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Children's Well-Being in Primary School: Pupil and School Effects

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Executive Summary

Introduction/Background

The well-being and quality of life of children in the UK today are of increasing concern. A recent UNICEF 'report card' ranked the UK in the bottom third of economically advanced nations for child well-being (United Nations Children's Fund, 2007). Childhood is also the focus of a national independent inquiry.[1] These concerns are reflected in Government policy, which is placing increasing emphasis not just on educational achievement, but also on the wider well-being of the child, both in and out of school. This culminated in the creation of the Department for Children, Schools and Families in 2007. The objectives of the new Department include not only raising standards of achievement but also improving children's well-being, and schools are seen as essential partners in achieving this goal.

Whilst there is evidence that schools are important contexts for children's well-being, relatively few UK studies have examined school effects (net of family background and wider social and economic factors) on children's well-being.

In this study, we therefore investigate pupil and school effects on children's well-being during primary school, using data from the Avon Longitudinal Study of Parents and Children (ALSPAC). Four dimensions of children's well-being are examined: mental health, pro-social behaviour, antisocial behaviour, and achievement.

Key Findings

- **Most children experience positive well-being** in primary school. Between the ages of 8 and 10, there is an overall increase in levels of well-being, with 35 per cent of pupils experiencing improvements. However, 20 per cent suffer from either declining or low levels of well-being from 8 to 10 years. This subset is most likely to be male, from low socioeconomic-status (SES) backgrounds and low achieving.
- **It is children's individual experiences** such as bullying, victimisation and friendships, and their beliefs about themselves and their environment, which mainly affect their well-being, rather than school-level factors such as type of school. There is an element of continuity in these measures; for example, those who experience victimisation at age 8 are more likely than others to experience victimisation at age 10. There is also a high level of interrelatedness within and between the dimensions measured. For example, different forms of antisocial behaviour are associated with one another, but also with poor mental health.
- **School factors explain 3 per cent or less** of the variation in pupils' mental health and behaviour, 7 per cent of the variation in Key Stage 2 (age 11) maths scores and 10 per cent of the variation in KS2 English scores. These small, but significant, differences between schools are explained by factors such as school disadvantage and school ethos.

[1] The Good Childhood Inquiry conducted by the Children's Society.

- **Schools make a difference for children's well-being,** but it is children's individual experiences within schools which are important. Children experience a very different environment, even within the same school, based on their own individual interactions with peers and teachers. This suggests that modifications within individual children's lives are likely to make the most difference to their well-being and that child-school "fit" may be more important for children's well-being than attending a particular school.
- **Socio-demographic factors, with the exception of gender, have no effect** on children's pro-social and antisocial behaviours, although they do affect school achievement.
- **Boys have better mental health than girls**, with higher levels of belief in their own abilities and more feelings of control. On the other hand, boys are less likely to engage in pro-social, and more likely to engage in antisocial, behaviours.
- **Much of the variation in children's well-being remains unexplained**. It is likely that the unmeasured cumulative experiences of children within their home and school are important constituents of their overall well-being.

Methodology

ALSPAC is an ongoing longitudinal study of children born to mothers resident in Avon. To be eligible for the study, mothers not only had to be living in Avon while pregnant, their expected date of delivery had to lie between 1st April, 1991 and 31st December, 1992 inclusive. Mothers who left the area shortly after enrolment were omitted from further follow-up. However, those who had completed the questionnaire scheduled for the third trimester of pregnancy before leaving the area have been kept in the study, even if they had not delivered at the time of moving.

Once the child's date of birth was entered on the database, questionnaires were sent out at intervals specific to the child's age. Demographic data, including gender, maternal education, family income, and parental marital status, were gathered from mothers when the children were 47 months of age. For pupil-level characteristics, children were given detailed hands-on sets of tests under standardised circumstances at both 8 and 10 years. These tests occurred in a clinical setting for half days. The data they produced have allowed us to examine four dimensions of well-being: mental health, pro-social behaviours, antisocial behaviours, and achievement. Dimensions of well-being were chosen to reflect both positive and negative functioning.

It is also important to note that the measures used in this study are limited by the available data. There are measures of children's school experiences that are likely to be more reflective of their actual school lives than the ones collected. There are also other methodological issues not resolved in this report, including missing pupil and school-level data. It is likely that schools that were not represented in the study have higher proportions of disadvantaged students—thus underestimating the effect of school disadvantage on well-being. However, the fact that there were very few significant

differences in well-being between the two groups of children (advantaged and disadvantaged) provides some reassurance regarding our findings.

Pupil characteristics measured were:

- *Socio-demographic*: maternal education, marital status of parents, family income, and child gender.
- *Mental Health*: aspects of emotional and psychological health, including external locus of control (i.e., beliefs that external forces have control over your life); scholastic competence (belief in one's own academic ability); and depression.
- *Pro-social Behaviours*: talking to the teacher, liking school, and being satisfied with friendships.
- *Antisocial Behaviours*: peer victimisation, bullying, engagement in antisocial activities and with antisocial friends.
- *Achievement*: maths and English Key Stage 1 (age 7) and KS2 scores.

For school characteristics, head teachers were asked to complete questionnaires about the school. We include school structure, composition, and context variables. For structure, we examine school type, defined as community, foundation, voluntary-controlled or voluntary-aided. School SES and pupil/staff ratio can be characterised as composition variables. Context variables include frequency of disputes between the head teacher and parents as well as parental involvement.

Main Findings

<u>High/Low Well-Being Children</u>
Most children experience positive well-being during the primary school years. The majority do not engage in bullying and antisocial activities and most report liking school, talking to their teacher, and being satisfied by their friendships, as Table 1 shows. However, quite a substantial proportion experience victimisation.

Table 1: Definition and Percentages for Low Well-Being at 8 and 10 Years

Outcome	Definition	% Age 8	% Age 10
Victim	Several times a month or more	33%	22%
Bully	Engaged in frequently		
Antisocial	Engaged in 1+ activity	22%	17%
Talks to Teacher	Never	21%	11%
Likes School	No or Not Much	19%	15%
Friend Satisfaction	Unhappy on 2 or more items	5%	9%

For those who suffer from low levels of well-being at age 8, most will experience more positive well-being at age 10. However, as we can see from Table 2, there is a small subset – one in five children – which has a declining or low trajectory of well-being from 8 to 10 years. This subset is most likely to be male, low SES, and low achieving.

Table 2: Continuity in Well-Being from 8 to 10 Years

	Low @10	Av @10	High @10	Total
Low@ 8	**2.3%**	5.7%	3.4%	11.4%
Av@ 8	2.3%	**20.4%**	25.5%	48.2%
High@ 8	3.4%	11.3%	**25.7%**	40.4%
Total	8.0%	37.4%	54.6%	N=5,288

Note. High – well-being on all 6 measures
Medium – well-being on 4-5 measures
Low – well-being on 3 or fewer measures

Variation in Well-Being

Most of the variation in children's well-being exists **within** schools, rather than **between** them. School-level factors explain only a small percentage of children's well-being. The variation between schools for children's mental health, antisocial behaviour, and pro-social behaviour ranges from less than 1 to 3 per cent. This indicates that the differences in children's well-being are, to a much greater extent, due to individual factors rather than their attendance at a particular school. However, as we show later, this does not mean that schools are unimportant for children's well-being. The variation between schools for achievement is higher, 7 to 10 per cent for maths and English KS 2 scores. This finding suggests that the school attended explains a greater percentage of children's achievement than other dimensions of their well-being.

Pupil Effects

Socioeconomic indicators are not significantly associated with children's scholastic competence (i.e., their belief in their own academic ability) and engagement in pro-social and antisocial behaviours. However, maternal education and family income explain significant variation in children's achievement, indicating that socioeconomic background plays a more substantial role in children's achievement than in their well-being.

Children's gender has a key role in explaining variance for many of the outcomes. Girls are at greater risk for poorer mental health, whereas boys engage in more antisocial and less pro-social behaviours than girls. Boys have higher KS2 maths scores, whereas girls have higher KS2 English scores.

The figures show a degree of continuity in that, for many of the age 10 outcomes, one of the strongest predictors is whether the same behaviour or experience occurred at age 8. Those who experience victimisation at age 8 are also more likely to experience it at age 10, and those who talk often to their teacher at age 8 are also more likely to do so at 10 years.

Furthermore, positive behaviours are associated with more positive behaviours two years later and vice versa for negative behaviours. For example, 8-year-olds who talk to their teacher are more likely to talk to their teacher, like school, and be satisfied with their friends at age 10. Similarly, children who are involved in antisocial behaviours at age 8 have a raised likelihood of being even more involved in such behaviours at age 10. However, there is also a considerable degree of change, with pupils moving in and out of negative well-being.

Locus of control – the sense that what you do can make a difference – is a significant factor for many outcomes. In support of previous research (i.e., Findley and Cooper, 1983; Rotter, 1966), our study highlights the importance of children's internal sense of control in directing many different aspects of their decision-making and school behaviour. Children who believe that they have an impact on their decisions and environment may be more likely to avoid negative behaviours as well as enjoy and do well in school.

We also find that measures of antisocial behaviours are negatively associated with measures of pro-social behaviours and vice versa. For example, 8-year-old bullies talk less to their teachers, like school less, and are less satisfied with their friendships at age 10. On the other hand, school engagement may be an important positive factor in reducing the chances of negative trajectories of development. Children who liked school at age 8, for example, engage in fewer antisocial activities at age 10.

Notably, children with higher English, but not maths, KS1 scores experience a decrease in antisocial behaviours and an increase in pro-social behaviours from ages 8 to 10. This finding could suggest that aspects of development associated with English proficiency, such as communication skills and sociability, may promote children's positive behaviours whilst dissuading their engagement in more negative activities.

School Effects

The proportion of disadvantaged children in a school is one of the most important of the limited school effects on pupil well-being. Pupils in schools with a higher proportion of disadvantaged pupils are more likely to be depressed, experience victimisation, engage in antisocial behaviours and antisocial friendships, report less satisfying friendships, and have lower achievement than pupils in more advantaged schools.

School type also has some small effect: pupils in voluntary-aided schools are less likely to be victimised, more likely to talk to their teacher, and have higher English and maths KS2 scores than pupils in other schools. As most voluntary-aided schools are faith schools, these features may be related to school ethos.

Parental involvement and good relationships between the head teacher and parents are also associated with marginally better pupil well-being. These findings probably reflect the underlying mood and functioning of the school. Schools with more strife and less involvement are likely to have more serious issues regarding morale and cohesion.

Interactions between Pupil and School Characteristics

At disadvantaged schools, the association between scholastic competence and other dimensions of children's well-being is reversed in comparison to average schools. For example, in average schools:

- Those with a high level of belief in their own ability at age 8 are more likely to believe that what they do makes a difference at age 10. However, this relationship is reversed for pupils at disadvantaged schools.
- Those with a high level of belief in their own ability at age 8 are more likely to obtain better KS2 English scores at age 10, but in disadvantaged schools their scores are more likely to be worse.
- Those with a high level of belief in their own ability at age 8 are less likely to engage in antisocial activities, but at disadvantaged schools they are more likely to do so.

