

**Effective Pre-School, Primary and Secondary Education Project
EPPSE 3-16 (1997 – 2013)**

Exploring the influence of home, family, pre-school and school experiences on students' academic and social-behavioural development, dispositions and engagement with school

Presentation for the the Growing up in Ireland Conference

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EPPE/EPPSE a programme of research



- EPPE 3-7 (1997 – 2003) focus on pre-school development & KS1**
- EPPE 3-11 (2003 – 2008) focus on primary school KS2**
- EPPSE 3 -14 (2008 – 2011) focus on secondary school KS3**
- EPPSE 3-16+ (2011 – 2013) focus on KS4 & post 16 destinations**

The expanded programme of research:

- ❖ Special Educational Needs**
- ❖ The Home Learning Environment at different time points**
- ❖ Pedagogy in pre-school and primary school**
- ❖ Transitions from primary to secondary school**
- ❖ Children who succeed against the odds**
- ❖ Resilience and vulnerability**
- ❖ Learning trajectories**
- ❖ Pupil mobility**
- ❖ Pupils' perceptions and views of school**
- ❖ Effective pre-schooling in Northern Ireland (EPPNI study)**



❖ **Background to EPPSE as a longitudinal, mixed methods educational effectiveness study**

❖ **Investigating the influence of:**

- 1. Family, HLE and neighbourhood factors**
- 2. Pre-school , primary and secondary school factors**
- 3. Students' experiences of secondary school**
- 4. Students' dispositions.**

Sources of data

- ❖ **Child assessment (social/behaviour & cognitive) at 3, 4+, 6, 7, 10, 11 & 14 & 16 years (+ post 16 destinations in 2011)**
- ❖ **Family background at 3, 6 and 11 & 14**
- ❖ **Interviews/questionnaires with staff**
- ❖ **'Quality' rating scales in pre-school**
- ❖ **Case studies of effective pre-school settings**
- ❖ **Measures of primary school academic effectiveness (value added)**
- ❖ **Pedagogical observations in primary school**
- ❖ **School and classroom climate questionnaires**
- ❖ **Students' views of school at ages 7, 10, 14 and 16.**
- ❖ **Teachers' views on school processes and practice in Yr 5 & Yr 9**

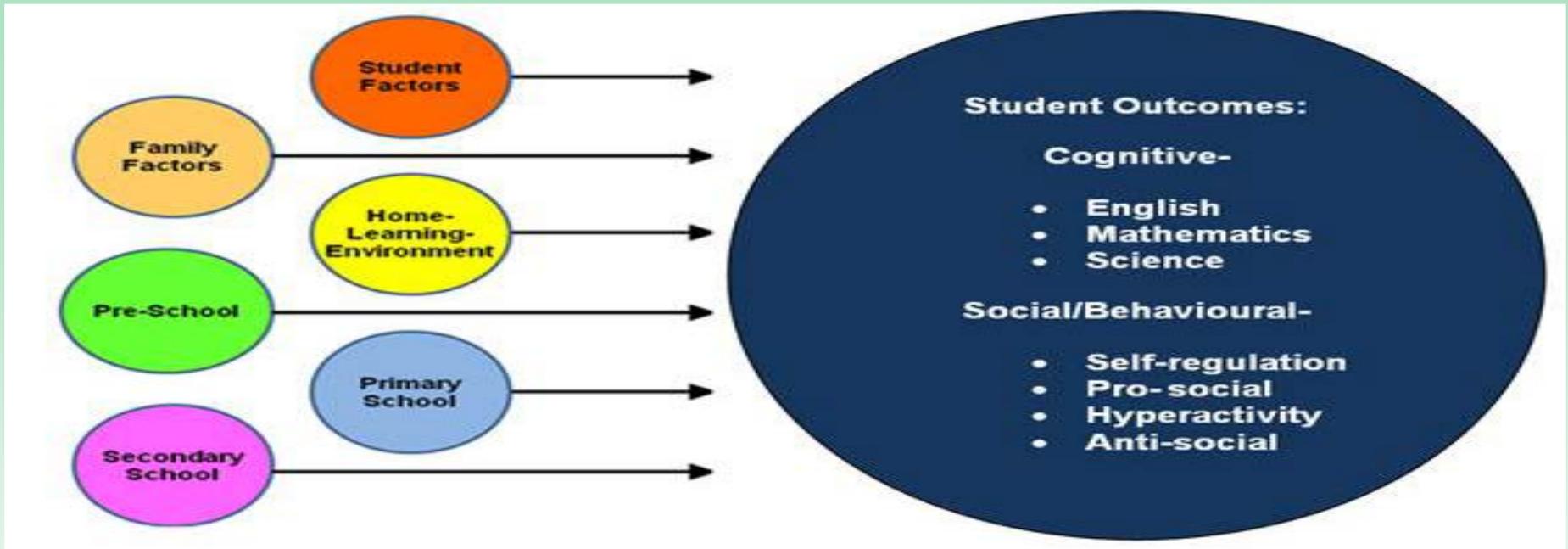


EPPSE explores how child, family and home characteristics predict variations in children's cognitive and social/behavioural development.

It studies the continuing impact of pre-school as well as the influence of primary and secondary school experiences.

EPPSE investigates both 'in school' and 'out of school' learning opportunities.

Influences on student outcomes



Analyses strategy includes:

- ❖ Descriptive statistics
- ❖ Multivariate analyses
- ❖ Exploratory & confirmatory factor analyses
- ❖ Multilevel (value added) analyses of progress
- ❖ Growth curve modelling
- ❖ Structural equation modelling
- ❖ Trajectory analyses (PROC TRAJ)
- ❖ Multiple imputation (ICE & Amelia)
- ❖ N-vivo analyses of observations & Qualitative data reduction techniques

