, fights, bullying etc) in KS3 predicts less favourable social behavioural outcomes later on at age 16.

14) Students' reports on the emotional climate of their secondary schools in KS4 in terms of 'positive relationships' between staff and students, and their experiences in terms of 'teacher support', teacher professional focus and the extent to which they received 'formative feedback' on their work were also important predictors of positive social behaviours at the end of Year 11.

**15)** External indicators of school academic effectiveness (based on DfE CVA[2] indicators) and of school quality from Ofsted inspection grades did not predict differences in social behavioural outcomes. This is in contrast to findings for GCSE attainment where these external indicators were found to be significant. This is also a change from earlier KS3 findings where better school quality measured by Ofsted grades did predict more favourable social behavioural outcomes for students in Year 9.

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[2] The EPPSE CVA indicator is based on DfE CVA results for 4 successive years, covering the 4 EPPSE cohorts, 2006-2009 for all secondary schools attended by EPPSE students.  The EPPSE results have an overall CVA averaged mean of 1004, which is close to the national CVA mean of 1000. The students in the sample (based on their secondary school's average CVA score) were divided into high, medium and low CVA effectiveness groups based on the average CVA score to 1 SD above or below the mean; nationally, approximately 10% of secondary schools are 1 SD above the mean and approximately 10% of secondary schools are 1 SD below the mean.

# Background and Aims

Previous phases of the EPPSE project have investigated how individual child, family, neighbourhood, home/out of school learning, pre-school, primary and secondary school have influenced children's attainment, progress and development from the early years in pre-school up to age 14 in KS3 of secondary education. For full details visit www.ioe.ac.uk/eppse

This Research Brief outlines the key findings from analyses of social behavioural outcomes measured when students were age 16 in Year 11. The overall findings are in line with results from other research (Eisenberg et al 1995, Kerr and Michalski 2007, Schmitz, 2003) that has investigated social behaviour in school. They show that most students are generally rated favourably by their secondary school teachers, and only a small minority were identified as showing problem behaviours. The research also provides additional evidence on educational and other influences that have not been available in past research in England for this age group, and reveals how social behaviour changes across five years in secondary school by studying developmental progress from Year 6 to year 11.

The aims of the Year 11 Key Stage 4 analysis were to measure and investigate:

- the variation in students' social-behavioural outcomes at the end of KS4 and developmental progress across five years in secondary school from KS2 (Year 6) to KS4 (Year 11);

- the influence of student background characteristics, including the extent to which individual, family, home learning environment (HLE) and neighbourhood factors, predict social-behavioural outcomes at age 16;

- the influence of pre-schools, primary schools and secondary schools in shaping students' social-behavioural outcomes and developmental progress.

- the role of secondary school experiences as predictors of students' social-behavioural outcomes using self-report measures of their experiences derived from student questionnaires.

# Methodology

The EPPSE 3-16+ project is a longitudinal study that has adopted an educational effectiveness and mixed methods design (Sammons et al., 2005; Siraj-Blatchford et al., 2006). This has enabled the study of individual, family and home influences, as well as the effects of pre-school, primary and secondary school measures on children's academic and developmental outcomes from the early years on into adolescence across different phases of education. This Research Brief summarises the results of quantitative analyses of factors that predict students' social behavioural outcomes at age 16 and their developmental progress across five years of secondary schooling from KS2 to KS4. The analyses are based on multilevel statistical models that test the effects of various potential predictors of students' outcomes in Year 11.

For over 17 years EPPSE has gathered a wide range of data on children's attainment and development at different ages. Interviews and questionnaire surveys have been used to collect details about their families and home learning environments (HLE). In addition, data on the sample's pre-school, primary and secondary schools including external indicators (such as Ofsted ratings of secondary school quality and DfE CVA performance measures) as well as students' self reports of their secondary schools has been obtained. Findings about the EPPSE students' academic attainment, dispositions, views of school and post 16 destinations are reported separately (see Sammons et al., 2014b, 2014c, 2014d and Taggart et al., 2014).