These findings suggest that children in more disadvantaged schools may use different cues for assessing their competence than children in more advantaged schools. As pupils in disadvantaged schools have, on average, lower overall achievement, they may have a different frame of reference for external comparison than children who attend more advantaged schools.

School characteristics also moderate the association between bullying/victimisation and children's later well-being.

Implications

Despite the concerns which exist in many quarters about the quality of children's lives in the UK today, most children experience positive well-being during the primary school years. While this by no means negates the concerns about children's quality of life, it does provide a useful sense of perspective.

Schools matter for children's well-being. However, it is not children's attendance at a particular school that matters so much as their individual experiences within the school. Our findings suggest that different children experience different environments, even within the same school, based on their own individual interactions with peers and teachers and that, for well-being, child-school "fit" may be more important than attending a "good" school.

Thus, although school-level factors have relatively little average effect, this should not suggest that the characteristics of the whole school should be dismissed, as they may have an important effect on the individual: school factors provide an important context for individuals and the development of their well-being – a school's policy on bullying may significantly affect individual pupils' experiences of bullying and victimisation, for example.

School characteristics also need to be considered when designing school interventions. This report finds that school characteristics can either exacerbate or buffer the interaction

between different aspects of children's well-being. In this sense, one intervention may not necessarily fit the needs of every school.

Rather than enforcing systematic changes, an approach which is responsive to the needs of individual children may be more effective for bolstering well-being. More recently, personalised learning has been recommended for learning and teaching (2020 Review Group, 2006). Our report suggests that a personalised approach may also be relevant for non-cognitive aspects of children's well-being.

One of the core strategies of the Government-appointed 2020 Review Group, for example, involves activating pupils as the "owners" of their own learning. Our findings support this recommendation by demonstrating that children's sense of control in guiding their own behaviour is associated with achievement as well as well-being. Another proposal concerns the identification of pupils and groups of pupils who are not progressing. We believe that the definition of "not progressing" should not be limited to cognitive outcomes. For example, an early recognition of children who engage in antisocial activities may also be important. Such early identification may discourage the continuity of, and often progressive engagement in, antisocial behaviours. However, such identification needs to be implemented with extreme caution to avoid stigmatisation. Early prevention cannot be effective if children are categorised merely as problems rather than in need of additional support. Another core strategy of the 2020 Review Group involves engaging parents and carers in their children's education. Our results provide support for this directive by demonstrating that children who attend schools with more parental involvement have more positive well-being. As the 2020 Review Group concluded, schools created as communities, with children, parents, teachers, and head teachers working together, are most beneficial for children's well-being.

Conclusions

Our study provides important insights regarding children's well-being. We find that patterns of well-being begin early in primary school. Most children follow a path of relatively positive well-being. However, a subset of children experiences a negative trajectory of well-being. Early identification and intervention may discourage their continuing, and perhaps escalating, path towards mental health problems, delinquency, and school disengagement. Our study suggests that school factors, both at the pupil and school level, may offer protection for these children.

Contents

1. Introduction

The well-being and quality of life of children in the UK today are of increasing concern. A recent UNICEF 'report card' ranked the UK in the bottom third of economically advanced nations for child well-being (United Nations Children's Fund, 2007). Childhood is also the focus of a national independent inquiry.[1]

The Government's recent agenda reflects these concerns. It has increasingly focused not just on educational achievement, but also on the wider well-being of the child both in and out of school. This is highlighted by the Government's ongoing commitment to realise the five goals of the Every Child Matters agenda for all children and young people. These efforts culminated in the creation of the Department for Children, Schools and Families in 2007. The objectives of the new Department include not only raising standards of achievement but also improving children's well-being, and schools are seen as essential partners in achieving this goal.

Education is strongly linked to health and well-being and a substantial element of this effect is causal (Feinstein *et al.*, 2006). The school environment, as a context of learning and education, also has an important role in children's outcomes. Evidence suggests that children's school experiences are associated with their social, emotional, and behavioural outcomes as well as health (see Sorhaindo for a review, 2006). Children's well-being and school experiences are closely intertwined, yet we have insufficient understanding of the interactions between these two policy worlds to be confident that the current social use of resources is efficient or equitable.

Over the years, a number of studies have used school effects to gauge whether schools make a difference in children's outcomes. School effects studies determine the impact on children's outcomes associated with their attendance at a particular school, net of the effects of family background and wider social and economic factors that lie beyond the control of teachers or school administrators. Such studies may also examine which school characteristics explain variation between schools. In one of the earlier UK studies on school effects, Rutter and his colleagues (Rutter, Maughan, Mortimore, Ousten and Smith, 1979) found that children demonstrate greater school achievement and social adaptation in schools characterised by strong educational leadership, high expectations, and frequent evaluation by teachers. More recent UK studies have supported these findings for children's achievement (Sammons, Mortimore, and Thomas, 1996; Mortimore, Sammons, Stoll, Lewis, and Ecob, 1988). Compared to the number of studies examining school effects on educational outcomes, however, relatively few have investigated school effects on children's well-being, particularly in the UK. Much more attention needs to be paid to the characteristics of schools that matter most for non-cognitive outcomes, including children's well-being (Rutter and Maughan, 2002).

A number of issues are relevant in the demonstration of school effects on children's well-being. First, a longitudinal research design is necessary to take into account children's

[1] The Good Childhood Inquiry conducted by the Children's Society.

previous well-being. Using a value-added model, researchers can determine how much the school contributes to changes in children's outcomes. However, most of the research examining school effects on children's social and behavioural functioning remains cross-sectional (Rutter and Maughan, 2002).

Second, pupil characteristics need to be controlled to demonstrate the unique contribution of the school. For example, in the UK, critics argued that schools' mean examination results, unadjusted for differences in pupil background, seriously distorted the relative effectiveness of schools (Raudenbush and Willms, 1995). Therefore, it is necessary to postulate a model that examines the differences within schools and controls for pupil-background attributes, particularly those relating to the socioeconomic characteristics of the children.

A third issue concerns the research approach employed to examine school effects. Many studies examining school effects have used ecological and individual-based research designs. These studies examine the school variable as one amongst several characteristics of individuals. Such designs overestimate the school effects as they do not account for the hierarchical, nested (i.e., pupils within schools) structure of the data. Thus, it is important to use a model that computes the variation of pupil outcomes between schools. This approach involves examining the distribution of school-level outcomes by computing an aggregate pupil outcome for each school. The variance of this distribution indicates how much the average differs from school to school. A significant between-school variation in achievement is therefore an index of the impact of schools on pupil outcomes.

Multilevel models have been developed that estimate the effects of schools (e.g., Goldstein, 1987; Bryk and Raudenbush, 1992) while separating the effects of individual pupil characteristics in order to understand their unique contributions to children's outcomes. Multilevel models do not infer causality but rather establish how much variation in children's well-being exists within schools (i.e., pupil-level) and how much relates to differences between schools (i.e., school-level). Multilevel models can also examine the main effects of pupil and school-level variables as well as interactions between them. This is important as schools may have varying effects on their pupils. For example, schools may differ in their effects on pupils with differing ability, gender, and family socioeconomic status. In the present study, we therefore employ multilevel modelling to examine pupil and school effects on four dimensions of children's well-being (mental health, antisocial behaviours, pro-social behaviours, and achievement) using a longitudinal data set of primary school pupils.

1. 1 Children's Well-Being

1.1.1 Mental Health

We consider dimensions of children's psychological and emotional well-being to represent their mental health. Both positive and negative indicators of mental health are

examined, including locus of control, scholastic competence, and depression. Locus of control has been defined as the perception of a connection between one's actions and their consequences (Rotter, 1966). People who believe that an outcome is largely contingent upon their own behaviour are seen as having a more *internal* locus of control, whereas those who believe that luck, fate, chance or powerful others largely determine an outcome are considered to be more *external*. Scholastic competence refers to the beliefs a child has concerning their abilities to do well in school (Harter, 1982).

A number of characteristics have been shown to be associated with children's mental health. Boys, for example, tend to have an advantage in terms of their beliefs about their own academic abilities (see Department for Education and Skills, 2007, for a review). Economic characteristics also play a role in children's mental health. For instance, children with lower socioeconomic status tend to have worse mental health than their more advantaged counterparts (McLoyd, 1998). Different aspects of mental health are also related to each other. Locus of control, for example, is an important factor in children's decision-making and academic behaviours (Findley and Cooper, 1983). Competence (again, in the sense of belief in one's abilities) has also been shown to relate positively to many aspects of children's lives, including their mental health, social relationships, and school achievement (e.g. see Damon and Hart, 1982). Depression has been related to poor overall functioning, and interpersonal and behavioural problems (Reinherz, Giaconia, Hauf, Wasserman, and Silverman, 1999). Indicators of mental health are also associated with each other, for example, depressed individuals tend to have lower levels of internal locus of control and competence (Reinherz *et al.,* 1999).

Studies have rarely examined school effects on children's mental heath. A few studies report significant school-level effects for children's mental health, including depression, locus of control, self-esteem and general well-being (Kutash *et al*., 2007; Willms, 2000; Smyth, 1999). However, few, if any, studies examine key features of the school environment that explain variation in children's mental health.

1.1.2 Antisocial Behaviours

For antisocial behaviours, we examine peer victimisation, bullying, involvement in antisocial activities and association with antisocial friends. Peer victimisation is defined as being the target of aggressive behaviour from other children, not including siblings, such as being bullied, being victimised, or being rejected. Whereas peer victimisation refers to the victim, bullying refers to the perpetrator of peer aggression. Antisocial activities refer to engagement in delinquent behaviours such as truancy, smoking cigarettes, and stealing.

Previous research indicates that children from lower SES backgrounds and single-parent families may be a higher risk for bullying and victimisation (Wolke, Woods, Stanford, and Schulz, 2001). Boys, at every age, are also consistently more likely to be bullied, victimised, and involved in antisocial activities (Bongers, Koot, Van der Ende, and Verhulst, 2004; Brown, Birch, and Kancherlam, 2005; Wolke *et al.*, 2001). In recent years, researchers have also documented how antisocial behaviours are related to

maladaptive behaviours and adjustment. For example, victims of peer aggression tend to have lower self-esteem and suffer more from depression than non-victims (see Hawker and Boulton, 2000, for a review). Bullies, on the other hand, are more likely to have school-related problems such as low school bonding and low school competence (Haynie, Nansel, Eitel, Crump, Salor, and Yu, 2001; Mynard and Joseph, 1997). Antisocial behaviours may also lead to involvement in other negative behaviours. Many bullies, for example, also claim to be victims of bullying (Brown *et al.,* 2005) and are involved in other antisocial behaviours (Nansel, Overpeck, Haynie, Ruan, and Scheidt, 2003).