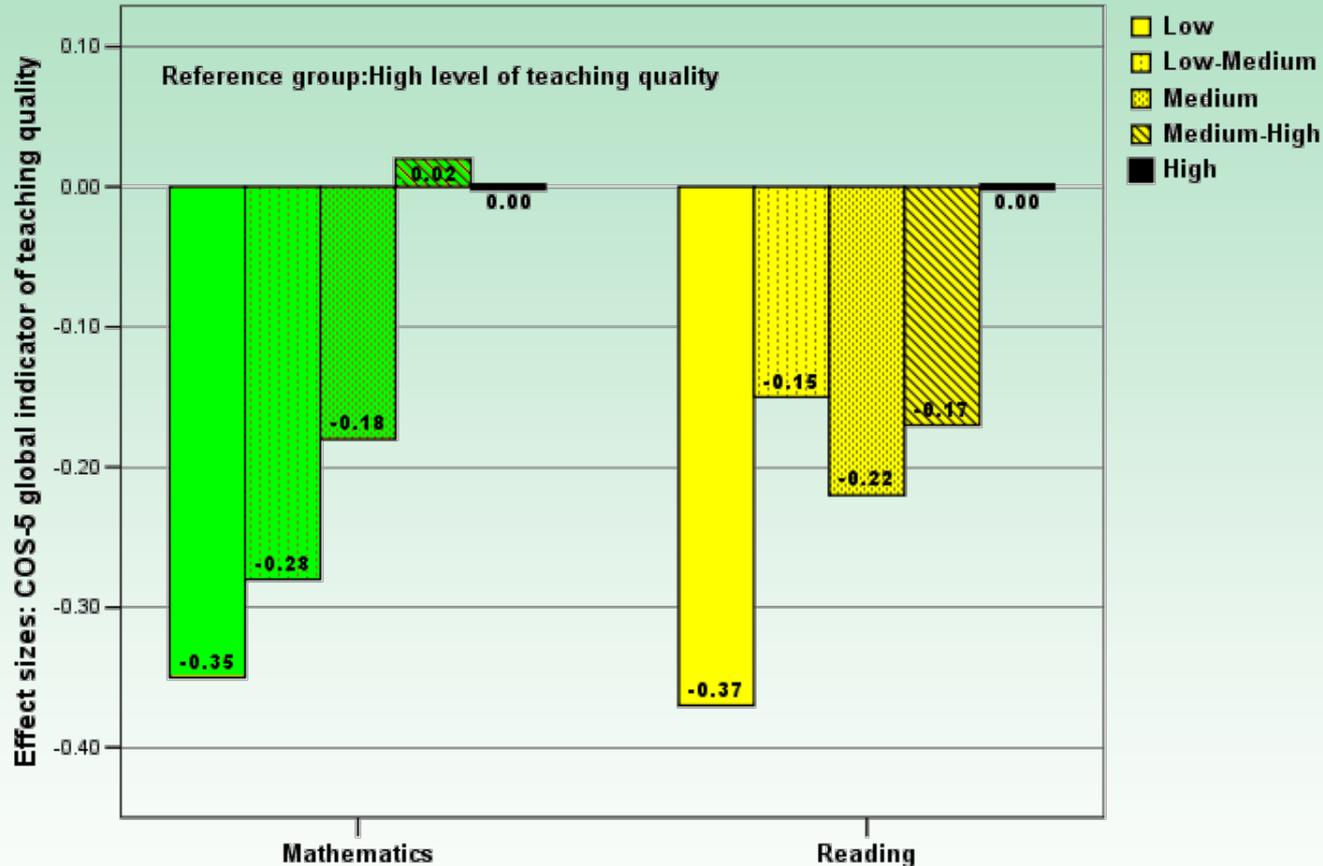
Summary of findings up to age 11 years

- **Quality and effectiveness of pre-school remain influences throughout primary school up to age 11**
- **The academic effectiveness of the primary school matters for EPPSE pupils' academic attainment and progress**
- **Child's background characteristics remain strong predictors of outcomes, particularly the HLE and parental qualifications**
- **The combination of educational experiences is important (i.e., interaction/joint effects of pre-school quality and primary school academic effectiveness)**
- **The quality of teaching influences children's academic progress**
- **The quality of pre- and primary schools also shapes social-behavioural development**

Child, Family, HLE, Pre- and Primary school Influences on Maths at age 11

Factors	Effect Size	Description
Gender	0.19	Boys show higher attainment than girls.
Birth weight	0.48	Normal birth weight higher than very low.
Ethnic groups	0.45	Indian heritage higher than children of White UK heritage.
Need for EAL support	0.64	Need of EAL support = predictor of low attainment.
Developmental problems	0.15	Early developmental problems = predictor of low attainment.
Parents' qualification	0.71	Higher qualified parent = higher attainment.
Socio-Economic Status	0.36	Higher SES = higher attainment.
Free School Meals	0.15	Eligible for FSM = negative predictor.
Early years HLE	0.42	Higher Early years HLE = higher attainment.
KS1 HLE	0.17	Moderate personal interaction better than high.
Pre-school	0.26	Attending vs. non-attending
Pre-school quality (ECERS-E)	0.34	High quality pre-school = higher attainment
Pre-school effectiveness	0.40	Highly effective pre-school = higher attainment
Primary school effectiveness	0.38	Highly effective primary school = higher attainment

What matters in the classroom: *Teaching quality*



Overall, observed Y5 *Teaching quality* is a significant predictor of better cognitive progress from Year 1 to Year 5 in both Reading and Maths.

Implications

- **Children's academic outcomes in English and Mathematics are boosted by attending an academically more effective primary school, while there is no evidence of negative influence on social/behavioural outcomes – promoting better academic outcomes does not compete with better social/behavioural development**
- **Concerted action to improve the Early years HLE, and both pre-school and primary school experiences is needed to make a difference to outcomes for the most disadvantaged children**
- **There may be a need for specially targeted interventions for those children who are identified as being well behind their peers in cognitive and social/behavioural profiles at school entry – early intervention has a better chance of improving such pupils' learning trajectories**
- **Efforts to improve the quality of pre-schools and schools over the last decade are likely to be of benefit in combating disadvantage**

EPPSE has informed policy development by providing research evidence

Policy Question 1 : Who benefits from pre-school?

EPPE finding: “*pre-school experience can have clear positive effects on children’s social, emotional and cognitive development*” (HMT 2004 p8)

Policy Development: Universal free provision for all children aged 3-4 15 hours a week

Policy Question 2 : Can early childcare help children ‘at risk’ of development special educational needs (SEN) and reduce social disadvantage?

EPPE finding: ‘*EPPE data showt that while one in three children were ‘at risk’ of having special educational needs at the start of pre-school, that proportion fell to one in five by the time they started primary school, suggesting that pre-school can be an effective intervention for the reduction of special needs’ needs*’ (HMT, 2004, p8).

Policy Development: Focus on disadvantaged groups through the Sure Start initiative. Focus on early identification of SEN. Development of support material for practitioners of young children: SEN code of practice.

Policy Question 3 : What kinds of pre-school provide the best outcomes for children?

EPPE finding: *The quality of pre-school experience is directly related to the intellectual, social and behavioural development of children. “EPPE conclude that good quality provision can be found across all types of pre-school settings but is higher overall in integrated learning and childcare centres, nursery school and nursery classes. (HMT, 2004 p66)*

Policy Development: , 525,000 additional childcare places for 1.1 million children¹⁰
1 279 Neighbourhood Nurseries and 2 599 Children’s Centres

Policy Question 4 : At what age should children begin pre-school?

EPPE finding: *“Evidence from the Effective Provision of Pre-school education (EPPE) project shows an early start to pre-school can have significant positive effects on children’s cognitive and social development. For example, every additional month of quality pre-school from the age of two improves cognitive performance at the start of school, a gain that remains to at least age seven. Those who started in a good quality pre-school at two or younger were up to 10 months ahead of those without pre-school. The EPPE evidence also shows that an early start in pre-school improves children’s social skills at entry to school.” (HMT, 2004, p8) and ‘Evidence from EPPE shows that the benefits are gained from regular part-time attendance through the week. Full-time attendance gives no better gains than part-time although EPPE suggests that pre-school experiences at all levels of quality and duration have positive effects on children’s development compared with children who had no pre-school experience’ (HMT, 2004, p8).*

Policy Development:

Universal free provision covering 15 hours per week. Pilot scheme for free pre-school for 2 year olds in disadvantaged areas. Extended maternity and paternity leave during baby’s first year.

Policy Question 5: What kind of workforce?

