



The Impact of Pupil Behaviour and Wellbeing on Educational Outcomes

Leslie Morrison Gutman and John Vorhaus¹
Childhood Wellbeing Research Centre²

A review of previous literature suggests that wellbeing and learning are associated with one another; however, there is less information on how multiple dimensions of wellbeing together predict later changes in educational outcomes for children and teenagers. The simultaneous examination of different dimensions of wellbeing across primary and secondary school will help clarify their relative importance during the key stages of schooling. This project examines how various dimensions of children's wellbeing are associated with their educational outcomes, including a review of relevant literature and an analysis using data from the Avon Longitudinal Study of Parents and Children (ALSPAC).

The analysis of ALSPAC data investigates the association between dimensions of wellbeing at ages 7 to 13 and concurrent (i.e. measured at the same age) and later educational outcomes at ages 11 to 16, including academic achievement (i.e., national exam scores) and school engagement (i.e., being stimulated by school). The dimensions of wellbeing are:

- emotional (including fears, anxiety and mood),
- behavioural (including attention problems e.g., finds it hard to sit still; activity problems e.g., forgets things, makes careless mistakes; troublesome behaviour, e.g., plays truant, lies, steals things; and awkward behaviour, e.g., blames others for mistakes, is easily annoyed),
- social (including victimisation i.e., being bullied and having positive friendships), and
- school (including enjoyment i.e., likes school and engagement i.e., stimulated by school).

We also investigate whether the relationship between wellbeing and educational outcomes varies for different groups of children. There is consistent UK evidence that some groups of children experience more academic difficulties and have lower achievement than others. However, few studies have considered whether children's demographic (age and gender, for example) and other characteristics moderate the association between wellbeing and later educational outcomes.

Key Findings

- Children with **higher levels of emotional, behavioural, social, and school wellbeing**, on average, have higher levels of academic achievement and are more engaged in school, both concurrently and in later years.

¹Institute of Education, University of London.

²The Childhood Wellbeing Research Centre is an independent research centre with funding from the Department for Education. It is a partnership between the Thomas Coram Research Unit (TCRU) and other centres at the Institute of Education, the Centre for Child and Family Research (CCFR) at Loughborough University and the Personal Social Services Research Unit (PSSRU) at the University of Kent.

- Children with **better emotional wellbeing** make more progress in primary school and are more engaged in secondary school.
- Children with **better attention skills** experience greater progress across the four key stages of schooling in England. Those who are engaged in **less troublesome behaviour** also make more progress and are more engaged in secondary school.
- Children who are **bullied** are less engaged in primary school, whereas those with **positive friendships** are more engaged in secondary school.
- As children move through the school system, **emotional and behavioural wellbeing** become more important in explaining school engagement, while demographic and other characteristics become less important.
- Relationships between **emotional, behavioural, social, and school wellbeing** and later educational outcomes are generally similar for children and adolescents, regardless of their gender and parents' educational level.

Review of Previous Research

The first part of the project is an overview of research examining the relationship between wellbeing and educational outcomes. The review is structured according to the four dimensions of wellbeing examined in the study; namely, emotional, behavioural, social, and school wellbeing. Our review focuses on our own previous research undertaken by two centres at the Institute of Education, the Centre for Research on the Wider Benefits of Learning and the Childhood Wellbeing Research Centre, as well as recent studies which analyse UK data (Gutman, Brown, Akerman, and Obolenskaya, 2009; Gutman and Brown, 2008; Gutman and Feinstein, 2008).

The key messages from our previous research are:

- Better emotional wellbeing is associated with higher achievement in primary school,
- Children's attention problems have been shown consistently to predict lower academic achievement at all ages,
- Problematic behaviour becomes associated with poorer academic achievement as children grow older,
- Being bullied is associated with lower achievement for both primary and secondary school pupils, and
- Children's measures of school wellbeing have been found to be associated with academic progress in secondary school, but not in primary school.