Antisocial behaviours have been found to vary significantly by school setting (Battistich and Hom, 1997). A few studies have also focused on the specific characteristics that explain school variation in victimisation (George and Thomas, 2000; Wolke *et al.*, 2001). For example, a study of English and German schools found that victimisation was more frequent in smaller classes in England, whereas class size was unrelated to bullying in Germany (Wolke *et al.*, 2001). A US study found that school size, type, and location also affected victimisation (George and Thomas, 2000). Pupils who attend public (state), larger, and suburban schools were more likely to be victimised than pupils in private, smaller or medium-size, and urban/rural schools. However, the key features that explain school variation in bullying (antisocial activities, and engagement with antisocial friends) have received very limited attention in the school effects literature.

1.1.3 Pro-social Behaviours

In this study, children's pro-social behaviours, including talking to their teacher, liking school, and having satisfying friendships, were examined. Gender is usually a strong predictor, with girls engaging in more pro-social behaviour than boys (Sylva, Melhuish, Sammons, Siraj-Blatchford, Taggart, Grabbe, and Barreau, 2007). Although socioeconomic characteristics may have significant associations with pro-social behaviour, they usually have a lesser role to play than in antisocial behaviours or cognitive outcomes (Sylva *et al.,* 2007). Pro-social behaviours also relate to other positive aspects of children's well-being. For example, previous studies have shown that individuals who have more positive friendships have better mental health (Ueno, 2005).

The nature of the school environment plays an important role in children's feelings about school and their interactions with their teachers. Children's friendships begin and are maintained at school. Given that the pro-social behaviours examined in this study happen at school, we would expect that school-level differences might be evident. There is limited information, however, regarding school-level effects on children's non-cognitive outcomes, including friendships and pro-social behaviours (Rutter and Maughan, 2002; Van Landeghem, Van Damme, Opdenakker, De Fraine, and Onghena, 2002). Yet, pro-social behaviours are often defined as the responsibility of the school and are important correlates of children's academic achievement and well-being. However, very few studies have examined the school-level effects on children's pro-social behaviours. In one notable exception, a study in Flanders found that some characteristics of the school environment relating to ethos and atmosphere explained significant variation in children's non-cognitive outcomes, including relations with the teacher and feelings about school

(Van Landeghem *et al.,* 2002). More research is clearly needed to understand the school-level effects on pro-social behaviours for UK primary school pupils.

1.1.4 Achievement

For children's achievement, we examine Key Stage scores. We examine maths and English Key Stage scores separately as children's characteristics, such as gender, may have different predictive powers for each. For example, girls tend to do better in English than boys. Boys, on the other hand, tend to have a significant advantage in maths (DfES, 2007). Socioeconomic background characteristics, such as parental education and family income, also have a well-established positive association with children's achievement (White, 1982).

Evidence indicates that schools make a difference in children's achievement. Most researchers have found that 10 to 30 per cent of the variation in maths and English achievement can be explained by the school that they attend (Kostantopoulos, 2006). School composition measured by proportion of disadvantaged pupils has been shown to be negatively associated with achievement and accounts for a large proportion of variation between schools (Bryk and Raudenbush, 1988). Higher SES schools also have higher average achievement than lower SES schools (Lee and Bryk, 1989). There is also evidence that school type matters for pupil achievement. Pupils' achievement growth has been found to be higher in American Catholic schools than in public schools, for example, even controlling for pupil-background variables (Coleman and Hoffer, 1987; Bryk, Lee, and Holland, 1993). Other factors such as pupil/teacher ratio and parental involvement have also been shown to explain between-school differences in achievement (Kostantopoulos, 2006; Mortimore *et al.,* 1988).

1.2 The Present Study

This study examines pupil and school effects on children's well-being during primary school. First, we examine the characteristics and continuity of children experiencing high/low well-being in primary school. For instance: what proportion of children experience positive well-being at the ages of 8 and 10?

Second, we examine the proportion of total variation in children's well-being within and between schools using multilevel modelling. This allows us to determine how much variation in well-being can be explained by the children themselves and how much by their attendance at a particular school. For example: how much variation in children's antisocial activities can be explained by their attendance at a particular school?

Using multilevel modelling, we then identify which pupil-level characteristics explain variation in children's well-being. For pupil-level characteristics, we include children's gender and socioeconomic background variables. As dimensions of well-being are often interrelated, we also examine how earlier measures of children's well-being are associated with later outcomes. Whenever possible, value-added models are used to

investigate changes in children's well-being. For instance: Are 8-year-olds' experiences of peer victimisation associated with their increased engagement in antisocial activities at age 10?

We also examine what school-level characteristics explain variation in children's well-being. For school-level characteristics, we include school structure, composition, and context variables. For structure, we examine school type, defined as community, foundation, voluntary-controlled, or voluntary-aided[2]. School SES and pupil/staff ratio are characterised as composition variables. Context variables include frequency of disputes between the head teacher and parents as well as parental involvement. School characteristics used in this study have been used in previous studies of school effects as important correlates of children's outcomes such as achievement (Bryk *et al.,* 1993; Sellstrom and Bremberg, 2006). We examine whether these school characteristics significantly explain variation between schools, while controlling for pupil background characteristics in a value-added model. For instance: Is the proportion of disadvantaged pupils in the school associated with increased engagement in antisocial activities from 8 to 10 years of age?

Finally, we examine the interaction between pupil and school characteristics. In particular, we examine whether school-level characteristics exacerbate or buffer the effect of children's characteristics and experiences on their well-being. For example: Do the negative effects of school disadvantage on children's well-being vary depending on their gender? Are the negative influences of peer victimisation more severe for children attending more disadvantaged schools?

We examine the following research questions:

1. What are the characteristics and continuities of pupils with high/low well-being?
2. How much variation in children's well-being exists within/between schools?
3. What pupil characteristics explain significant variation in children's well-being?
4. What school characteristics explain significant variation in children's well-being?
5. How do the effects of pupil characteristics on children's well-being vary depending on school characteristics?

2. Method

2.1 Participants

ALSPAC is an ongoing longitudinal study of children born to mothers resident in Avon. It provides good longitudinal data on a large cohort of children, with a tremendous wealth of information on family background, interactions between children and other family members, and the cognitive and affective development of children. The ALSPAC data are unique amongst large sample UK longitudinal data sets in surveying a sample of children year on year. Over 10,000 children are surveyed in three school cohorts. The

[2] Community schools are mostly secular schools owned by the LEA, foundation schools are mostly secular schools owned by the foundation or governors, voluntary-controlled schools are mostly faith schools owned by the LEA, and voluntary-aided schools are mostly faith schools owned by the foundation,

study has also collected considerable information on parents as they are also surveyed at regular, short intervals. To be eligible for the study, mothers had to be resident in Avon while pregnant. In addition, their expected date of delivery had to lie between 1st April, 1991 and 31st December, 1992 inclusive. Mothers who were resident in the area but left shortly after enrolment were omitted from further follow-up. However, those who had completed the questionnaire scheduled for the third trimester of pregnancy before leaving Avon have been kept in the study, even if they had not delivered at the time of moving.

For this report, we used data assessed in a clinical setting at 8 and 10 years. Table 1 displays the response rates.

Table 1: Child Response Rates

Child age	8	10
No longer eligible	1,222	2,103
Did not respond (of those eligible)	3,684	3,336
Refused to participate	1,281	926
Failed to attend	635	359
Attended clinic	7,488	7,563
Overall response rate	52%	53%

Data also include information from teachers and head teachers. Since the ALSPAC cohort is split across three school years, school-level data were collected in Year 3, ending in the summers of 1999, 2000 and 2001 (see Table 2 below).

Table 2: School Response Rates

Year	1999	2000	2001
Schools invited to participate	328	372	339
Refused to participate (% of those invited)	16 (5%)	48 (13%)	19 (6%)
Schools sent questionnaires (% of those invited)	256 (78%)	186 (50%)	267 (79%)
Returned questionnaires (% of those sent)	204 (80%)	185 (99%)	214 (80%)
Overall response rate	62%	50%	63%

There are a number of issues regarding the data. First, the children are surveyed in three school cohorts. Although the children are the same approximate age, the data collection occurred in successive years. In order to maximise the number of pupils included in this study, we include children with available data regardless of cohort membership. To control for any cohort differences, we include the cohort variable in our analysis. There were a few significant differences (see Table 10) indicating that Cohort 2000 report more friend satisfaction and lower KS2 maths scores.

Another issue is sample attrition. We assessed attrition bias between those children who were assessed at 8 and 10 years (n = 6,465) and those who were not assessed (n = 7,506). We found significant differences in maternal education $F(1, 10267) = 636.97$, $p < .001$, family income $F(1, 7311) = 398.06$, $p < .001$, and marital status $F(1, 7654) = 2.42$, $p < .001$. Children who were assessed are more likely to have mothers with higher education ($M = 2.21$), families with higher income ($M = 2.54$), and two-parent families ($M = .95$), whereas children who were not assessed are more likely to have mothers with lower education ($M = 1.61$), families with lower income ($M = 2.05$), and single-parent families ($M = .91$).

A final issue concerns school-level data. Since multilevel modelling necessitates no missing school-level data, we were only able to include those children who attended schools with complete school data. Multilevel modelling also requires a minimum number of data points to calculate school-level effects. There were 229 schools in our sample with complete school data with fewer than three data points (i.e., children) in the data set. In our final sample, we included those children who had the necessary school-level data for our data analyses (n = 2,274 children) and who attended schools with at least four data points (n=242).

First, we assessed attribution bias between those children included (n = 2,274) and those not included (n = 4,191) in the study. For demographic measures, there were no significant differences in child gender or maternal education, however there were significant differences in family income, $F(1, 6464) = 8.82$, $p < .01$, and marital status $F(1, 6464) = 12.28$, $p < .001$. Children included are more likely to have families with higher income ($M = 3.62$) and two parents ($M = .97$), whereas children not included are more likely to have families with lower income ($M = 3.51$) and single parents ($M = .94$).

For pupil-level measures, there were significant differences in external locus of control, $F(1, 6464) = 4.41$, $p < .05$, friends' antisocial activities, $F(1, 6464) = 6.46$, $p < .05$, and KS1 English score, $F(1, 6464) = 5.25$, $p < .05$. Children included have fewer antisocial friends ($M = .79$) and higher KS1 English scores ($M = 3.68$), whereas children not included have more antisocial friends ($M = .89$) and lower KS1 English scores ($M = 3.59$). Interestingly, children not included are more likely to have higher external locus of control ($M = 6.14$) than those included ($M = 6.02$).