EPPE finding: *Better quality pre-school centres are associated with better outcomes, with key explanatory factors being: staff with higher qualifications, staff with leadership skills and long-serving staff; trained teachers working alongside and supporting less qualified staff; staff with a good understanding of child development and learning and strong parental involvement” (HMT, 2004, p66)*

Policy Development: “£125 million workforce Transformation Fund that seeks out to “ensure that all full daycare settings are led by a graduate qualified early years professional.... and there will be single qualification framework and greater

The secondary school phase Outcomes in KS3 up to age 14

Student and Family Characteristics Influences on English at Age 14

Factor	Effect Size	Description
Age	0.19	Older pupils = better than younger
Gender	0.46	Females = higher attainment than males
Birth Weight	0.37	Normal birth weight = higher attainment than low
Early Developmental Problems	0.21	1+ early developmental problems = lower achievement
Early Behavioural Problems	0.18	1+ early behavioural problems = lower achievement
Number of Siblings	0.31	Three siblings or more = lower achievement
Mother's Age	0.16	Older mothers = better achievement
Mother's qualifications	0.61	Higher mother's qualification = better achievement
Father's qualifications	0.36	Higher father's qualification = better achievement
Year 9 FSM	0.30	Eligible for FSM = lower achievement
Family Socio-Economic Status	0.29	Higher SES = better achievement
Family income	0.40	High income = better achievement
School Level FSM	0.19	Students from schools with high % of students receiving FSM = lower attainment
Early years HLE	0.29	Higher scores on Early Years HLE = higher achievement
KS1 HLE	0.24	Frequent outdoors activities = higher achievement
KS2 HLE	0.19	Moderate computing usage is better than frequent computer usage

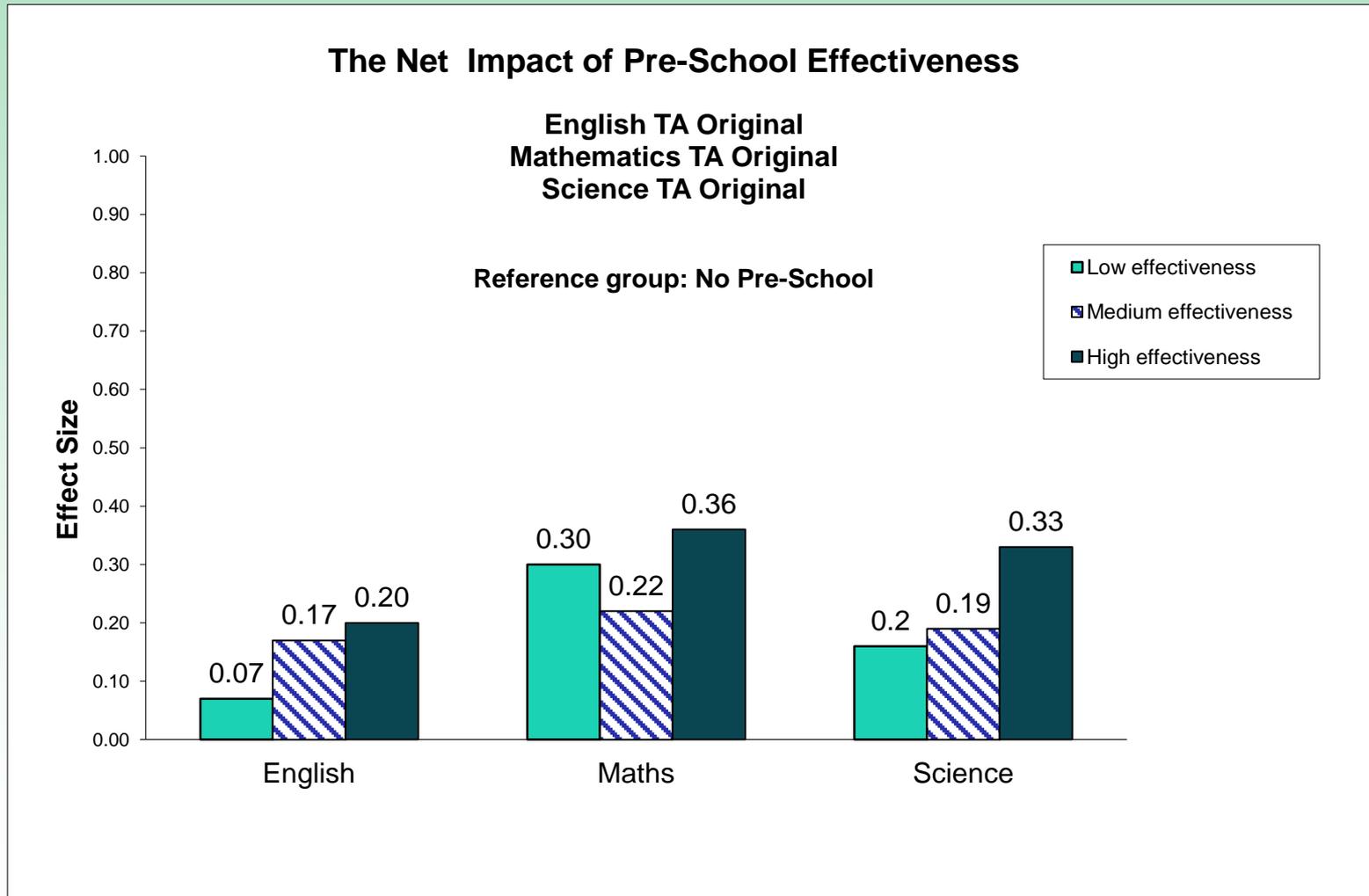
Student and Family Characteristics Influences on Maths at Age 14

Factor	Effect Size	Description
Age	0.15	Older pupils = better than younger
Birth Weight	0.40	Normal birth weight = higher attainment than low
Ethnicity	0.37	Indian heritage = better outcome than White UK heritage
Early Developmental Problems	0.16	1+ early developmental problems = lower achievement
Early Behavioural Problems	0.18	1+ early behavioural problems = lower achievement
Number of Siblings	0.19	Three siblings or more = lower achievement
Mother's qualifications	0.50	Higher mother's qualification = better achievement
Father's qualifications	0.37	Higher father's qualification = better achievement
Year 9 FSM	0.31	Eligible for FSM = lower achievement
Family Socio-Economic Status	0.36	Higher SES = better achievement
Family income	0.21	High income = better achievement
School Level FSM	0.20	Students from schools with high % of students receiving FSM = lower attainment
Early years HLE	0.38	Higher scores on Early Years HLE = higher achievement
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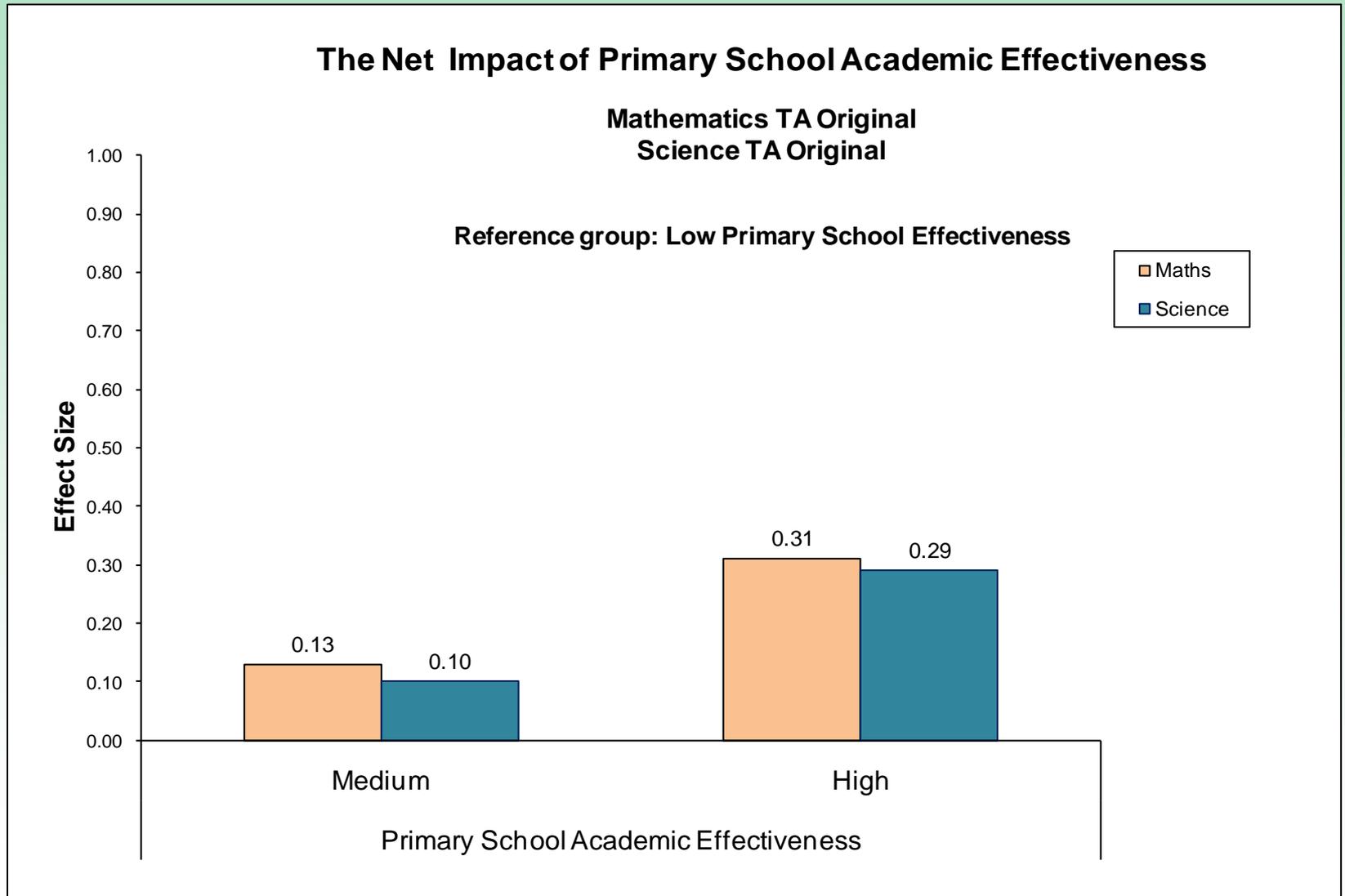
Neighbourhood and Attainment