The measures of social behaviour were derived from teacher ratings of 2424 individual students. Teachers completed a profile which included 25 items from the Strengths and Difficulties Questionnaire (Goodman, 1997) with additional items to extend the range of social behaviours studied. Using both exploratory and confirmatory factor analyses, four underlying dimensions of social behaviour were identified: two positive social behaviours (self-regulation and pro-social behaviour) and two negative behaviours (hyperactivity and anti-social behaviour). Assessing students' developmental progress in these behaviours was possible as similar measures had been collected at the end of KS2 in Year 6 (age 11).

# The findings explained[3]

The findings below are grouped according to type of influence studies (individual, family, neighbourhood, and educational). All the findings on the effects of particular predictors reported are shown net of the effects of other influences (e.g., the effect of gender is shown net of the effects of age, family SES, FSM status, parents' qualifications etc.). For further details see Sammons et al., 2014a.

## Student characteristics

Girls as a group showed significantly better social-behavioural profiles than boys when the influences of all other factors are controlled. The effects were moderate and highly significant showing that the gender gap in behaviour persists throughout secondary schooling: self regulation (ES=0.43), pro-social behaviour (ES=0.59), hyperactivity (ES=-0.47) and anti-social behaviour (ES=-0.39).

A student's age within their year group was a significant but much weaker predictor, with the younger students (Summer born) showing consistently poorer outcomes than older members of their age group (Autumn born) for self-regulation (ES=-0.17), pro-social behaviour (ES=-0.12) and increased hyperactivity (ES=0.17).

Students identified as having some record of SEN in secondary school showed significantly poorer behavioural outcomes.

Children who had been identified by their parents as having behaviour problems during their early years were more likely to go on to display poorer social behaviour in secondary school for self-regulation (ES=-0.44), pro-social behaviour (ES=-0.33) and higher scores for hyperactivity (ES=0.38).

## Family characteristics

Parents' highest qualification level (mothers having a degree versus no qualifications) was a moderately strong predictor of better social behavioural outcomes for: self-regulation (ES=0.44), pro-social behaviour (ES=0.35), hyperactivity (ES=-0.33) and anti-social behaviour (ES=-0.32).

Family poverty and SES were important predictors of social behaviours. Students eligible for FSM had poorer outcomes for self-regulation (ES=-0.33), pro-social behaviour (ES=-0.30), hyperactivity (ES=0.39) and anti-social behaviour (ES=0.44).

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[3] Findings are reported in Effect Sizes (ES) which is a statistical concept that shows the strength of the relationship between outcomes while controlling for other factors. An effect size of 0.1 is relatively weak, one of 0.5 moderate in size, one of 0.7 fairly strong.

SES effects were especially notable. Compared with the highest SES group (professionals), students with unskilled parents showed poorer outcomes for self-regulation (ES=-0.61), pro-social behaviour (ES=-0.51), hyperactivity (ES=0.56) and anti-social behaviour (ES=0.54).

There were significant but somewhat weaker negative effects linked to being in a single parent household for self-regulation (ES=-0.25), pro-social behaviour (ES=-0.28). Students from single parent households also had significantly increased scores for hyperactivity (ES=0.24) and anti-social behaviour (ES=0.21). Students who were from a large family (defined as 3 or more siblings) showed lower scores for self-regulation (ES=-0.22) and higher scores for hyperactivity (ES=0.18).

Students who had experienced a more positive early years HLE (comparing the highest and lowest HLE groups) went on to show better social behaviours in Year 11 for self-regulation (ES=0.29), pro-social behaviour (ES=0.21) and reduced hyperactivity (ES=-0.23). The experience of a more favourable out of school learning support in terms of KS3 'academic enrichment' activities[4] also predicted better self regulation (ES=0.28), pro-social behaviour (ES=0.17), and reduced hyperactivity (ES=-0.25) and anti-social behaviour (ES=-0.18).