We also assessed differences between school-level data of those schools included in the study (n=242) and those not included because of three or fewer data points (n=229). There were no differences in school type and pupil/staff ratio between the schools that were included and those schools not included in our study. However, we found significant differences in the proportion of students receiving free school meals, $F(1, 470) = 27.62$, $p < .001$, head teacher-parent disputes, $F(1, 470) = 9.38$, $p < .01$, and parental involvement, $F(1, 470) = 8.29$, $p < .01$. There was a greater proportion of students receiving free meals in schools included in the study ($M = .15$) compared to those not included ($M = .10$). Schools that were included also had more head teacher-parent disputes ($M = 1.98$) than those not included ($M = 1.65$). There was also less parental involvement in the included schools ($M = 3.27$) than in those not included ($M = 3.52$). The implications of these missing data are discussed in greater detail on page 30.

2.2 Procedure

Once the date of birth of the child was entered on the database, questionnaires were sent at specific age intervals. For demographic measures, family income and parents' marital status were recorded when the child was 47 months of age. Mother's education was measured at 32 weeks' gestation. For pupil-level measures, children were given detailed hands-on sets of tests under standardised circumstances at both 8 and 10 years. These half-day tests occurred in a clinical setting. For school-level measures, head teachers were asked to complete questionnaires about the school when the target children were in Year 3.

2.3 Measures

The following table contains the descriptive statistics of the measures used in this study.

Table 3: Characteristics of the Measures

Measure	Age	N	Min	Max	Mean	SD
Child Gender	Birth	16,100	0	1	.51	.50
Education	N/A	10,269	0	4	1.96	1.21
Family Income	47 mths.	7,313	0	4	2.38	1.34
Marital Status	47 mths.	8,037	0	1	.97	.15
Locus of Control	8 yrs.	5,517	0	12	6.06	2.07
Scholastic Competence	8 yrs.	6,394	0	18	10.98	3.66
Depression	10 yrs.	6,815	0	23	4.05	3.51
Peer Victimisation	8 yrs.	6,555	0	1	.34	.47
	10 yrs.	6,797	0	1	.22	.41
Bullying	8 yrs.	6,522	0	1	.07	.25
	10 yrs.	6,784	0	1	.06	.24
Antisocial Behaviour	8 yrs.	6,546	0	11	.36	.85
	10 yrs.	6,916	0	11	.23	.63
Antisocial Friends	10 yrs.	6,923	0	11	.89	1.44
Talks to Teacher	8 yrs.	6,611	0	4	2.52	1.01
	10 yrs.	6,902	0	4	3.02	.95
Likes School	8 yrs.	6,615	0	3	2.04	.80
	10 yrs.	6,624	0	3	2.01	.66
Satisfaction with Friends	8 yrs.	6,570	0	15	11.57	2.42
	10 yrs.	6,868	0	17	13.14	2.30
Maths KS Score	KS1	14,562	0	5	3.14	1.39
	KS2	16,184	0	100	62.59	21.64
English KS Score	KS1	14,569	0	5	3.17	1.52
	KS2	16,151	0	97	56.81	16.20
School Disadvantage	YR3	4022	0	.71	.13	.11
School Type	YR3	5084	0	3	N/A	N/A
Head Teacher—Parent Disputes	YR3	5116	0	5	1.99	1.07
Parental Involvement	YR3	5124	0	4	3.41	.84
Pupil/Staff Ratio	YR3	3986	2.19	50	19.55	5.59

2.3.1 Demographic Measures

Child Gender. This dichotomous variable was coded as 0 for female; 1 for male.

Maternal Education. This was the mother's highest level of educational qualifications coded as 0 = CSE; 1 = technical qualifications including shorthand, typing, or other skills e.g., hairdressing, apprenticeship, or City and Guilds intermediate technical; 2 = O-level/GCSE; 3 = A-level/vocational qualification including state enrolled nurse, state registered nurse, City and Guilds final technical, City and Guilds full technical, or teaching qualification; and 4 = university degree.

Family Income. This continuous variable of weekly income was coded as 0 = less than £100, 1 = £100 to £199, 2 = £200 to £299, 3 = £300 to £399, and 4 = greater than £500.

Marital Status. This dichotomous variable was coded as 0 for single parent; 1 for married.

2.3.2 Pupil-Level Measures

Locus of Control. This was measured at 8 years of age using a shortened version of the Nowicki-Strickland Internal-External scale for pre-school and primary school children (Nowicki and Duke, 1974). The questions were read out to the child by the examiner and the child was asked to respond with a yes/no answer. Questions included: "Do you feel that wishing can make good things happen?" and "Is doing well in class work just a matter of luck for you?" The child's locus of control score is calculated as the number of affirmative answers he or she gave for the 12 questions.

Scholastic Competence. This was measured at 8 years of age using a 6-item shortened version of Harter's Self-Perception Profile for Children (Harter, 1985). The task was conducted using postboxes and envelopes. Each envelope corresponded to a single item, comprising two statements, one in blue writing, one in red, for example "Some children feel that they don't do very well at their school work" (in blue) and "Some children feel that they do very well at their school work" (in red). There were two post boxes (one blue, one red), and on each postbox, there were two slots: "Sort of true for me" and "Really true for me". Each statement was read out to the child, who then had to decide whether he or she agreed more with the statement in the blue writing or the red (and consequently, whether to post the envelope into the blue or red postbox). They then had to decide whether the relevant statement was "sort of true for him/her" or "really true for him/her". Items were scored as follows: Blue, Really true for me = 0; Blue, Sort of true for me = 1; Red, Sort of true for me = 2; Red, Really true for me = 3. Scores were then summed.

Depression. This assessment was administered at age 10. The children were given a series of envelopes with statements written on them about how they might have been feeling or acting in the previous two weeks. The statements were taken from the Short Mood and Feelings Questionnaire (Angold, Costelo, Messer, Pickles, Winder, and Silver, 1995), which was designed to provide a rapidly administered questionnaire for use in epidemiological studies. Twelve statements included: "I felt lonely", "I did everything

wrong", and "I cried a lot". These were first read out by the psychologist then the child was asked to post them into one of three boxes which best described whether they had felt like the statement on the card. These were marked as 'True, 'Sometimes' and 'Not at all'. A derived depression score was created by scoring the variables as follows: True = 2; Sometimes = 1; Not at all = 0. These variables were then summed, such that a minimum score of 0 represented no signs of depression, while there was a maximum score of 26.

Peer Victimisation and Bullying. The Bullying and Friendship Interview Schedule (Wolke *et al*., 2001; Wolke, Woods, Bloomfield, and Karstadt, 2000; Wolke, Woods, Bloomfield, and Karstadt, 2001; Woods and Wolke, 2003) was conducted at 8 and 10 years of age. The children were asked about a series of events and whether any of them had ever happened to them at school or travelling to/from school which involved other children in the previous six months. These included: "had personal belongings taken", "were threatened/blackmailed", "had been beaten up or hit", "had been tricked in a nasty way", and "had been called bad/nasty names". They were also asked whether they had ever been the perpetrators of any of these actions. If a child responded 'Yes' to any event, a series of follow-on questions was asked, including the frequency with which each event took place (Infrequently: 1-3 times in past 6 months; Frequently: more than 4 times in last 6 months but less than once a week; Very frequently: at least once a week). A child was classed as a victim if he/she was on the receiving end of any of the five components of bullying frequently or very frequently. Similarly, a child was classified as a bully if he/she had initiated at least one of the five components of bullying another child frequently or very frequently.

Antisocial Activities. The Self-reported Antisocial Behaviour for Young Children Questionnaire (Loeber, Stouthamer-Loeber, Van Kammen, and Farrington, 1989) was administered in the clinic at 8 years of age. Each of the 11 questions was written onto a different envelope. The tester showed a postbox to the child, with two posting slots with "ever" and "never" above the slots, asking him or her to post each of the envelopes into one or other slot, depending on whether the child had ever done what was on the envelope or had never done it. Questions included: "Have you ever tried a cigarette?", "Have you ever carried a weapon in case you needed it in a fight?" and "Have you ever taken something from a shop without paying for it?" At 10 years of age, a similar measure based on Wolke *et al*. (2001) was used. Eleven activities were asked about, including: "destroyed something just for fun" and "set fire to something". For both 8 and 10 years, the antisocial activities score is the number of activities that the child admitted.

Antisocial Friends. At age 10, children were asked whether or not (1 = yes; 0 = no) their friends engaged in antisocial activities. Eleven activities were asked about, including: "Have any friends skived off school?" and "Have any friends stolen something?" The antisocial friends score is the number of activities that the child's friends admitted.

Talks to Teacher. A single question was asked at both 8 and 10 years: "Are you able to talk to your teacher alone?" Responses ranged from 0 = no, never to 4 = yes, often.

Likes School. A single question was asked at both 8 and 10 years of age. Children were asked, "Do you like school?" Responses ranged from 0 = no to 3 = yes, very much.

Friend Satisfaction. A series of five questions from the Cambridge Hormones and Moods project Friendship questionnaire (Goodyer, Wright, and Altham, 1989, 1990) was administered to children in the clinic at 8 and 10 years. Questions included: "Are you happy with the friends you've got?", "Do you talk to your friends about problems?" and "Overall, how happy are you with your friends?" An overall score from responses (0 = unhappy; 3 = very happy) was totalled.

Maths and English Key Stage Scores. For KS1, scores were based on a 5-point scale (0 = working towards Level 1), (1 = Level 1), (2 = Level 2C), (3 = Level 2B), (4 = Level 2A), and (5 = Levels 3 to 4A). For KS2 maths, scores were based on total marks on a 100-point scale. For KS2 English, scores were based on total marks in reading, writing, spelling, and handwriting on a 100-point scale.

2.3.3 School-Level Measures

School Disadvantage. This was an index of disadvantage measured by the proportion of pupils in the school with free school meals status.

School Type. This was a categorical variable which classified schools according to the following categories: community (number of pupils=2,530), voluntary-aided (number of pupils=364), voluntary-controlled (number of pupils=960), and foundation (number of pupils=70). Independent schools were not included as too few students (number of pupils=9) attend this type of school. For purposes of analysis, dummy variables were created.

Head Teacher-Parent Disputes. This was measured by the frequency of disputes between the head-teacher and parents. Responses ranged from 0 = hardly ever, 1 = once per term, 2 = once per month, 3 = once per week, 4 = two or three times per week, and 5 = nearly every day.

Parental Involvement. This was measured by the percentage of parents who attend parent meetings. Responses ranged from 0 = less than 20 per cent, 1 = 20 to 49 per cent, 2 = 50 to 74 per cent, 3 = 75 to 89 per cent, and 4 = 90 to 100 per cent.

Pupil/Staff Ratio. This was calculated as the number of pupils who attend the school divided by the number of paid school staff.

2.4 Analytic Strategy

Hierarchical Linear Modelling (HLM 5) was used to examine the effects of pupil and school-level variables on children's outcomes (Bryk and Raudenbush, 1992, 1988). HLM 5 is a statistical program that allows the researcher to examine nested data (i.e., pupils within schools). HLM estimates the effects of schools while separating the effects of individual pupil characteristics.