Neighbourhood Measures	Year 9 English TA	Year 9 Maths TA	Year 9 Science TA
IMD	-0.17	ns	-0.14
IDACI	-0.16	ns	-0.15
Safety	ns	0.13	0.18
% of White British	-0.20	-0.15	-0.18
Crime	-0.17	ns	-0.14
Employment	ns	ns	ns
% Limiting Long-Term Illness	ns	ns	ns

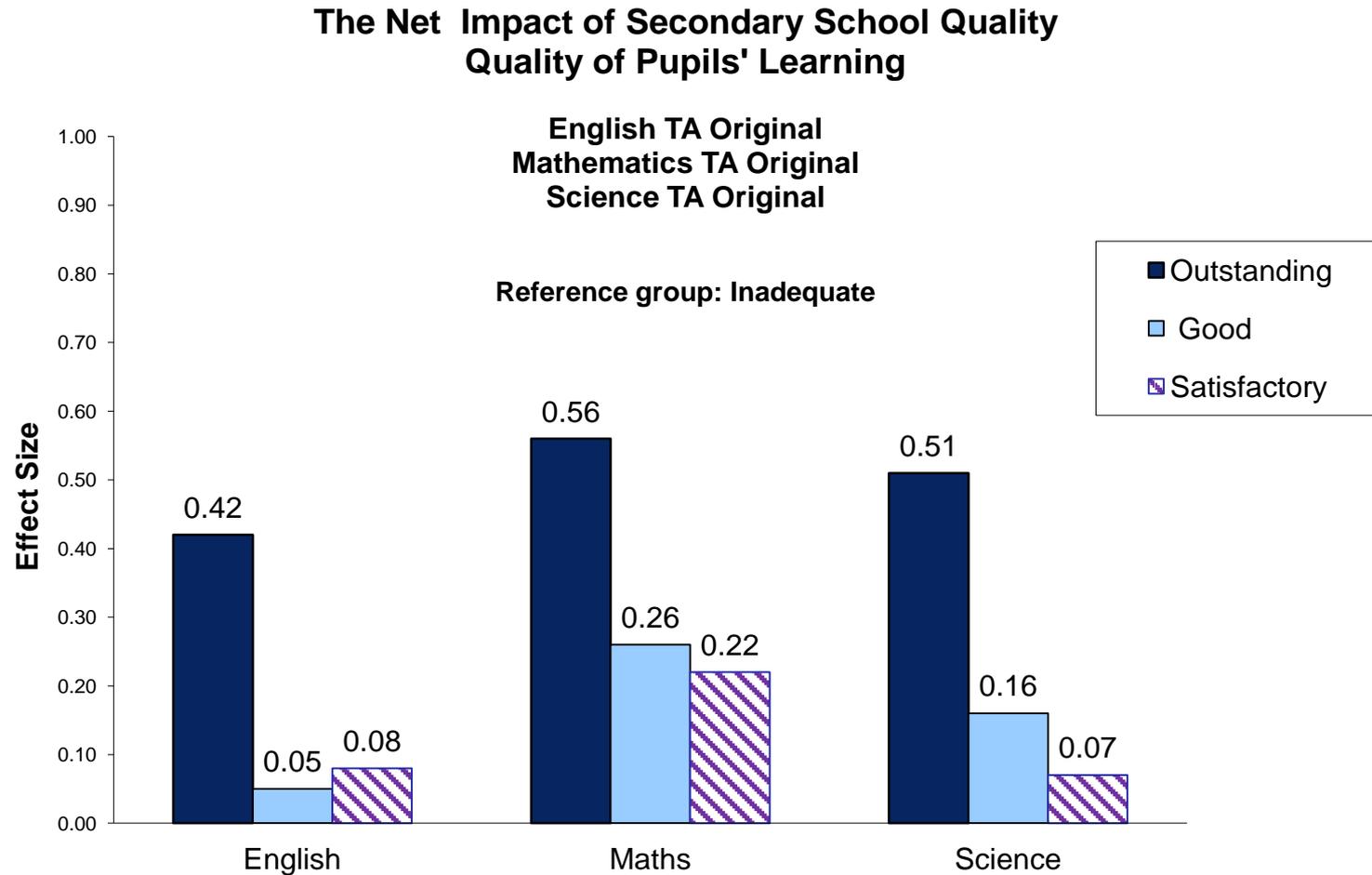
Pre-school Effectiveness



Primary School Influences Academic Effectiveness



Secondary School Influences Quality- Ofsted Judgments



Why social-behavioural development is important

- ❖ **Contributes to all round well-being**
- ❖ **Influences current and future academic achievement**
- ❖ **Can shape developmental pathways**
- ❖ ***Four measures of social-behaviour:**
 - **'self-regulation'** (problem solving, motivation, self confidence, assertiveness etc.)
 - **'pro-social'** (peer empathy, co-operation, altruism etc.)
 - **'anti-social'** (verbal abuse, aggression etc.)
 - **'hyperactivity'** (reduced self-control, impulsiveness etc.).