Research Questions

There is little previous research on how multiple dimensions of wellbeing simultaneously predict later changes in educational outcomes for children and teenagers. In order to fill this gap, the second stage of this project uses data analysis to examine four main research questions, which are:

1. How is **emotional, behavioural, social, and school wellbeing** associated with **concurrent educational outcomes**?
2. How is **emotional, behavioural, social, and school wellbeing** associated with **later educational outcomes**?
3. To what extent are **dimensions of wellbeing** associated with **changes in later educational outcomes** i.e., how is wellbeing associated with progress between two time points?

4. Do children's **demographic and other characteristics** (gender, social class, and SEN status) **moderate the association between their wellbeing and changes in their later educational outcomes** (i.e., how different for different groups)? Are these patterns consistent over the primary and/or secondary school period?

Data and Methodology

ALSPAC is an ongoing longitudinal study of families in the former county of Avon in the west of England. More than 14,000 women enrolled in the study during pregnancy in 1991 and 1992. Primary sources of ALSPAC data collection include self-completion questionnaires for mothers and their partners administered during pregnancy and at regular intervals following the birth, assessments of children in a clinic-based setting, and questionnaires for the cohort members themselves.

In this study, we utilise parent-reported data as they are the only consistent measures of wellbeing available from ALSPAC that span the period from childhood to adolescence. Key stage scores were obtained from the National Pupil Database. Several control variables, including English as a first language, SEN status, and eligibility for free school meals, were obtained from the Pupil Level Annual School Census administrative data.

As parents or cohort members must give their consent to match the ALSPAC data with their key stage test scores, the sample consists of 1,185 children at Key Stage 2 (ages 7 to 11), 4,816 at Key Stage 3 (11 to 14), and 5,218 at Key Stage 4 (14 to 16). For the school engagement analysis, there are 7,622 children at age 10.5 and 6,644 at age 13.8.

Measures

We examine the predictive power of four dimensions of wellbeing -- emotional, behavioural, social, and school wellbeing -- at three average age points: 7.5, 10.5, and 13.8 years. (In the remainder of this brief we simplify these ages to 7, 10, and 13 years).

The control variables include whether English is the first language, whether the child is eligible for free school meals, and whether any SEN is identified, highest parental educational level, parents' marital status, child's birth weight in grams, gender, and ethnicity.

The outcome measures are academic achievement and school engagement. Academic achievement is measured using the results in end-of-key-stage tests taken at age 7 (Key Stage 1), age 11 (Key Stage 2), age 14 (Key Stage 3), and the GCSE exams at age 16 (Key Stage 4). Key stage scores are finely graded input and output measures for contextual value-added models. Academic progression is measured between two successive key stages (i.e., Key Stage 1 to Key Stage 2, Key Stage 2 to Key Stage 3, and Key Stage 3 to Key Stage 4). School engagement is measured by the ALSPAC surveys at 7, 10, and 13 years.

Analysis

For the first research question, we examine correlations (i.e., statistical associations) between dimensions of wellbeing and concurrent educational outcomes. For the second question, we examine correlations between dimensions of wellbeing and later educational outcomes. For the third question, we perform statistical regression models for each educational outcome at the different ages from childhood to adolescence. In these models, we use a value-added approach which shows the degree to which each predictor is associated with changes in the outcome variable. For the fourth research question, interaction terms between the wellbeing measures and key characteristics (i.e., gender, SEN, and parents' education level) are included in the regression models examined in the third research question, to determine how these characteristics moderate the association between dimensions of wellbeing and later changes in educational outcomes.

Findings

1. How is wellbeing associated with concurrent (i.e., measured at the same age) educational outcomes?

Emotional, behavioural, social, and school wellbeing at ages 10 and 13 are significantly correlated with concurrent educational outcomes i.e., academic achievement at Key Stage 2 (age 11) and Key Stage 3 (age 14) and school engagement at ages 10 and 13.