We employ two-level HLM to investigate the variation that exists in the outcome both within and between schools. The Level 1 model examines the outcome in relation to the pupil-level characteristics. This examines how pupil-level variables contribute to the variation in the outcome within schools. Pupil-level variables included demographic characteristics such as child gender, maternal education, family income, and marital status as well as children's well-being, including mental health, antisocial, pro-social, and achievement measures at age 8.

The level 2 model examines the outcome in relation to school-level variables. This examines how school-level variables contribute to variation in the outcome between schools. School-level variables include pupil disadvantage, school type (i.e., voluntary-aided, voluntary-controlled, foundation, or community), head teacher and parent disputes, pupil/staff ratio, and parental involvement.

3. Results

3.1 What are the characteristics and continuities of pupils with high/ low well-being?

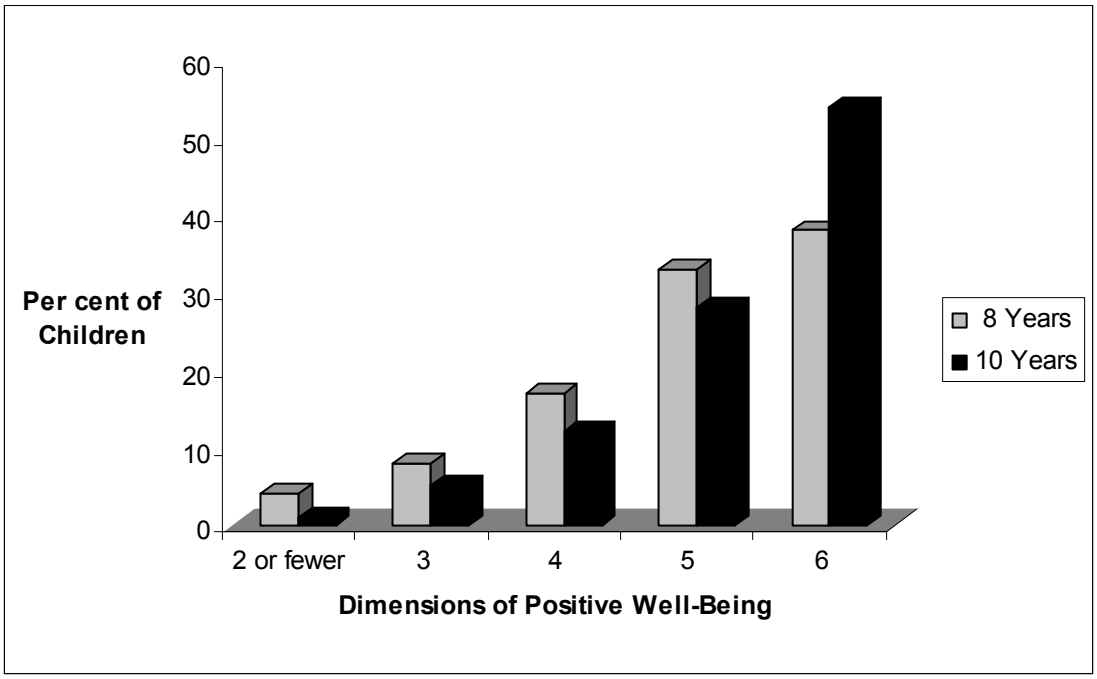
We first examine the characteristics and continuity of pupils who have positive well-being and then those with low levels of well-being. A well-being score for each child was calculated using the well-being outcomes excluding achievement at both 8 and 10 years. Only measures available at both ages were included in the well-being score for comparability purposes. As shown in Table 4, categories reflect negative functioning. For each child, the categories were summed to create a single score.

Table 4: Definition and Percentages for Low Well-Being at 8 and 10 Years

Outcome	Definition	% Age 8	% Age 10
Victim	Several times a month or more	33%	22%
Bully	Engaged in frequently	7%	6%
Antisocial	Engaged in 1+ activity	22%	17%
Talks to Teacher	Never	21%	11%
Likes School	No or Not Much	19%	15%
Friend Satisfaction	Unhappy on 2 or more items	5%	9%

Most 8 and 10-year-olds experience positive well-being. As shown in Figure 1, at age 8, 38 per cent of the sample has positive well-being on six, 33 per cent of the sample on five, 17 per cent on four, 8 per cent on three, and 4 per cent on two or fewer measures. At age 10, 54 per cent of the sample has positive well-being on all six measures, 28 per cent on five, 12 per cent on four, 5 per cent on three, and 1 per cent on two or fewer.

Figure 1: 8 and 10-Year-Old Children with Dimensions of Positive Well-Being



We then compare children with high, average, and low well-being. Children with lower well-being tend to live in families with more socioeconomic difficulties than children with higher well-being (see Table 5). Boys, on average, also have lower well-being than girls. Children with lower well-being also have lower KS2 maths and English scores. For example, children with low well-being scored 7.36 and 7.59 points lower on their maths and English KS2, respectively. Interestingly, there are no school-level differences for low and high well-being at age 8 and 10.

Table 5: Mean Differences for Children with Low, Average, and High Well-Being

	Mean Low	Mean Average	Mean High	F
Gender	.65	.52	.38	122.42***
Maternal Education	2.16	2.23	2.37	27.19***
Family Income	2.39	2.59	2.68	30.95***
Maths KS2	65.35	68.19	72.71	147.04***
English KS2	57.45	61.14	65.04	259.58***

Note. ***p < .001, **p < .01, *p < .05
High – well-being on all 6 measures
Average – well-being on 4-5 measures
Low – well-being on 3 or fewer measures

We also examine the continuity in well-being from age 8 to 10. As shown in Table 6, most children experience positive trends in their well-being, even if they were experiencing low well-being earlier.

Table 6: Continuity in Well-Being from 8 to 10 Years

	Low at 10	Average at 10	High at 10	Total
Low at 8	**2.3%**	5.7%	3.4%	11.4%
Average at 8	2.3%	**20.4%**	25.5%	48.2%
High at 8	3.4%	11.3%	**25.7%**	40.4%
Total	8.0%	37.4%	54.6%	N=5288

Note. High – well-being on all 6 measures
Medium – well-being on 4-5 measures
Low – well-being on 3 or fewer measures

For example, 11 per cent of the sample have low levels of well-being at age 8, while 48 per cent have average and 40 per cent high levels. At age 10, 8 per cent of the sample have low, 37 per cent average and 54 per cent high levels of well-being. Between the ages of 8 and 10, 35 per cent of children experience an increase and 17 per cent a decrease in their levels of well-being. Stability is also greater at the upper end of the spectrum, 26 per cent of the sample with high levels remains high and only 2 per cent of

children with low levels remain low. Thus, there appears to be more continuity in well-being for those children who are doing well compared to those who are doing poorly.

3.2 How much variation in children's well-being exists within/ between schools?

For our baseline model, we examine a fully unconditional HLM to determine within and between school effects. The baseline model provides information on the mean (i.e., fixed effect) and the variance (i.e., random effect) for each outcome. The pupil-level and school-level random effect combine to form the total variance in the outcome examined (see Table 11, Appendices).

Most of the variation in children's well-being exists within, rather than between, schools. School-level factors explain only a small percentage of children's well-being. The variation between schools for children's mental health, antisocial behaviour, and pro-social behaviour ranges from less than 1 to 3 per cent (see Table 7). This indicates that the differences in children's well-being are, to a much greater extent, due to individual factors rather than their attendance at a particular school. The variation between schools for achievement is higher, ranging from 7 to 10 per cent for maths and English KS2 scores, respectively. This finding suggests that the school attended explains a greater percentage of children's achievement than other dimensions of their well-being.

Table 7: Within and Between School Variance for Well-Being

Outcome	Within-school variance	Between-school variance
External LOC*	97%	3%
Competence	98%	2%
Depression	99%	1%
Victim	98%	2%
Bully	99%	<1%
Antisocial	98%	2%
Antisocial Friends	97%	3%
Talks to Teacher	99%	<1%
Likes School	99%	1%
Friend Satisfaction	99%	<1%
Maths KS2	93%	7%
English KS2	90%	10%

* LOC= locus of control

3.3 What pupil characteristics are important in explaining variation in children's well-being?

We next consider what pupil characteristics contribute to the variation within schools. We add pupil-level measures to the baseline Level 1 model (see Table 12, Appendices). Pupil-level measures include demographic characteristics such as child gender, maternal education, family income, and parents' marital status as well as measures of children's well-being at age 8. As measures of depression and antisocial friends were not taken at 8 years of age, these variables are not included as predictors. Whenever possible, value-added models are examined by controlling for an earlier measure of the outcome examined. However, as the measures for mental health and antisocial friends were taken only at one point in time, we could not control for earlier measures of external locus of control, scholastic competence, depression, and antisocial friends.

Table 8 (see page 20) presents a summary of the significant pupil-level measures and the within-school variance explained for each outcome.

Socioeconomic effects

Socioeconomic indicators are not significantly associated with children's scholastic competence (belief in their own academic ability) and engagement in pro-social and antisocial behaviours. As discussed below, other factors are more important in explaining variation in these aspects of children's well-being. However, maternal education and family income explain significant variation in children's achievement, indicating that socioeconomic background plays a more substantial role in children's achievement than in their well-being.

Children's gender, on the other hand, plays a key role in explaining variance for many of the outcomes. Girls are at greater risk of poorer mental health, whereas boys engage in more antisocial and less pro-social behaviours than girls. Boys have higher KS2 maths scores, whereas girls have higher KS2 English scores. Our findings support previous research examining gender differences (Bongers, Koot, Van der Ende, and Verhulst, 2004; Brown *et al.,* 2005; DfES, 2007; Sylva *et al.,* 2007; Wolke *et al.,* 2001). Such gender differences reflect socially accepted, normative ways that boys and girls react to difficulties. On average, boys tend to engage in more acting-out behaviours, whereas girls are more vulnerable to internalising difficulties. Our findings highlight the importance of defining well-being according to multiple dimensions as difficulties often manifest themselves differently for boys and girls.

Behavioural and mental health effects

The figures show a degree of continuity in that, for many of the age 10 outcomes, one of the strongest predictors is whether the same behaviour or experience occurred at age 8. Thus, those who experience victimisation at age 8 are also more likely to experience it at age 10, and those who talk often to their teacher at age 8 are also more likely to do so at age 10.

Also notable is the clustering within dimensions of well-being. That is, positive behaviours are associated with more positive behaviours two years later and vice versa for negative behaviours. For example, children who talk to their teacher at age 8 are more likely to talk to their teacher, like school, and be satisfied with their friends at age 10. Thus, pro-social behaviours at one stage of development may strengthen other aspects of children's positive development at a later stage. However, the reverse may also be true for negative indicators of well-being. Children who are involved in antisocial behaviours at age 8 are more likely to have increased engagement in other antisocial behaviours at age 10. Other studies have also found that experiences of bullying and victimisation increase the probability of engagement in later bullying and violent delinquency (Barker, Maughan, and Arseneault, under review; Brown *et al.,* 2005; Nansel *et al.,* 2003). These findings support the likelihood of a "cascade effect" in children's development; maladjustment may worsen throughout the school years due to escalating levels of negative experiences (Posner and Rothbart, 2000).