***Measures based on teachers' assessments of individual students using The Goodman Strengths & Difficulties Questionnaire (and some additional items related to behaviour in school).**

Positive social behaviour factors in Year 9

Self-regulation

- Likes to work things out for self; seeks help rarely
- Does not need much help with tasks
- Chooses activities on their own
- Persists in the face of difficult tasks
- Can move on to a new activity after finishing a task
- Is open and direct about what she/he wants
- Is confident with others
- Shows leadership in group work
- Can take responsibility for a task

Pro-social behaviour

- Considerate of other people's feelings
- Shares readily with other pupils
- Helpful if someone is hurt, upset or feeling ill
- Is kind to younger children
- Often volunteers to help others (teachers, other pupils)
- Offers to help others having difficulties with a task
- Is sympathetic to others if they are upset
- Apologises spontaneously

Negative social behaviour factors in Year 9

Hyperactivity

- Restless, overactive, cannot stay still for long
- Constantly fidgeting or squirming
- Is easily distracted, concentration wanders
- Thinks things out before acting - *reversed*
- Sees tasks through to the end, good attention span - *reversed*
- Quickly loses interest in what she/he is doing
- Gets over excited
- Is easily frustrated
- Fails to pay attention
- Makes careless mistakes

Anti-social behaviour

- Often argues with other children or bullies him
- Often lies or cheats
- Steals from home, school or elsewhere
- Shows inappropriate sexual behaviour to others
- Has been in trouble with the law

Teacher overall ratings of social behaviour in Year 9

- ❖ **EPPSE students are generally rated favourably by teachers for the 4 social-behavioural outcomes.**
- ❖ **Only a minority show poor behaviour but the incidence of negative behaviours has increased slightly in KS3 compared with that in primary schools.**
- ❖ **17 percent of the EPPSE sample had raised scores for hyperactivity.**
- ❖ **14 percent had raised scores for anti-social behaviour.**

The influence of single and multiple disadvantage on social behaviours

❖ Socio-economic status

High SES and parents' highest qualification levels were strong predictors of better social behaviours.

- mothers with degrees (compared to no qualifications) was moderately strong for self-regulation (ES=0.47) and hyperactivity (ES=-0.40).

❖ Early HLE

Predicted better social behaviours.

- (high versus very low) self-regulation (ES=0.48), pro-social (ES=0.30) and hyperactivity (ES=-0.35)

❖ SEN

In secondary school showed significantly poorer behaviours.

- School Action+ = self-regulation (ES=-1.04), pro-social (ES=-0.79), hyperactivity (ES=1.15) and anti-social (ES=1.02).

❖ Multiple disadvantage

Strong predictor for low self-regulation and pro-social and increased scores for hyperactivity and anti-social.

- 5+ disadvantages = self-regulation (ES=-0.75), pro-social (ES=-0.51), hyperactivity (ES=0.72) and anti-social (ES=0.62)

Pre-school influences on Social Behaviour KS3

❖ Attendance

No influence of just having attended

❖ Effectiveness

No influence

❖ Quality

Positive predictor for all four social behaviours. Higher quality predicts better outcomes than the 'home' group or 'low quality' group. Effects were relatively weak but significant.

❖ Combined effect of pre-school & HLE

Having attended a medium or higher quality pre-school showed lasting benefits for most HLE groups:

- Low HLE + low quality pre-school:

Positive boost (ES=0.40) compared to those in the 'home' group with low HLE

- Low HLE + high quality pre-school:

Boost was larger (ES=0.50) for self-regulation, reduced hyperactivity (ES= -0.40)

Investigating students' dispositions and reports of school in Key Stage 3



Why dispositions are important

- ❖ **They provide a more rounded picture of student development and contribute to the concept of 'well being'.**
- ❖ **They are associated with young people's academic and social-behavioural outcomes, particularly through relationships with self regulation.**
- ❖ **Like academic and social behavioural outcomes, they are influenced by individual, family and home characteristics but to a lesser extent.**
- ❖ **There is evidence they can change over time and that secondary school experiences help to shape some dispositions more than others.**

Disposition factors in Year 9

Academic self concept in English and Maths

***English academic self concept* ($\alpha=0.90$)**

- I learn things quickly in my English classes
- I have always done well in my English classes
- Compared to others my age I am good at English
- Work in my English classes is easy for me
- I get good marks in English

***Maths academic self concept* ($\alpha=0.91$)**

- I learn things quickly in my Maths classes
- I have always done well in my Maths classes
- Compared to others my age I am good at Maths
- Work in my Maths classes is easy for me
- I get good marks in Maths

These two factors are based on items taken from existing well established Academic self concept scales (Marsh 1990, Marsh & Hau 2003, Marsh & Craven 2006)

Disposition factors in Year 9

Anxiety ($\alpha=0.78$)

- In class I worry about what the others think of me
- I get a lot of headaches, stomach aches or sickness
- I worry a lot
- I am often unhappy, downhearted or tearful
- I am nervous in new situations
- I have many fears, I am easily scared

Popularity ($\alpha=0.83$)

- I make friends easily
- Other teenagers want me to be their friend
- I have more friends than most other teenagers my age
- Most other teenagers like me
- I am popular with other students in my students in my age group

Citizenship values ($\alpha=0.75$)

- Making sure strong people don't pick on weak people
- Respecting rules and laws
- Controlling your temper even when you feel angry
- Respecting other peoples points of view
- Sorting out disagreements without fighting

Enjoyment of school ($\alpha=0.74$)

- My school is a friendly place
- On the whole I like being at school
- I like to answer questions in class
- School is a waste of time for me
- I like most of the lessons
- I am bored in lessons

Students' reports of school: school factors

Headteacher qualities ($\alpha=0.72$)

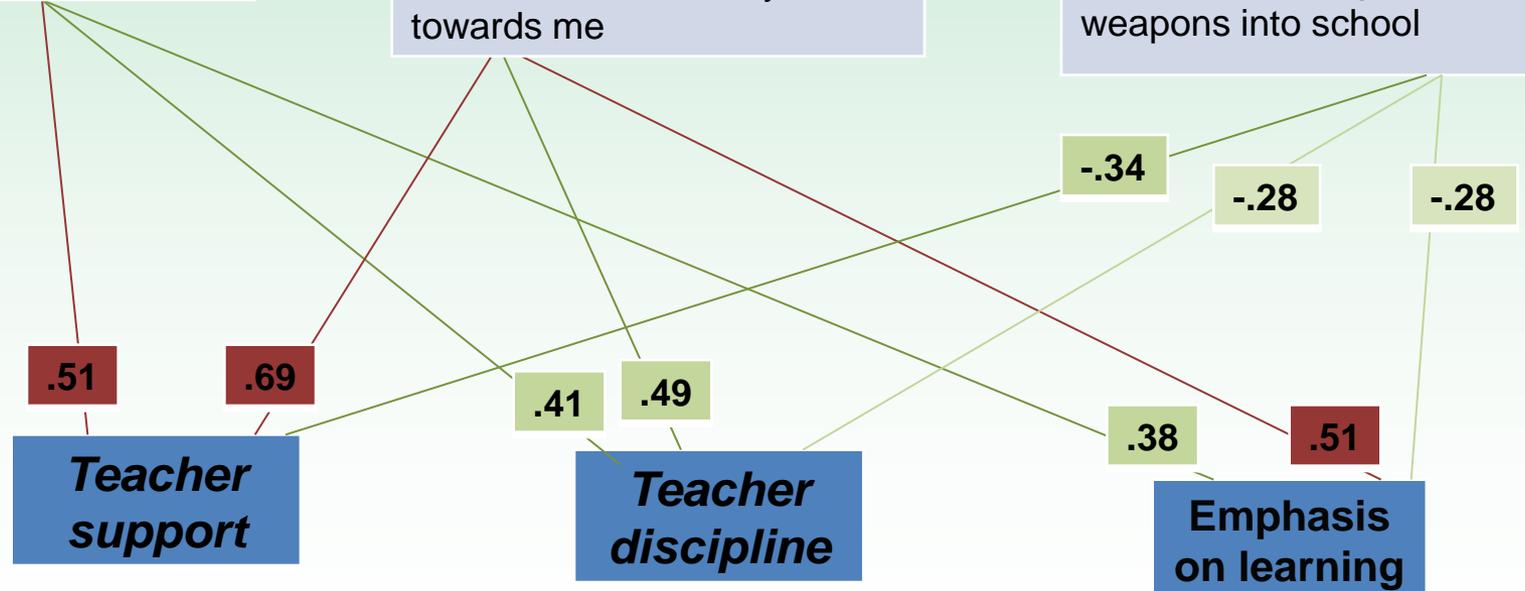
- I often see the headteacher around the school
- The headteacher makes sure students behave well
- The headteacher is interested in how much we learn