For academic achievement, attention problems show the strongest relationship with Key Stage 2 ($r = .31$)² and Key Stage 3 ($r = .32$) scores, with fewer attention problems being associated with higher key stage scores. While the strength of the correlation is fairly stable for some of the dimensions of wellbeing across both Key Stages (e.g. activity problems, attention problems, positive friendships, and school enjoyment), the correlation size is higher at Key Stage 3 than Key Stage 2 for emotional wellbeing, awkward behaviour, troublesome behaviour, victimisation, and school enjoyment. This suggests that these dimensions of wellbeing may have a stronger concurrent relationship with academic achievement as children grow older.

For school engagement, levels of school enjoyment show the strongest relationship at both ages 10 ($r = .66$) and 13 ($r = .71$), with more school enjoyment being associated with greater engagement. While the strength of the correlation is fairly similar at both ages for emotional wellbeing, positive friendships, and victimisation; the correlation size is higher at age 13 than age 10 for activity problems, awkward behaviour, troublesome behaviour, attention problems, and school enjoyment. This suggests that these dimensions of wellbeing may have a stronger concurrent relationship with school engagement as children grow older.

2. How is wellbeing associated with later educational outcomes?

For academic achievement, emotional, behavioural, social, and school wellbeing at ages 7, 10 and 13 are significantly correlated with later academic achievement at Key Stage 2 (age 11), Key Stage 3 (age 14), and Key Stage 4 (age 16), with the exception of the relationship between school wellbeing at age 7 and later academic achievement at Key Stage 2. There is an increase in the size of the correlation for awkward behaviour, troublesome behaviour, school enjoyment, and school engagement from Key Stage 2 to Key Stage 4, suggesting that these prior dimensions of wellbeing may have a stronger relationship with later academic achievement as children move from primary to secondary school.

For school engagement, emotional, behavioural, social, and school wellbeing at ages 7 and 10 are significantly correlated with later engagement at ages 10 and 13. There is a slight increase in correlation size for emotional wellbeing and troublesome behaviour and a slight decrease for victimisation and activity problems as children get older.

3. How is wellbeing associated with changes in later educational outcomes i.e., progress between two time points?

Table 1 shows whether wellbeing measures are significant predictors of academic progression across the key stages of schooling, controlling for all other variables. In particular, we examine whether dimensions of wellbeing:

- at age 7 predict academic progression from Key Stage 1 to Key Stage 2,
- at age 10 predict academic progression from Key Stage 2 to Key Stage 3, and

² The correlation coefficient (r) shows the strength and direction of the linear relationship between two variables.

- at age 13 predict academic progression from Key Stage 3 to Key Stage 4 (i.e., GCSE).

Table 1: Significant Predictors of Academic Progression

Variables	Academic Progression from:		
	KS1 to KS2	KS2 to KS3	KS3 to KS4
Prior Key Stage Score	Positive	Positive	Positive
English First Language	No	No	No
Free School Meals	No	Negative	No
SEN Status	Negative	Negative	Negative
Parents Married	No	Positive	Positive
Higher Parental Education	Positive	Positive	Positive
White British	No	No	No
Boys	Positive	No	Negative
Higher Birth Weight	No	No	No
Better Emotional Wellbeing	Positive	No	No
Less Awkward Behaviour	No	No	No
Less Troublesome Behaviour	No	Positive	Positive
Fewer Activity Problems	No	No	No
Fewer Attention Problems	Positive	Positive	Positive
More Positive Friendships	No	No	No
Experience of Victimization	No	No	No
More School Enjoyment	No	No	No
More School Engagement	No	No	Positive

Note. No = not significant; negative = significant in a negative direction at .05 or below; positive = significant in a positive direction at .05 or below.