Indicators from one dimension of well-being also sometimes correlate with changes in another dimension. Locus of control is a significant factor for many outcomes. In support of previous research (i.e., Findley and Cooper, 1983; Rotter, 1966), this finding underscores the importance of children's sense of control in directing many different aspects of their decision-making and school behaviour. Children who believe that they have an impact on their decisions and environment may be more likely to avoid negative behaviours as well as enjoy and do well in school.

We also find that measures of antisocial behaviours are associated with measures of pro-social behaviours and vice versa. For example, 8-year-old bullies experience a decrease in talking to their teachers, liking school, and being satisfied with their friendships at age 10. This finding supports previous research indicating that bullies are more likely to have school-related problems such as low school bonding (Haynie *et al.,* 2001; Mynard and Joseph, 1997). On the other hand, school engagement may be an important positive factor in reducing the chances of negative trajectories of development. Children who liked school at age 8, for example, have decreased engagement in antisocial activities at age 10.

Achievement effects

Notably, children with higher English, but not maths, KS1 scores experience a decrease in antisocial behaviours and an increase in pro-social behaviours from ages 8 to 10. This finding suggests that aspects of development associated with English proficiency, such as communication skills and sociability, may promote children's positive behaviours whilst discouraging their engagement in more negative activities. However, we did not find the reverse to be significant. That is, children's engagement in pro-social and antisocial behaviours is not significantly associated with KS2 scores. Yet, such behaviours may have a cumulative effect in which their association with motivational dimensions of children's well-being—namely locus of control and scholastic competence—is demonstrated on achievement and attainment measures later in secondary school.

Box 1. The effects of pupil-level characteristics on well-being: a statistical picture

- Children who report being victimised at age 8 have, on average, 3 percentage points higher external locus of control and depression at age 10 than children who were not victimised.
- 8-year-old children who like school very much have, on average, 9 percentage points higher scholastic competence than pupils who do not like school.
- Children with the highest KS1 maths score (i.e., Levels 3 to 4A) have, on average, 8 percentage points lower external locus of control, 4 percentage points lower depression, and 12 percentage points higher scholastic competence than pupils who have the lowest maths score (i.e., working towards Level 1).
- The probability of being a victim at age 10 is, on average, 13 percentage points higher for 8-year-old children who were bullies than for those who were not bullies.
- The probability of being a victim or bully is, on average, 5 percentage points lower for children with the highest KS1 English scores, compared to children with the lowest scores.
- An 8-year-old bully is, on average, 6 percentage points less likely to talk to their teacher and 3 percentage points less likely to be satisfied with their friendships at age 10 than children who were not bullies.
- Girls' KS2 English scores are, on average, 4 points higher than boys', whereas boys' KS2 maths scores are 4 points higher than girls'.
- The KS2 English scores of children with mothers who have a university degree are 4 points higher, on average, than those of pupils whose mothers were only educated to CSE level.

Table 8: Significant Pupil-Level Measures for Well-Being

Age 8 Predictors	MALE	ED	INC	MS	External LOC	Comp	Depress	Victim	Bully	Antisocial Activities	Antisocial Friends	Talks to teacher	Likes School	Friends	Maths KS1	English KS1	
Age 10 Outcomes																	**Within Variance Explained**
1. External LOC	-	-	-		NG	-	NA	+		+	NA	-			-	-	10%
2. Competence	+				-	NG	NA	-	-	-	NA		+	+	+	+	14%
3. Depression			-		+	-	NG	+		+	NA		-		-		8%
4. Victim	+				+		NA	+	+	+	NA					-	8%
5. Bully	+						NA	+	+	+	NA					-	8%
6. Antisocial Activities	+				+		NA	+	+	+	NA		-			-	11%
7. Antisocial Friends	+				+		NA	+	+	+	NG					-	10%
8. Talks to Teacher							NA		-		NA	+		+		+	4%
9. Likes School	-				-		NA			-	NA	+	+			+	8%
10. Friends	-						NA		-		NA	+		+			6%
11. Maths KS2	+	+	+		-	+	NA				NA				+	+	60%
12. English KS2	-	+	+		-	+	NA				NA				+	+	54%

Note. ED = maternal education, INC = family income, MS = parents' marital status.
+ = positive relationship (e.g., there is a positive relationship between victimisation and antisocial behaviour, so those who are victims at age 8 are more likely to engage in antisocial behaviour at age 10)
- = negative relationship (e.g., there is a negative relationship between scholastic competence and depression, so those who have high levels of belief in their academic abilities at age 8 are less likely to experience depression at age 10)
NA = variable was not administered at 8 years of age and therefore was not included as a predictor.
NG = earlier measures of these variables were not given to children and therefore not included as a control variable.

3.4 What school characteristics are important in explaining variation in children's well-being?

We then consider what school characteristics significantly contribute to the variation between schools. To do this, we add school-level measures to the baseline Level 2 model. This model also includes pupil-level measures as control variables in the baseline Level 1 model. School-level measures include school disadvantage, school type, disputes, pupil/staff ratio, and parental involvement. Models are presented in Table 13 (see Appendices).

Table 9 presents a summary of the significant school-level measures and the between-school variance explained for each outcome.

The proportion of pupil disadvantage is a key feature of the school environment. At disadvantaged schools, children experience worse well-being than those at more advantaged schools. Studies have long demonstrated the effects of fellow students on children's achievement (e.g., Coleman and Hoffer, 1987). Studies have also noted the effects of intake mix on delinquency (e.g., Rutter *et al.,* 1979). Our study expands these findings by demonstrating the school effect of pupil disadvantage on children's well-being. Children from disadvantaged schools are more likely to be depressed, experience victimisation, engage in more antisocial behaviours and antisocial friendships, report less friend satisfaction, and have lower achievement than children from more advantaged schools.

School type is also a significant school-level variable for many outcomes. Pupils who attend voluntary-aided schools have higher well-being on a number of outcomes than pupils in other schools. They are less likely to be victimised, more likely to talk to their teacher, and have higher KS2 English and maths scores than pupils in other schools. Pupils in foundation schools, on the other hand, report more depression and are less likely to be bullies than pupils in other schools.

These findings highlight the importance of school ethos for children's well-being. Most voluntary-aided schools are faith based and may have a different ethos from secular schools. For example, faith schools may place more emphasis on moral education, thus reducing the likelihood of peer victimisation. Moreover, faith-based schools may be more focused around central tenets that may unite the families who send their children to such schools. However, the difference may also be due to the socioeconomic background of families that voluntary-aided schools attract and admit. Many faith schools have had, until recently, greater control over their pupil admissions than do most secular schools. Since they are allowed to interview families, faith schools may choose higher SES families than do secular schools. For example, a recent study found that faith secondary schools educate a smaller proportion of students eligible for free school meals than do other schools (Allen and West, 2007). Research also suggests that the more exclusive intake of faith schools may explain achievement differences between faith and secular schools. For example, Gibbons and Silva (2006) found that the achievement advantage of faith over secular schools was explained by unobserved differences between pupils

who apply and are admitted to faith schools versus those who attend other schools. Nevertheless, we found that the school-level effect of voluntary-aided schools remained significant in our study, even after controlling for differences in children's socioeconomic background. This suggests that voluntary-aided schools may offer an advantage beyond the higher socioeconomic background of the pupils who may attend such schools. Our study also expands on previous studies by focusing on children's well-being in addition to test scores. Our findings suggest that, even controlling for pupil background, voluntary-aided schools have an atmosphere that is conducive to children's well-being.

Another important question concerns whether peer and school processes or school resources explain greater variation in children's well-being. Our measure of school resources, pupil/teacher ratio, is not a significant school-level predictor of well-being. Rather, school ethos variables such as parental involvement and head teacher and parent disputes explain significant variation in well-being. Pupils who attend schools with more head teacher and parent disputes have a higher external locus of control, talk less with their teachers, and have lower KS2 English scores than pupils who attend schools with fewer disputes. These results suggest that factors that comprise the school environment, perhaps less tangible than school resources but nevertheless definitive in terms of the meaning and ethos of the school, are more significant determinants of children's well-being than pupil/teacher ratio. These findings also may be a reflection of the underlying malaise in the school. Schools with more strife and less involvement are likely to have more serious issues regarding morale and cohesion. Despite being statistically significant, however, it is important to note that actual differences in children's well-being attributed to school characteristics are quite small.

School-level variables explain between 14 and 75 per cent of the school-level variance. However, the school-level variance is a small proportion of the total variance for most outcomes. For example, 2 per cent of the total variance in antisocial activities exists between schools. Although most of the school-level variance (66%) is explained by the school-level variables, it is only a small proportion of the total variance (1.32%). However, schools may not just affect outcomes directly but also indirectly by changing the effect which individual pupil characteristics have on well-being. We therefore go on to consider the interactions between school-level variables and individual pupil characteristics.

Table 9: Significant School-Level Measures for Well-Being

Outcome	Disadvantage	Community	Voluntary -Aided	Foundation	Dispute	Pupil/ Teacher Ratio	Parent Involve -ment	% Variance Explained
External LOC					+			14%
Competence								--
Depression	+			+			-	66%
Victim	+		-					33%
Bully				-			-	33%
Antisocial Activities	+						-	66%
Antisocial Friends	+						-	50%
Talks to Teacher			+		-			75%
Likes School								--
Friends	-							33%
Maths KS2	-		+				+	27%
English KS2	-		+		-		+	16%

Note. + = positive relationship (e.g., there is a positive relationship between antisocial activities and attending a disadvantaged school, so those who attend disadvantaged schools are more likely to engage in antisocial activities)
- = negative relationship (e.g., there is a negative relationship between being a victim and attending a voluntary-aided school, so those who attend voluntary-aided schools are less likely to be victims)

Box 2. The effects of school-level characteristics on well-being: a statistical picture

- Children who attend schools where 60 per cent of pupils receive free lunch have, on average, 2 percentage points higher depression, 4 percentage points higher engagement in antisocial activities, and 7 percentage points higher engagement with antisocial friends than children who attend schools where 10 per cent of pupils receive free lunch.
- Children who attend schools where 60 per cent of pupils receive free lunch are, on average, 19 percentage points more likely to be victimised than children who attend schools where 10 per cent of pupils receive free lunch.
- The KS2 maths scores of children who attend schools where 60 per cent of pupils receive free lunch are, on average, 8 points lower than those of children who attend schools where 10 per cent of pupils receive free lunch. The average gap in English scores is 6 points.
- Children who attend voluntary-aided schools are, on average, 4 percentage points less likely to be victimised than children who attend other schools.
- Children in foundation schools have, on average, 3 percentage points higher depression than children who attend other schools.
- Children in foundation schools are, on average, 5 percentage points less likely to be a bully than pupils in other schools.
- The KS2 maths scores of children in voluntary-aided schools are, on average, 3 points higher than those of pupils in other schools. The average gap in English is 4 points.
- Children who attend schools where parents and the head teacher have disputes every day have, on average, 4 percentage points higher external locus of control than pupils in schools where there are hardly any disputes. Their KS2 English scores are also 5 points lower on average.
- Children who attend schools where 90 to 100 per cent of parents attend meetings have higher KS2 scores, on average, than pupils in schools where 20 per cent or less of parents attend meetings. They have a 5 points advantage in maths and a 4 points lead in English.