Valuing students ($\alpha=0.78$)

- The school values students' views
- Teachers listen to what students say about the school
- The teachers in this school show respect for all students
- Teachers are unpleasant if I make mistakes
- Teachers are friendly towards me

Poor behaviour climate ($\alpha=0.72$)

- Most students want to leave this school as soon as they can
- Students who work hard are given a hard time by others
- Most students take no notice of school rules
- There are often fights (in or around school)
- Some kids bring knives or weapons into school



Students' reports of school: classroom factors

Teacher support ($\alpha=0.86$)

- Most teachers mark & return my homework promptly
- Most teachers make helpful comments on my work
- Teachers praise me when I work hard
- Teachers tell me how to make my work better
- Teachers make me feel confident about my work
- Teachers are available to talk to me privately
- Teachers will help me if I ask for help
- I get rewarded for good behaviour

Teacher discipline ($\alpha=0.62$)

- Teachers make sure that it is quiet during lessons
- Teachers make clear how I should behave
- Teachers take action when rules are broken
- Teachers are not bothered if students turn up late

Emphasis on learning ($\alpha=0.68$)

- Most students want to do well in exams
- Teachers expect me to do my best
- The lessons are usually 'challenging' but 'do-able'
- Most teachers want me to understand something, not just memorise it
- Most teachers believe that mistakes are OK so long as we learn

.53

.58

.44

Students' reports on secondary school predicting social behaviour

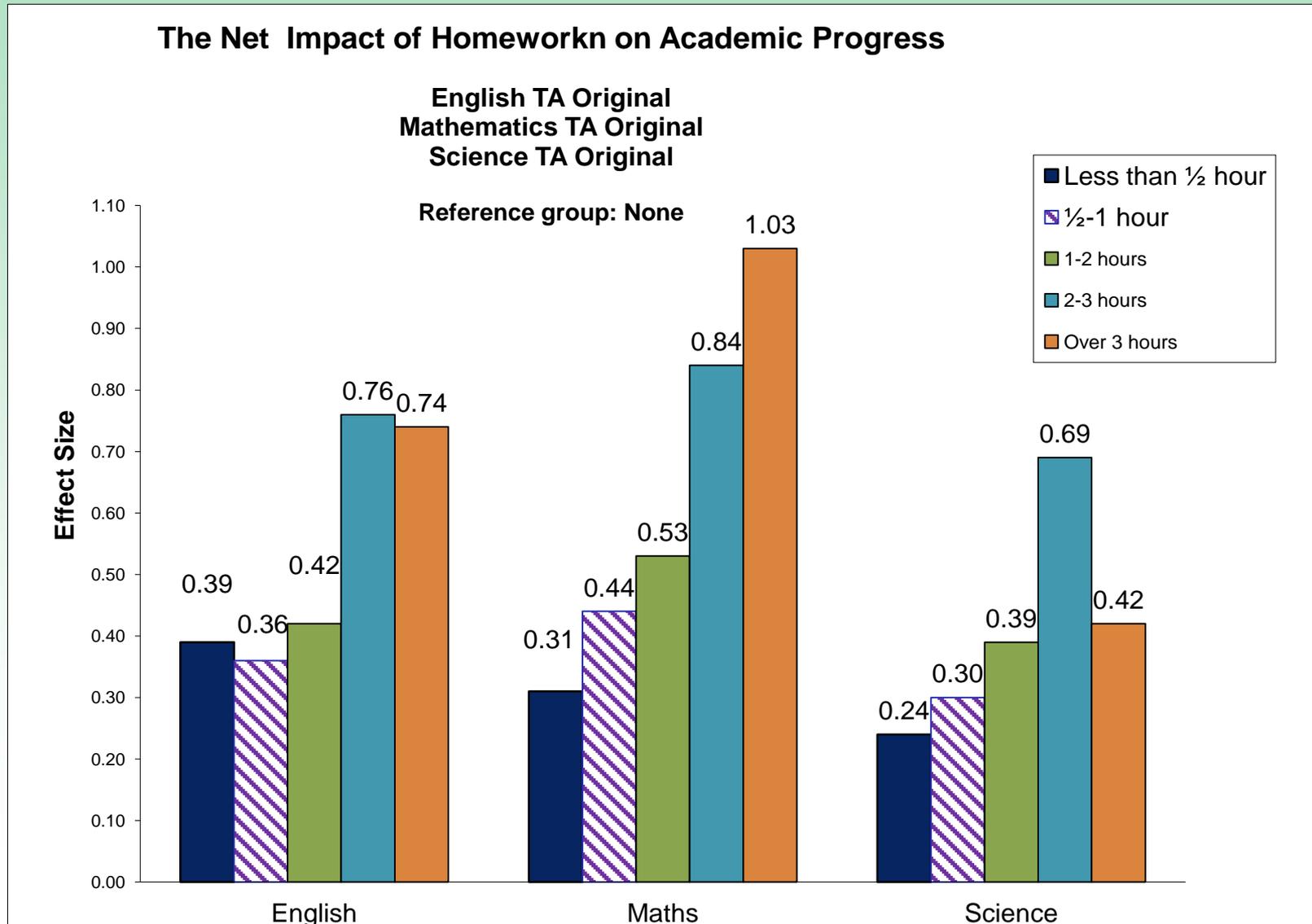
- ❖ **'Emphasis on learning'** = better self-regulation, pro-social and lower scores for hyperactivity and anti-social.
- ❖ **'Teacher support'** = better self-regulation (ES=0.17) and reduced hyperactivity (ES=-0.20).
- ❖ **'Head teacher qualities'** = better social-behavioural scores for all four outcomes.
- ❖ **'School environment'** = better self-regulation, pro-social and reduced anti-social' behaviour.
- ❖ **'Poorer behaviour climate'** = lower scores for self-regulation (ES=-0.32), pro-social (ES=-0.26) and higher hyperactivity (ES=0.31) and anti-social (ES=0.25).
- ❖ **Self-reported time on homework** = Strongly predicted all four outcomes, especially spending 2-3 hours per night after school, compared with doing no homework had: self-regulation (ES=0.72), pro-social (ES=0.62), hyperactivity (ES= -0.71) and anti-social (ES= -0.55).