When taking into account prior achievement, wellbeing measures, and control variables (listed in Table 1) we found that:

- Better emotional wellbeing at age 7 is a significant predictor of higher academic progression from Key Stage 1 to Key Stage 2. For example, children who have no negative symptoms of emotional wellbeing have an average value-added Key Stage 2 score which is 2.46 points higher (representing more than one term's worth of academic progress) compared to children who have many negative symptoms of emotional wellbeing. This relationship is not significant at other ages.
- Better attention skills at ages 7, 10, and 13 are a significant predictor of greater academic progression in both primary and secondary school, indicating that the ability to control and sustain attention is a consistent predictor of children's learning. For example, children with no attention problems have an average value-added Key Stage 4 score which is 63.38 points higher (equivalent to more than one extra GCSE at Grade A*) compared to children with a lot of attention problems.
- Children who are not engaged in troublesome behaviours at ages 10 and 13 make more progress in secondary school (i.e., Key Stage 2 to Key Stage 3; Key Stage 3 to Key Stage 4). This

relationship is not significant in primary school (i.e., Key Stage 1 to Key Stage 2). For example, young people who do not engage in any troublesome behaviour have a total value-added score which is 178.80 points higher at Key Stage 4 (equivalent to three extra GCSEs at Grade A*) compared to young people who engage in a lot of troublesome behaviour.

- More school engagement at age 13 is a significant predictor of greater academic progression from Key Stage 3 to Key Stage 4, highlighting the importance of sustaining school motivation for academic achievement in adolescence. Young people who are always engaged in school at age 13 have a total value-added score which is 26.04 points higher at Key Stage 4 (equivalent to half an extra GCSE at grade A) compared to those who are never engaged in school.
- Children with SEN status make less progress, whereas those with married parents and those with more highly educated parents make greater progress. Boys make more progress from Key Stage 1 to Key Stage 2, whereas girls make greater progress from Key Stage 3 to Key Stage 4. Children eligible for free meals progress more slowly from Key Stage 2 to Key Stage 3.

Table 2 shows whether wellbeing measures are significant predictors of changes in later school engagement at ages 10 and 13, controlling for all other variables. More specifically, we examine whether wellbeing at age 7 predicts school engagement at age 10, taking into account engagement at 7 and whether wellbeing at age 10 predicts engagement at age 13, taking into account engagement at 10.

Table 2: Significant Predictors of Changes in School Engagement

Variables	Changes in School Engagement from:	
	7 to 10 years	10 to 13 years
Prior School Engagement	Positive	No
English First Language	Positive	No
Free School Meals	Negative	No
SEN Status	Negative	No
Parents Married	Positive	No
Higher Parental Education	No	No
White British	No	No
Boys	Negative	No
Higher Birth Weight	No	No
Better Emotional Wellbeing	No	Positive
Less Awkward Behaviour	No	No
Less Troublesome Behaviour	No	Positive
Fewer Activity Problems	No	Positive
Fewer Attention Problems	No	Positive
More Positive Friendships	No	Positive
Experience of Victimization	Negative	No
More School Enjoyment	Positive	Positive

Note. No = not significant; negative = significant in a negative direction at .05 or below; positive = significant in a positive direction at .05 or below.

When taking into account prior school engagement, wellbeing measures, and control variables (listed in Table 2) we found that:

- Being bullied at age 7 is a significant predictor of lower school engagement from ages 7 to 10.
- Better emotional wellbeing, less troublesome behaviour, fewer activity and attention problems, and more positive friendships at age 10 are associated with greater school engagement from 10 to 13 years, highlighting the significant role of wellbeing in children's engagement as they enter secondary school.
- More school enjoyment at ages 7 and 10 is associated with greater school engagement from ages 7 to 10 and from ages 10 to 13, respectively, indicating that children who enjoy school are more likely to be motivated and engaged in their school work at a later point in time.
- Children with SEN status, those eligible for free meals, and boys are less engaged in school, whereas children whose first language is English are more engaged from ages 7 to 10. None of these demographic factors is significant from ages 10 to 13, however.