## Neighbourhood

Various indicators of 'place poverty' (defined as neighbourhood disadvantage - based on the postcode of the child's address in pre-school and KS1 of primary school) - predicted students' later social behaviour in KS4. A key official measure of overall neighbourhood disadvantage (the Income Deprivation Affecting Children Index: IDACI – Noble et al., 2008) predicted poorer long term social-behavioural outcomes. Low levels of neighbourhood deprivation compared to high deprivation predicted better outcomes for self-regulation (ES=0.22) and pro-social behaviour (ES=0.25), and lower scores for hyperactivity (ES=-0.19).

Living in a neighbourhood with a higher proportion of White British residents was also predictive of poorer outcomes for pro-social behaviour (ES=-0.20), higher scores for hyperactivity (ES=0.15) and anti-social behaviour (ES=0.18), although the effects were weak. These results indicate that 'place poverty' as well as the characteristics related to the individual and their family can shape students social-behavioural outcomes during adolescence. In primary school, such neighbourhood influences were not found to be statistically significant, but by KS3 significant effects had emerged and their influence continued to be evident in KS4.

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[4] 'enrichment' – activities such as reading for pleasure, educational outings as reported by students and parents

# Pre-school influences

There was no statistically significant pre-school effect in terms of whether a student had attended or had not attended a pre-school in predicting differences in social behaviour in Year 11. Nor was the duration in months of pre-school attended significant (in contrast to findings for GCSE attainment).

However, pre-school quality, measured by two Early Childhood Environment Rating Scales (Harms et al., 1998 and Sylva et al., 2003), continued to predict social behaviours, although the effects were small and weaker than at earlier time points. Overall, students at 16, who had attended high (compared to low) quality pre-schools, had better scores for 'self-regulation (ES=0.14) and pro-social behaviour (ES=0.16) and lower scores for hyperactivity (ES=-0.20). Similar findings emerged for the measure of pre-school effectiveness in reducing anti-social behaviour. Attending a pre-school that was more effective in reducing anti-social behaviour predicted better outcomes for later self regulation in Year 11. Although statistically significant and consistent these effects are weak.

# Secondary school influences

The social composition of secondary school intakes was measured by the percentage of students eligible for FSM and the percentage of students with SEN. Both measures were found to be significant predictors of social-behavioural outcomes in KS4. Attending a secondary school with a higher proportion of SEN students had a weak but negative impact on EPPSE students' own social-behavioural outcomes for self-regulation, pro-social behaviour and predicted higher scores for anti-social behaviour. Attending a secondary school with a more disadvantaged student intake (% FSM) also had a weak but positive effect on EPPSE students' own self-regulation. The later finding is in contrast to those for GCSE outcomes, where a disadvantaged school context predicts poorer attainment. It may be that high disadvantage schools place a greater emphasis on promoting positive social behaviour (as suggested by the literature on school effectiveness) to support learning.

Students' views and experiences of their secondary school were obtained from questionnaires completed in both KS3 and KS4. Various factors which related to students' school experiences were predictive of social-behavioural outcomes (Sammons et al., 2011; Sammons et al., 2014b) in Year 11. For reports of their secondary schools during KS4 (see Appendix for details), the strongest predictor of social outcomes was the factor 'positive relationships' which measures the social-emotional climate of school in terms of relationships between staff and students (how well students and teachers get on, such as students feeling they are treated fairly and respected and teachers showing

an interest in students). This predicted all four behaviours: better scores for self-regulation (ES=0.42); pro-social behaviour[5] (ES=0.42); and lower scores for hyperactivity (ES=-0.49) and anti-social behaviour (ES=-0.43). 'Formative feedback' was an additional predictor of better pro-social behaviour (ES=0.29).

Where students had reported that teachers and pupils in their schools laid a greater 'emphasis on learning' in KS3, this predicted better pro-social behaviour later on in KS4 (ES=0.30), reduced levels of hyperactivity (ES=-0.30) and lower scores for anti-social behaviour (ES=-0.38). The secondary school behaviour climate in KS3 was also significant. Attending a secondary school with a 'poor behaviour climate' (disruption, fights bullying etc) during KS3 was a predictor of lower scores for self-regulation (ES=-0.36), poorer pro-social behaviour (ES=-0.21) and higher levels of hyperactivity (ES=0.20) in Year 11.