3.5 How do the effects of pupil characteristics on children's well-being vary depending on school characteristics?

To answer this question, we add the school-level measures to the specific pupil-level measures in the Level 1 model. Table 14 (see Appendices) displays the significant coefficients for each outcome.

Table 10 displays a summary of the significant findings.

There are several noteworthy interactions. At disadvantaged schools, there is a converse association between scholastic competence and other factors, compared to pupils in average schools. For example, scholastic competence is associated with higher achievement for pupils in average schools, whereas the association is negative for pupils attending more disadvantaged schools. This suggests that children in more disadvantaged schools may use different cues for assessing their competence than children in more advantaged schools. As pupils in disadvantaged schools have, on average, lower overall achievement, they may have a different frame of reference for external comparison than children who attend more advantaged schools. This finding suggests that we need to consider that the definition of well-being may vary in different types of environments. Certainly, the meaning of "normative" may differ according to the school environment that pupils experience.

Disadvantaged schools also exacerbate the negative association of some of the measures on children's well-being. Victimisation is not significantly associated with friend satisfaction for the average pupil in the average school, however, victimisation has a significant negative association with children's friendships for pupils attending more disadvantaged schools. At disadvantaged schools, children who engage in antisocial activities are also less likely to talk to their teacher. There are also several variables that protect children attending disadvantaged schools: talking to the teacher correlates with more liking of school, and more satisfaction with friendships correlates with higher KS2 English scores. Friend satisfaction at age 8 also has a negative association with depression and antisocial friends at age 10. This finding suggests that friendships may be more important for pupils in more disadvantaged schools compared to pupils in more advantaged schools. Interestingly, boys who attend disadvantaged schools are also less likely to experience depression and more likely to enjoy school than boys attending more advantaged schools.

School characteristics also moderate the association between antisocial behaviours and children's later well-being. In community schools, for example, the effects of peer victimisation are more severe. Peer victimisation also has a stronger correlation with later bullying and engagement in antisocial activities in community schools than in other schools. Boys are, however, at greater risk of being victimised in foundation schools. Considering that there are only 70 pupils in foundation schools, however, these findings need to interpreted with caution. In voluntary-aided schools, on the other hand, the effect of being a bully is less pronounced. Children at voluntary-aided schools who are bullies at age 8 report more friend satisfaction and less depression at age 10 than bullies in other schools. Therefore, the amount of bullying, either as a perpetrator or victim, as well as the strength of its effects on children's well-being, varies depending on the school environment. In particular, we find that voluntary-aided schools may buffer the negative effects of bullying, whereas community and foundation schools may exacerbate the negative effects of victimisation on children's well-being.

In schools with a larger pupil/staff ratio, children who were victims at age 8 are less likely to be victims at age 10. This may be due to the positive correlation between school size and pupil/staff ratio ($r = .172$, $p < .0001$). Children who attend smaller schools may have a greater likelihood of being targeted for victimisation (Wolke *et al.,* 2001). For children attending schools with a larger pupil/staff ratio, external locus of control has a stronger association with lower KS2 English scores. For schools with greater parental involvement, friend satisfaction at age 8 correlates with higher KS2 English scores.

Table 10: Pupil and School-Level Interactions for Well-Being

Outcome	Disadvantage	Community	Voluntary-Aided	Foundation	Dispute	Pupil/ Teacher Ratio	Parent Involvement
External LOC	Competence +						
Competence	LOC + Antisocial Activities-+		Antisocial Activities-				
Depression	Males -		Friend Satisfaction – Bully – Competence – LOC -		Mum Ed +		
Victim				Males +	Bully +	Victim -	
Bully		Victim +			Bully +		
Antisocial Activities					LOC +		
Antisocial Friends		Victim +	Friend Satisfaction -				
Talks to Teacher	Antisocial Activities--						
Likes School	Talk Teacher + Males -						
Friend Satisfaction	Victim –		Bully +				
Maths KS2	Mum Ed -						
English KS2	Friend Satisfaction + Competence -					LOC -	Friend Satisfaction +

Note. + = positive relationship (e.g., there is a positive relationship between friend satisfaction and English KS2 when attending a disadvantaged school)
- = negative relationship (e.g., there is a negative relationship between victimisation and friend satisfaction when attending a disadvantaged school)

4. Discussion

Schools matter for children's well-being. Rather than their attendance at a particular school, however, children's individual experiences within the school are more important for their well-being. As discussed below, children's encounters within the school, such as their experiences with teachers and peers, explain significant variation in well-being. Nevertheless, there are patterns of significance for school-level effects which we also highlight. Our findings also suggest that children's characteristics and experiences interact with school characteristics in important ways to either reinforce or alleviate positive and negative aspects of their well-being.

4.1 Characteristics and Continuities of Children's Well-Being

Despite the concerns which exist in many quarters about the quality of children's lives in the UK today, most children experience positive well-being during the primary school years. The majority of children do not engage in bullying and antisocial activities. Most children report liking school, talking to their teacher, and being satisfied by their friendships. For those who experience negative well-being, the majority will experience more positive well-being two years later. While this by no means negates the concerns about the quality of life which our children experience, it does provide a useful sense of perspective.

We also note a small subset—one in five children—who have declining or low trajectories of well-being from 8 to 10 years. This subset is most likely to be male, low SES, and low achieving. The high level of continuity in the various measures and their interrelatedness across time shows that signals of likely difficulties are apparent at a relatively early stage, and that children with poor early signals are more likely to continue their involvement in negative behaviours. However, our findings also indicate that some factors may help deter continued involvement in antisocial behaviours. For example, 8-year-olds who like school, on average, engage in fewer antisocial activities at age 10. Children with higher KS1 English scores are also less likely to experience increased antisocial behaviours from ages 8 to 10. It is important, therefore, to understand these early signals and what interventions may be effective in preventing further negative development. More research is sorely needed to understand the ongoing dynamic processes that underscore the development of negative patterns of well-being for these children.

4.2 Variation in Well-Being

Whilst the variation between schools is much less than the variation within schools, we should bear in mind that at younger ages, school effects on children's well-being generally show less variation than on academic achievement (Rutter and Maughan, 2002). Secondary schools may have a greater impact on children's well-being than do primary schools. As children become adolescents, the school environment and their friends gain increasing importance. When data become available, a follow-up study could

usefully determine how the effects of the school change as children move from primary to secondary school.

And although the measured effects of schools on pupil well-being are small in comparison with the effects of the characteristics of the pupils themselves, we should not suppose that schools are of little importance or that what happens in them makes little difference. Schools make a difference for children's well-being, but it is children's individual experiences within schools which are important for their well-being. Our findings suggest that children experience a very different environment, even within the same school, based on their own individual interactions with peers and teachers. This suggests that modifications within individual children's lives are likely to make the most difference to their well-being and that child-school "fit" may be more important for children's well-being than attending a particular school.

Further, the school environment and ethos can provide an important backdrop to individual interventions. School policy and practice in relation to bullying will affect the experience of both bully and victim, for instance – and we have seen that the relationships between individual pupil characteristics and well-being are affected by school-level factors in a number of instances, even with the relatively coarse school-level measures which the data allow.

4.3 Implications

These findings do not negate the effectiveness of whole-school approaches. The DCSF sponsored program, Social and Emotional Aspects of Learning (SEAL), focuses on teaching children the qualities and skills which promote positive behaviour and effective learning, such as a greater awareness and understanding of their relationships with others. This initiative recognises that children's ability to get along with others may hinder their ability to learn. Our findings also highlight the interplay between children's well-being and achievement. In particular, we find that aspects of children's motivation, such as their scholastic competence and locus of control, are associated with their school achievement. More notable is the significance of English achievement in explaining variation in children's engagement in more pro-social and less antisocial behaviours. This finding suggests that literacy and other related skills may play an important role in social dimensions of children's well-being.

The interplay between pupil and school characteristics also needs to be considered when designing school-wide interventions. This report finds that school characteristics can either exacerbate or buffer the association between dimensions of children's well-being. In this sense, one intervention may not necessarily fit the needs of every school. Successful whole-school programmes, such as SEAL, build upon the effectiveness of the schools that already exists and adapt their approach to the unique character of the school.

Our findings also suggest that an approach which is responsive to the needs of individual children may be effective in bolstering their well-being. More recently, personalised

learning has been advocated (2020 Review Group, 2006). Personalised learning and teaching means taking a highly structured and responsive approach to each child's learning and involves creating communities of learners, including pupils, teachers, and parents. Our findings suggest that such a personalised approach may also be relevant for non-cognitive aspects of children's well-being.

One of the core strategies of the Government-appointed 2020 Review Group, for example, involves activating pupils as the owners of their learning. Our findings highlight the importance of children's sense of control in guiding their own behaviour and learning, not only for their achievement but also for their well-being. Another recommendation concerns the identification of pupils and groups of pupils who are not progressing. We believe that the definition of "not progressing" should not be limited to cognitive outcomes. In particular, our findings suggest that an early recognition of children who engage in antisocial activities may also be important. Such early identification may discourage the continuity of, and often progressive engagement in, delinquent behaviours. However, such identification needs to be implemented with extreme caution. As others have noted (e.g., Feinstein and Sabates, 2006), stigmatisation is an important consideration. Early prevention cannot be effective if children are categorised merely as problems rather than in need of additional support. Another core strategy of the 2020 Review Group involves engaging parents and carers in their children's education. Our results provide support for this recommendation by demonstrating that children who attend schools with more parental involvement have more positive well-being. Additionally, we found that schools characterised by less strife between teachers and parents and those schools defined by a common purpose have better outcomes for children. These findings concur with those of the 2020 Review Group that schools that are created as communities, with children, parents, teachers, and head teachers working together, are most beneficial for children's well-being.

4.4 Limitations and Conclusions

A number of limitations need to be noted. First and foremost, we were not able to estimate school effects for almost half of the 8 and 10-year-olds in our sample due to missing data. Although we cannot determine whether school-level differences exist between those children who dropped out of the study and those who remain in it, there were significant differences in family income and marital status. As the children who dropped out of the study are more likely to come from lower income and single-parent families than those who were included, it is likely that schools that were not represented in the study have higher proportions of disadvantaged students—thus underestimating the effect of school disadvantage on well-being. On the other hand, a number of schools were not included in the study due to too few data points (i.e., children) per school. These schools had lower proportions of disadvantaged students and greater school ethos than those schools that were included in the study. Needless to say, the biases for these subgroups of children not included in the study were in converse directions. Therefore, it is likely that schools at both ends of the spectrum were not included. There were also very few significant differences in well-being between the children who were included and those who were not included. This provides some reassurance regarding our findings. Second, our school data relied on head teacher measures and therefore may be biased.