Secondary School Influences

Students Self-report on School and Teaching Processes: Attainment

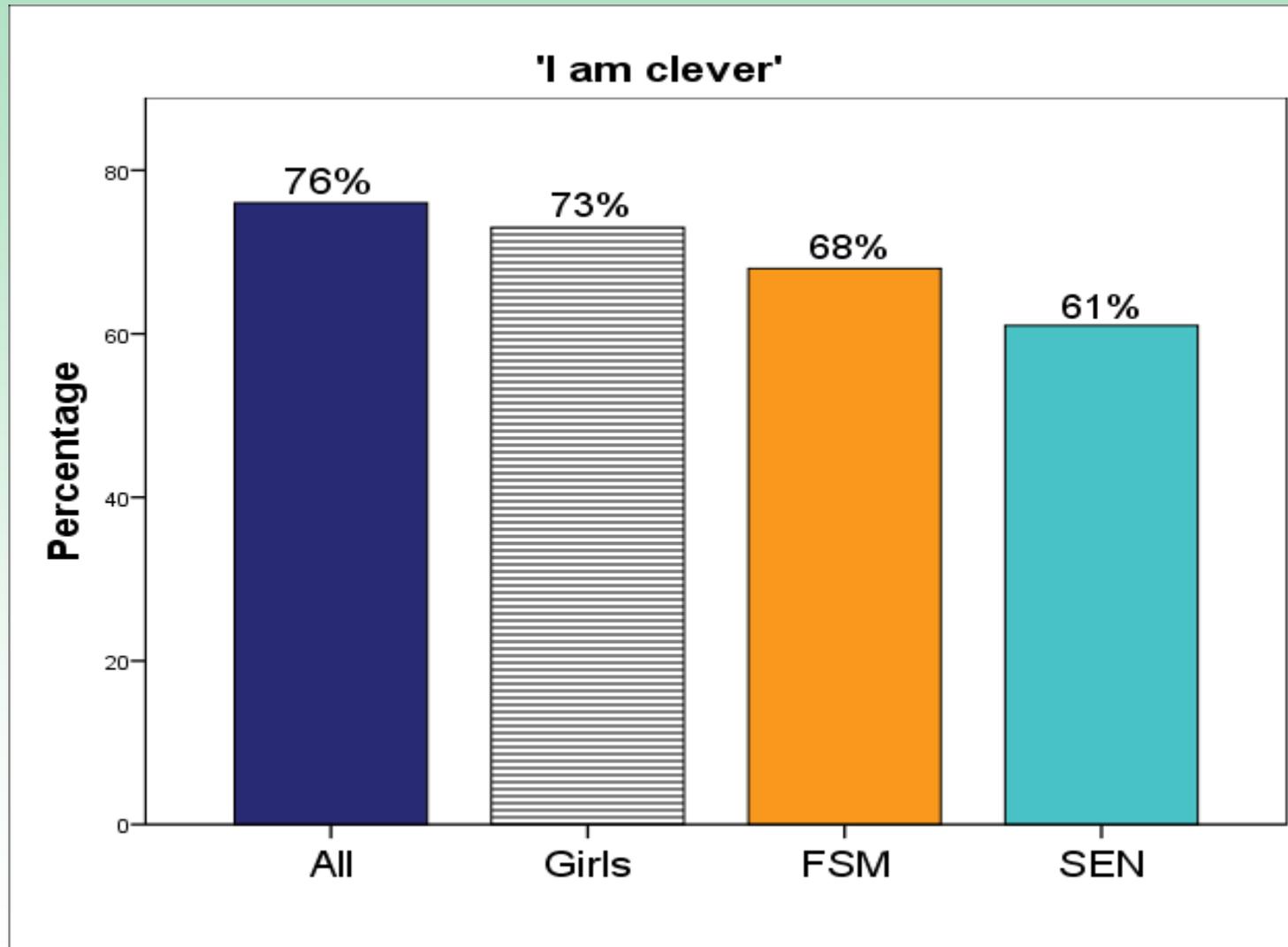
Factors (all continuous)	English	Mathematics	Science
Emphasis on learning	0.21	0.22	0.20
Behavioural climate	0.28	0.46	0.37
School environment		0.13	0.13
Valuing pupils		0.12	0.14
Learning resources		0.13	0.15
Emphasis on learning	0.16	0.13	0.12
Behavioural climate	0.23	0.43	0.33

Time on Homework & Academic Progress across KS3



What do students say about their general ability in Year 9?

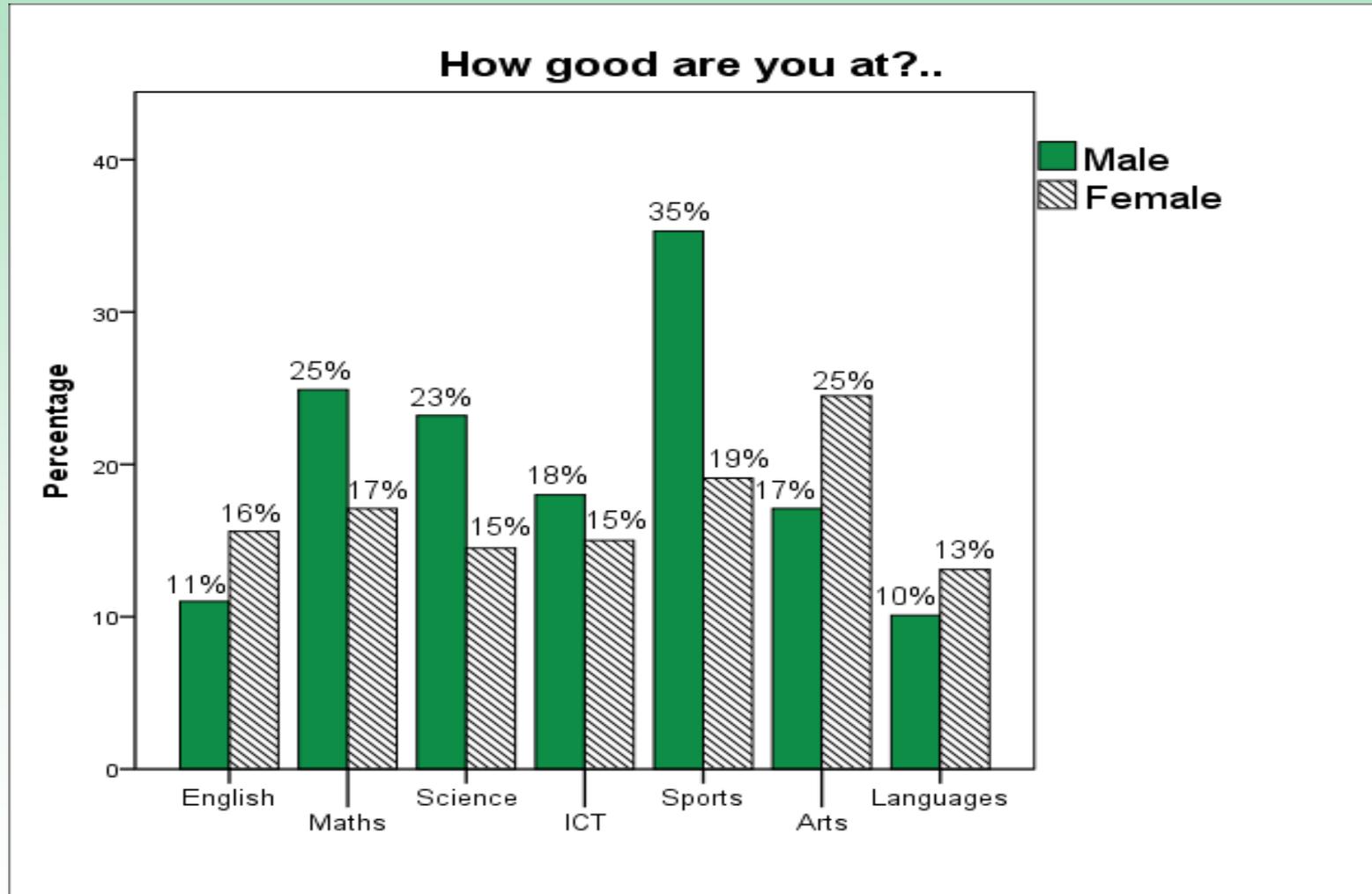
Differences between pupil groups in perceived cleverness