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[5] All the views and experiences of school comparisons are for high vs. low

# Conclusions and implications

The EPPSE study has collected longitudinal data on students' social behaviour in school across various phases of education. While outside school the media highlights concerns about gang cultures and anti-social behaviour, and surveys of teachers suggest that low level classroom disruption is a cause for concern in many schools, it should be recognised that teachers generally rated the 2420+ individual students in this study rather favourably in terms of most aspects of their social behaviour in Year 11. Only a fairly small minority of students were rated as showing poor social-behavioural profiles. This research reveals that various characteristics of individual students and their families increase the risk of poor behavioural outcomes. Just as an equity gap has been identified for academic attainment in terms of GCSE results at age 16, similar influences are found to shape social-behavioural adjustment. The latest EPPSE research on KS4 provides further evidence that identifies  various individual, family and HLE characteristics that continue to shape students' social behaviour up to the age of 16.

Being male, from a family background that includes poverty, low family SES, single parenthood and many siblings, and living in a disadvantaged neighbourhood all predict less favourable social behavioural outcomes. For some indicators (i.e. gender) the equity gap widens between ages 11 and 16 when we study developmental progress from KS2 to KS4. By contrast higher parental qualification levels,  positive parenting experiences in the pre-school period, measured by the early years HLE, and home experiences that link with academic enrichment at home in KS3 all predict better outcomes. There was also some indication of small positive effects on long term outcomes for those students who had attended high quality pre-school.

The EPPSE research also points to the influence of students' experiences of secondary schooling. Student reports on the 'quality of teaching', their secondary schools' 'behavioural climate', the 'emphasis on learning', 'positive relationships' between students and staff, and feeling 'valued' were found to be consistent predictors of social behaviours. Students who had more favourable experiences of secondary schooling in these measures had better outcomes. These measures also predicted better academic attainment at GCSE. The findings point to the importance of taking note of the 'Student Voice'. They  highlight areas that could be addressed in school improvement policies intended to promote better outcomes in both KS3 and KS4 and suggest that surveys that seek to involve students in assessing the quality of their educational experiences can play a valuable role. Questionnaires, used strategically, can provide good evidence on key features of schooling that can inform the development of school policies and help school leaders and other staff in the process of institutional self-evaluation and may help in monitoring the impact of school improvement initiatives.

Whilst the life chances of some students are influenced by their background, the research reveals that some experiences can help to ameliorate the effects of disadvantage.

Disadvantage remains a complex and multifaceted concept. The longitudinal EPPSE research indicates that it is by no means captured by one simple indicator such as the FSM status of a pupil. The concept of multiple disadvantage is important and the challenges facing schools in promoting better outcomes for students from disadvantaged homes and contexts remain strongly evident. Educational influences (including pre-school) have an important part to play in supporting those 'at risk' and can promote better outcomes. But the EPPSE data shows that equity gaps emerge early for all outcomes (cognitive/academic and social-behavioural) and remain strongly evident across different phases of education.

# Appendix 1

## Measures of students' experiences of school in Year 11

Five underlying dimensions (factors) were identified from students' questionnaire responses that tapped distinct features of their KS 4 experiences.

- *Teacher professional focus*, relates to perceptions of teachers' focus on day to day teaching responsibilities such as learning and behaviour within the classroom.

- *Positive relationships*, covers how well students and teachers get on, such as students feeling they are treated fairly and respected and teachers showing an interest in students.

- *Monitoring students* relates to the extent to which teachers monitor the progress students are making, set targets and reward hard work.

- *Formative feedback*, relates to students' experiences of practical support from teachers, helping students when they are stuck and guiding them on how to improve their work*.

- *Academic ethos*, measures the extent to which students feel that other students within the school are interested in learning, doing well and continuing their education past compulsory schooling age.