4. *Does the association between dimensions of wellbeing and changes in later educational outcomes vary according to children's gender, SEN status and their parents' education level?*

The relationships between dimensions of wellbeing and changes in later educational outcomes appear to be generally similar for children and adolescents, regardless of their gender and parents' educational level. We found, however, three significant interactions for SEN:

- Children with SEN who engage in awkward behaviour (e.g., blame others for mistakes, throw tantrums) make greater academic progress from Key Stage 1 to Key Stage 2 than children who do not engage in awkward behaviour. This finding suggests that more awkward behaviour does not generally have a negative association with lower academic progression for children, with or without SEN status, especially when compared to those children who might have other SEN difficulties.
- Children with SEN, however, make less progress from Key Stage 2 to Key Stage 3 when they have activity problems (e.g., forget things, make careless mistakes) compared to children who do not have such problems.
- Among children with more attention problems, those with SEN experience more school engagement from ages 10 to 13 compared to those without SEN. This may indicate that children with SEN are getting more help to deal with their attention difficulties than children with similar problems who are not SEN. Nevertheless, children with attention problems have lower school engagement, with or without SEN, than children with fewer attention problems.

Overall, these findings suggest that the relationship between behavioural wellbeing and later educational outcomes is more complex for children categorised with SEN. This is not surprising especially considering the diversity of behaviours linked to SEN.

Conclusions and Implications

Our study demonstrates the importance of wellbeing for children and adolescents throughout their primary and secondary school education. There are critical periods, however, when specific dimensions of wellbeing are most crucial. For academic progression, better emotional wellbeing is a key factor in primary school, whereas low levels of troublesome behaviour and more school engagement emerge as significant

in adolescence. Good attention skills, on other hand, are important for academic progression in both primary and secondary school. For school engagement, victimisation appears to have a greater impact in primary school, whereas better emotional and behavioural wellbeing and positive friendships are supportive in secondary school. School enjoyment plays a significant role in encouraging engagement in both primary and secondary school.

Our findings highlight the significance of behavioural wellbeing or, rather, the lack of it. Attention problems and troublesome behaviours have a marked relationship with later educational outcomes. Strategies are needed to identify and support children with attention difficulties at an early stage in the schooling process, especially girls who are often under-diagnosed (Hinshaw and Blachman, 2005). Early interventions with primary-age children who exhibit signs of troublesome behaviour may also help prevent a downward spiral of disengagement and low achievement. Young children may also benefit from increased support for their emotional wellbeing.

Our findings could also contribute to policies regarding the transition from primary to secondary school. Earlier research has found that many children experience a decline in school wellbeing from childhood to adolescence (Gutman et al., 2009). This is especially worrisome as our findings suggest that school engagement during the early teenage years is a significant predictor of later GCSE achievement. Schools, however, may be able to boost motivation by encouraging teenagers' enjoyment of school and helping them build positive friendships, as well as supporting their emotional and behavioural wellbeing. These findings coincide with other longitudinal research focusing on strategies to ensure a successful transition to secondary school which include developing new friendships and showing an increasing interest in school and school work (see Evangelou, Taggart, Sylva, Melhuish, Sammons and Siraj-Blatchford, 2008, for a greater discussion of the secondary school transition).

References

Evangelou, M., Taggart, B., Sylva, K., Melhuish, E., Sammons, P. and Siraj-Blatchford, I. (2008). *What makes a successful transition from primary to secondary school?* London: DCSF.

Gutman, L.M., Brown, J., Akerman, R., and Obolenskaya, P. (2009). *Well-being from childhood to adolescence: risk and protective factors*. London: DCSF.

Gutman, L.M. and Brown, J. (2008). *Children's social worlds: Bullying, victimization, and friendships in primary school*. London: DCSF.

Gutman, L.M. and Feinstein, L. (2008). *Pupil and school effects on children's well-being*. London: DCSF.

Hinshaw, S. P., and Blachman, D. R. (2005). Attention-deficit/hyperactivity disorder. In D. Bell-Dolan, S. Foster, and E. J. Mash (Eds.), *Handbook of Behavioral and Emotional Problems in Girls* (pp. 117-147). New York: Kluwer Academic/Plenum.

Additional Information

The full report can be accessed at <http://www.education.gov.uk/publications/>

Further information about this research can be obtained from Jessica Dunn, St Paul's Place, Sheffield, S1 2FJ Jessica.Dunn@education.qsi.gov.uk

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