% agree/strongly agree

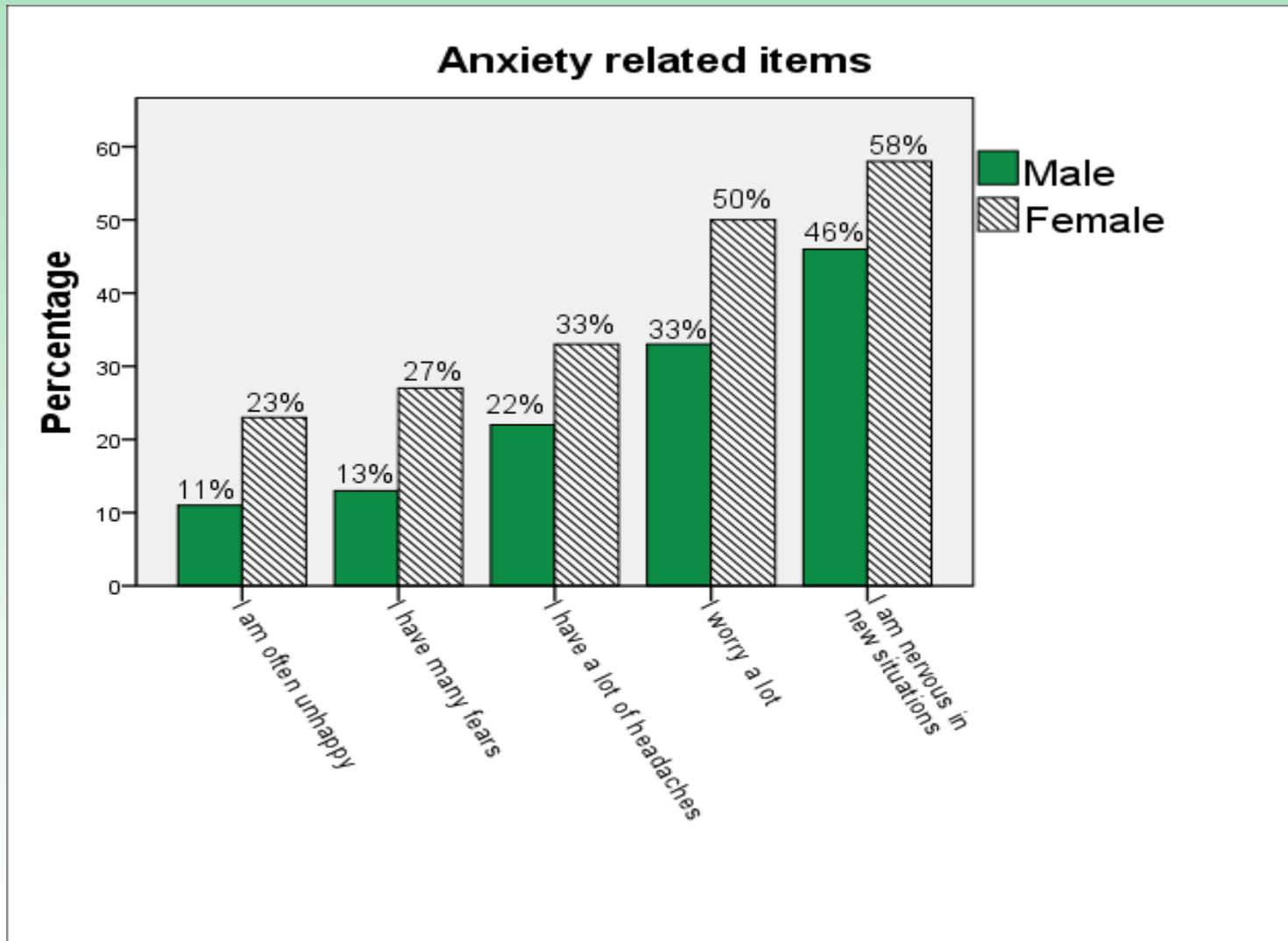
Gender differences in self reported ability in Year 9

Girls report higher ability than boys in English, Arts and Modern languages, whilst boys report higher ability in Maths, Science, ICT and Sports



% Excellent

What do students say about self reported anxiety in Year 9?



% agree/strongly agree

Student dispositions are influenced by school

- ❖ **Clear differences between secondary schools for some students' dispositions and their experiences of school.**
- ❖ **Attending a higher quality secondary school (identified by Ofsted judgements) predicts more favourable dispositions for EPPSE students at age 14.**
- ❖ **Enjoyment of school also related to teacher support, valuing students, emphasis on learning etc.**
- ❖ **Maths academic self-concept related to valuing students, the school's emphasis on learning, the resources available for learning and teacher discipline.**
- ❖ **English academic self-concept related to teacher support and emphasis on learning.**
- ❖ **Attending a secondary school with a poor behaviour climate predicts higher levels of anxiety.**

Key findings 1

Dispositions in Year 9

- ❖ A number of distinct and robust student disposition factors were identified based on students' self reports in Year 2, Year 5 and Year 9.
- ❖ Dispositions are more variable over time than either EPPSE students' academic or social/behavioural outcomes.
- ❖ This research confirms that student attitudes in KS3 are generally favourable but tend to become less positive compared with those in KS1 or KS2.

Predictors of student dispositions in Year 9

- ❖ Year 9 student dispositions were found to be predicted by their academic attainment and *self regulation* (rated by teachers). These relationships are likely to be reciprocal.
- ❖ Some of the strongest predictors of student dispositions relate to their views of key features of secondary school and classroom processes. In particular, the *emphasis on learning, teacher support, and behaviour climate* of the school predict more favourable dispositions as well as better academic attainment and social- behavioural outcomes.

Key findings 2

Differences between student groups in Year 9

- ❖ Student background has only a small impact on dispositions compared to its impact on other outcomes, nonetheless there are marked differences for certain student groups.
- ❖ Girls have lower *academic self concepts* than boys, feel less *popular* and have higher self reported *anxiety* scores.
- ❖ Students with SEN had poorer *perceptions* of themselves and higher *anxiety*.
- ❖ A good quality early years HLE predicts more favourable dispositions in Year 9.

Differences between schools in Year 9

- ❖ There is evidence of important variation between secondary schools in students' dispositions for *enjoyment of school*.
- ❖ Substantial differences between schools were also found in key areas as reported by students for *emphasis on learning, teacher support, school environment, headteacher qualities, behavioural climate* and *school/learning resources*.
- ❖ Attending a high quality secondary school (Ofsted judgements) appears to have positive benefit in predicting *enjoyment of school* and lowers *anxiety*, suggesting that good quality schools can also benefit emotional well-being.

OVERVIEW

- Longitudinal research can be used to explore children's educational trajectories and life chances across phases of education
- Different sources of data are needed (parent, teacher & child/student self report) to tap into a broad range of outcomes of interest and to study well being
- The ability to link educational data bases eg through the National Pupil Identifier to monitor attainment over time strengthens the ability to study progress
- Mixed methods designs such as EPPSE including quantitative and qualitative data can provide enhanced understanding and robust quantitative findings for policy makers and detailed evidence of value to practitioners

**For further information about
EPPSE visit our website at:**

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

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Monitoring impact through key policy documents

Enquiries:

- [Graham Allen\(2011\), Early Intervention, the next steps](#)
- **Dame Clare Tickell (2011), The EYFS: Foundation for life, health and learning**
- [Frank Field Enquiry \(2010\), Independent Review of Poverty and Life Chances](#)
- **DCSF (2009), Deprivation and Education**
- [The Cabinet Office Enquiry\(2007\), The Equalities Review: Fairness and Freedom](#)
- **The House of Commons Session Education and Employment Committee Enquiry (Education Sub-Committee) Early Years. (2000)**
- [EPPSE has also had an impact on the pre-school practices– see](#)



Cambridge Journal of Education

Siraj-Blatchford, I., Taggart, B., Sylva, K., Sammons, P., and Melhuish, Edward (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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