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**Table 1: Summary of the effects of background characteristics as predictors of social**

| Background characteristics | Self-regulation | Pro-social behaviour | Hyperactivity | Anti-social |
|---|---|---|---|---|
| **Student characteristics** | | | | |
| **Gender (boys)** | 0.43 | 0.59 | -0.47 | -0.39 |
| **Age (autumn)** | | | | |
| Spring | ns | ns | 0.10 | ns |
| Summer | -0.17 | -0.12 | 0.17 | ns |
| **Number of siblings (none)** | | | | |
| 1-2 siblings | ns | ns | ns | ns |
| 3 siblings | -0.22 | ns | 0.18 | ns |
| **Ethnicity (White UK heritage)** | | | | |
| White European heritage | ns | ns | ns | ns |
| Black Caribbean heritage | ns | ns | ns | ns |
| Black African heritage | 0.33 | ns | ns | ns |
| Any other ethnic minority heritage | ns | ns | ns | ns |
| Indian heritage | 0.33 | ns | ns | ns |
| Pakistani heritage | ns | ns | ns | ns |
| Bangladeshi heritage | ns | ns | ns | ns |
| Mixed race heritage | ns | ns | ns | ns |
| **Early behavioural problems (none)** | | | | |
| 1 Behavioural Problem | -0.14 | -0.20 | 0.15 | ns |
| 2+ Behavioural Problems | -0.44 | -0.33 | 0.38 | ns |
| **Family characteristics** | | | | |
| **Parents' Highest SES at age 3/5 (professional non-manual)** | | | | |
| Other Professional, non-Manual | -0.25 | -0.26 | ns | ns |
| Skilled, non-Manual | -0.28 | -0.29 | ns | ns |
| Skilled, manual | -0.43 | -0.37 | 0.29 | 0.40 |
| Semi-skilled | -0.37 | -0.27 | ns | ns |
| Unskilled | -0.61 | -0.51 | 0.56 | 0.54 |
| Not working/never worked | ns | ns | ns | ns |
| **Parent's Highest Qualification Level at age 3/5 (no qualifications)** | | | | |
| Other Professional/Miscellaneous | ns | ns | ns | ns |
| Vocational | ns | ns | ns | ns |
| 16 academic | 0.17 | 0.21 | -0.17 | -0.23 |
| 18 academic | ns | ns | ns | ns |
| Degree or equivalent | 0.44 | 0.35 | -0.33 | -0.32 |
| Higher degree | 0.43 | 0.37 | -0.33 | -0.36 |
| **Marital Status of Parent/Guardian/Carer (married)** | | | | |
| Single | -0.25 | -0.28 | 0.24 | 0.21 |
| Separated/Divorced | ns | Ns | ns | ns |
| Living with partner | -0.20 | -0.19 | 0.19 | 0.14 |
| Widow/Widower | ~ | ~ | ~ | ~ |
| **Free School Meals (No)** | -0.33 | -0.30 | 0.39 | 0.44 |
| **Home Learning Environment (HLE)** | | | | |
| **Early Years Home Learning Environment Index (Grouped) (Very low)** | | | | |
| Low (Index values: 14-19) | ns | ns | ns | ns |
| Average (Index values: 20-24) | ns | ns | ns | ns |
| High (Index values: 25-32) | 0.19 | 0.23 | ns | ns |
| Very high (Index values: 33-45) | 0.29 | 0.21 | -0.23 | ns |
| **KS3 Academic enrichment (Grouped) (Low)** | | | | |
| Medium | 0.18 | 0.13 | -0.14 | ns |
| High | 0.28 | 0.17 | -0.25 | -0.18 |

| Background characteristics | Self-regulation | Pro-social behaviour | Hyperactivity | Anti-social |
|---|---|---|---|---|
| **Neighbourhood** | | | | |
| **IDACI (High deprivation)** | | | | |
| Low deprivation | | 0.22 | 0.25 | -0.19 | ns |
| Average deprivation | | ns | 0.12 | ns | ns |
| **% White British** | | ns | -0.20 | 0.15 | 0.18 |
| **School composition** | | | | |
| **% SEN** | | -0.16 | -0.15 | ns | -0.12 |
| **% FSM** | | 0.14 | ns | ns | ns |

N.B. Table displays significant effects at the p<0.05 level or above~ small student numbers so not shownbehaviour in Year 11

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