Third, we did not examine other key features of the school, including classroom measures which may be associated with children's well-being.

Despite these limitations, our study provides important insights regarding children's well-being. We find that patterns of well-being begin early in primary school. On an optimistic note, most children follow a path of relatively positive well-being. However, a subset of children experiences a negative trajectory of well-being. Early identification and intervention may offset this negative trajectory and discourage their continuing, and perhaps escalating, path towards mental health problems, delinquency, and school disengagement. Our study suggests that school factors, both at the pupil and school level, may offer protection for these children. Nevertheless, much of the variation in children's well-being remains unexplained. It is likely that the unmeasured day-to-day experiences of children within their home and school are important constituents of their overall well-being.

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6. Appendix 1: Full Models

Table 11. Two-Level HLM Baseline Models

Fixed Effect	LOC	Competence	Depression	Victim	Bully	Antisocial	Antisocial Friends
Intercept	6.09***	11.05***	3.99***	.218***	.06***	.19***	.846***
Random Effect							
School-Level	.128	.268	.06	.003	.0002	.003	.02
Pupil-Level	3.99	12.65	10.48	.163	.052	.201	.58

Fixed Effect	Teacher	School	Friends	Maths KS2	English KS2
Intercept	3.01***	1.99***	12.45***	70.18***	62.92***
Random Effect					
School-Level	.004	.004	.006	26.74	20.76
Pupil-Level	.92	.40	4.21	338.67	183.53

Note. ***p < .001, **p < .01, *p < .05

Table 12. Two-Level HLM Pupil-Level Models

Fixed Effect	LOC	Competence	Depression	Victim	Bully	Antisocial	Antisocial Friends
Intercept	8.95***	12.25***	5.17***	.11*	.03*	.05	.50***
Male	-.18*	.45***	.04	.04*	.04*	.13***	.25***
Education	-.17***	-.02	-.00	.01	.01	-.00	-.02
Income	-.09*	-.00	-.11	-.01	-.01	-.01	-.01
Marital Status	.05	-.11	.22	.01	.02	.02	-.05
Cohort	-.14	-.16	-.30	-.01	.00	-.02	-.01
LOC	N/A	-.26***	.12***	.01*	.00	.01*	.01
Competence	-.08***	N/A	-.12***	-.00	.00	.00	.01
Victim	.38***	-.19	.56***	.14***	.03**	.04*	.21***
Bully	-.32	-.59	.52	.13**	.14***	.24***	.13+
Antisocial	.14+	-.30*	.67***	.05**	.04**	.15***	.21***
Talks to Teacher	.09*	.10	-.01	.00	-.00	-.01	-.02
Likes School	.02	.52***	-.21*	.00	-.00	-.03*	-.03
Friend Satisfaction	-.01	.21***	-.05	.01	.00	-.00	-.01
Maths KS1	-.21***	.43***	-.19*	-.00	.00	.01	.00
English KS1	-.09*	.20*	-.01	-.01*	-.01*	-.03*	-.05*
Random Effect	LOC	Competence	Depression	Victim	Bully	Antisocial	Antisocial Friends
School-Level	.14	.30	.008	.0015	.0002	.0016	.007
Pupil-Level	3.60	10.87	9.65	.15	.048	.178	.52

Note. ***p < .001, **p < .01, *p < .05

Table 12 Continued. Two-Level HLM Pupil-Level Models

Fixed Effect	Teacher	School	Friends	Maths KS2	English KS2
Intercept	2.99***	1.98***	12.84***	69.43***	62.18***
Male	-.01	-.14***	-.24*	4.09***	-3.77***
Education	.01	.02	-.02	1.26***	.99***
Income	.02	.01	-.01	.58*	.61**
Marital Status	.11	.05	.28	.02	-1.08
Cohort	.04	.03	.21*	-2.35** *	-.05
LOC	-.02+	-.01	-.03	-.52***	-.70***
Competence	.00	.01	-.01	.41***	.15*
Victim	.02	.01	.08	-.73	.55
Bully	-.22***	-.03	-.56***	-.52	-.88
Antisocial	.03	-.06*	-.06	.08	-.48
Talks to Teacher	.09*	.02*	.08*	.38	.22
Likes School	.00	.16***	-.03	-.10	.22
Friend Satisfaction	.02*	.01	.17***	.11	.01
Maths KS1	.01	-.02	.07	9.17***	1.96***
English KS1	.06*	.03*	.02	2.64***	5.58***
Random Effect	Teacher	School	Friends	Maths KS2	English KS2
School-Level	.0015	.0008	.003	15.62	9.32
Pupil-Level	.88	.37	3.94	136.91	84.30

Note. ***p < .001, **p < .01, *p < .05

Table 13. Two-Level HLM Pupil and School-Level Models

Fixed Effect	LOC	Competence	Depression	Victim	Bully	Antisocial	Antisocial Friends
Intercept	6.18***	11.20***	3.79***	.22***	.06***	.18***	.61***
Disadvantage	.24	-.11	1.04*	.39***	.09	.45***	.78**
Community	-.02	.20	-.19	.00	.02	-.02	-.00
Voluntary-aided	-.19	.15	.10	-.04*	.01	-.03	-.03
Foundation	.50	-.35	.60*	.03	-.05*	.15	.01
Disputes	.07*	-.02	.00	-.02	-.01	-.01	-.01
P/Staff	-.01	-.03	-.01	-.01	.00	.00	.00
Parent Involve	-.04	-.11	-.15*	-.01	-.01*	-.03*	-.05*
Random Effect	LOC	Competence	Depression	Victim	Bully	Antisocial	Antisocial Friends
School-Level	.11	.30	.02	.002	.002	.001	.01
Pupil-Level	3.60	10.87	9.65	.15	.048	.178	.52

Note. ***p < .001, **p < .01, *p < .05

Table 13 Continued. Two-Level HLM Pupil and School-Level Models

Fixed Effect	Teacher	School	Friends	Maths KS2	English KS2
Intercept	2.99***	1.99***	12.86***	69.45***	62.23***
Disadvantage	-.14	.21	-1.68*	-15.90***	-12.33***
Community	.02	-.02	.13	.22	-.42
Voluntary-aided	.10*	-.01	-.11	2.32*	4.38***
Foundation	.04	.01	.15	-3.73	2.55
Disputes	-.06*	.00	.07	-.51	-.99*
P/Staff	.00	.00	-.01	-.04	-.06
Parent Involve	.00	.00	-.03	1.19*	1.03*
Random Effect	Teacher	School	Friends	Maths KS2	English KS2
School-Level	.001	.004	.004	15.08	21.62
Pupil-Level	.88	.37	3.94	136.91	84.30

Note. ***p < .001, **p < .01, *p < .05

Table 14: Significant Coefficients in Combined Pupil and School-Level Models

Locus of Control

Fixed Effect	*Coefficient*	*se*
Competence	-.08***	.01
Disadvantage	.32*	.14

Scholastic Competence

Fixed Effect	*Coefficient*	*se*
LOC	-.24**	.04
Disadvantage	.89*	.40
Antisocial	-.28**	.12
Disadvantage	3.42*	1.72
Voluntary-aided	-.87*	.40

Depression

Fixed Effect	*Coefficient*	*se*
Gender	-.01	.13
Disadvantage	-5.18**	1.93
Mum Ed	.01	.08
Disadvantage	.18*	.08
LOC	.12**	.03
Voluntary-aided	-.22*	.10
Competence	-.12	.02
Voluntary-aided	-.18*	.08
Bully	.57*	.28
Voluntary-aided	-4.76***	.89
Friends	-.04	.03
Voluntary-aided	-.20**	.09

Victim

Fixed Effect	*Coefficient*	*se*
Gender	.03	.10
Foundation	.73**	.03
Victim	.15***	.02
P/Staff	-.01*	.00
Bully	.11**	.04
Dispute	.09*	.04

Note. ***p < .001, **p < .01, *p < .05

Table 14 Continued: Significant Coefficients in Combined Pupil and School-Level Models

Bully

Fixed Effect	*Coefficient*	*se*
Victim	.04**	.01
Community	.06*	.03
Bully	.12**	.04
Dispute	.08*	.04

Antisocial Activities

Fixed Effect	*Coefficient*	*se*
LOC	.01	.01
Dispute	.01**	.00

Antisocial Friends

Fixed Effect	*Coefficient*	*se*
Victim	.20***	.03
Community	.21**	.09
Friends	-.01	.00
Voluntary-aided	-.05**	.02

Talks to Teacher

Fixed Effect	*Coefficient*	*se*
Antisocial	-.03	.02
Disadvantage	-1.01*	.48

Likes School

Fixed Effect	*Coefficient*	*se*
Gender	-.12**	.02
Disadvantage	.96*	.38
Talk Teacher	.03**	.01
Disadvantage	.40*	.20

Friend Satisfaction

Fixed Effect	*Coefficient*	*se*
Victim	.03	.10
Disadvantage	-3.36*	1.50
Bully	-.44	.26
Voluntary-aided	2.48**	.85

Note. ***p < .001, **p < .01, *p < .05

Table 14 Continued: Significant Coefficients in Combined Pupil and School-Level Models

Maths KS2

Fixed Effect	*Coefficient*	*se*
Antisocial	-.24	.49
P/Staff	.27**	.13

English KS2

Fixed Effect	*Coefficient*	*se*
LOC	-.60***	.11
P/Staff	-.06*	.03
Competence	.15**	.05
Disadvantage	-1.89*	.90
Friends	.06	.09
Disadvantage	3.54**	1.30
Involve	.28*	.13

Note. ***p < .001, **p < .01, *p < .05

WIDER BENEFITS OF LEARNING RESEARCH REPORT NO.25

Children's Well-Being in Primary School: Pupil and School Effects

In this study, we investigate pupil and school effects on children's well-being between the ages of 8 and 10, using data from the Avon Longitudinal Study of Parents and Children. Four dimensions of children's well-being are examined: mental health, pro-social behaviour, antisocial behaviour, and achievement.

Despite widespread concerns about the quality of children's lives in the UK today, we find that most children experience positive well-being during their primary school years. However, one in five children has a declining or low trajectory of well-being at this stage of their life. This subset is most likely to be male, low achieving, and from poorer backgrounds.

Our study also shows that it is children's individual experiences, such as bullying, friendships, and interactions with teachers, and their beliefs about themselves and their environment, which mainly affect their well-being, rather than the type of school they attend. Child-school "fit" may therefore be even more important for well-being than attending a "good" school.

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