

Mental wellbeing, reading and writing

How children and young people's mental wellbeing is related to their reading and writing experiences

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Introduction

The link between literacy and health has been evidenced quite well¹, with studies indicating that people who struggle with literacy are also more likely to have poor physical health. However, what we know about the relationship between mental wellbeing and literacy is much more meagre. There is some evidence to suggest that higher levels of mental wellbeing and life satisfaction can positively impact on academic achievement², while there is also evidence that mental wellbeing, such as the ability to cope with stress, can affect pupils' ability to learn³. Some research also suggests that five-year-olds with poor vocabulary skills are one and a half times more likely to have mental health problems as adults⁴. Emotional wellbeing has also been linked to non-cognitive skills, such as resilience, grit, self-esteem, confidence and motivation, which in turn may have a positive impact on pupil achievement⁵.

Why focus on mental wellbeing? Research suggests that mental health problems are one of the main causes of the overall disease burden across the world⁶, and that half of mental health

¹ Morrisroe, J. (2014). Literacy Changes Lives 2014: A new perspective on health, employment and crime. Retrieved from <https://literacytrust.org.uk/research-services/research-reports/literacy-changes-lives-2014-new-perspective-health-employment-and-crime/>

² Public Health England (2014). The link between pupil health and wellbeing and attainment: A briefing for head teachers, governors and staff in education settings (Briefing paper n. 2014491). Retrieved from https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/370686/HT_briefing_layoutvFINALvii.pdf

³ Tranter, D. (2016). *Understanding self-regulation: Why stressed students struggle to learn*. Retrieved from http://www.edu.gov.on.ca/eng/literacynumeracy/inspire/research/ww_struggle.pdf

⁴ Law, J., Rush R., Schoon I., Parsons S. (2009). Modeling developmental language difficulties from school entry into adulthood: literacy, mental health, and employment outcomes. *Journal of Speech Language and Hearing Research*, 52(6), pp. 1401-16. doi: 10.1044/1092-4388(2009/08-0142).

⁵ Gutman, L. M., & Schoon, I. (2013). *The impact of non-cognitive skills on outcomes for young people: Literature review*. Retrieved from https://educationendowmentfoundation.org.uk/public/files/Publications/EEF_Lit_Review_Non-CognitiveSkills.pdf

⁶ Global Burden of Disease Study 2013 Collaborators. (2015). Global, regional, and national incidence, prevalence, and years lived with disability for 301 acute and chronic diseases and injuries in 188 countries, 1990–2013: a systematic analysis for the Global Burden of Disease Study. *The Lancet*, 386(9995), pp. 743-800. doi: 10.1016/S0140-6736(15)60692-4

problems in adulthood manifest themselves before the age of 14⁷. Indeed, it is estimated that 1 in 6 people experienced a common mental health problem in the past week⁸, and social media, omnipresent in young people’s lives, has been linked to anxiety, depression and poor sleep⁹. For these reasons, it is not surprising that government policy in the UK has also focused on mental health. For example, between 2015 and 2017 the government announced new funding for mental health, including specific investment in perinatal services and eating disorder services for teenagers, and in July 2018 statutory health education in schools was announced¹⁰.

A few key studies have been published recently that have explored child and adolescent wellbeing. For example, a study by NPC (2014¹¹) found that “Most children report high or very high levels of well-being”, although more so for boys than girls: “74% of boys and 65% of girls aged 10-17 score 7 or more out of 10 on the level of satisfaction with their lives”. The report also highlighted a link with age, indicating that “children’s well-being falls as they get older, [with] particularly sharp falls in well-being for both boys and girls between the ages of 13 and 14 and 16 and 17”. Some studies have also explored how children in the UK fare compared with their peers in other countries, with children in the UK generally performing slightly below average in terms of their mental wellbeing compared with children in other developed countries¹².

This is therefore a timely piece of research, as children and young people’s mental wellbeing is becoming a concern, and the government is pledging to prioritise mental health care of young people and adults. In this report we will explore the link between mental wellbeing, reading and writing enjoyment, attitudes and behaviours, which, to our knowledge, has not been explored before. Please note that our report focuses on mental wellbeing rather than diagnosable mental health disorders.

This report shows that:

Mental wellbeing in 2017/18

- In 2017/18, children rated their overall mental wellbeing, on average, as 7.25 out of 10. However, 1 in 10 (9.5%) pupils scored below the mid-point on our mental wellbeing index.
- In line with previous studies, boys who participated in our survey have higher mental wellbeing levels than girls, and pupils aged 8 to 11 have higher mental wellbeing scores than those aged 11 to 14 and those aged 14 to 16, with those aged 16 to 18 having

⁷ Young Minds. (2016). Beyond Adversity: Addressing the mental health needs of young people who face complexity and adversity in their lives. Retrieved from https://youngminds.org.uk/media/1241/report_-_beyond_adversity.pdf

⁸ McManus S, Bebbington P, Jenkins R, Brugha T. (eds.) (2016). *Mental health and wellbeing in England: Adult Psychiatric Morbidity Survey 2014*. Leeds: NHS Digital

⁹ Young Health Movement & Royal Society for Public Health. (n.d.). *Status Of Mind: Social Media and Young People’s Mental Health and Wellbeing*. Retrieved from <https://www.rsph.org.uk/uploads/assets/uploaded/62be270a-a55f-4719-ad668c2ec7a74c2a.pdf>

¹⁰ Parkin, E., Long, R., & Bate, A. (2017). *Children and young people’s mental health – policy, services, funding and education* (House of Commons briefing paper n. 07196). Retrieved from https://dera.ioe.ac.uk/30819/1/CBP-7196%20_Redacted.pdf

¹¹ Harrison-Evans, P., Hargrave, R., & Noble, J. (2015). *That awkward age: Children, well-being and charities*. Retrieved from <https://www.thinknpc.org/resource-hub/that-awkward-age-children-well-being-and-charities/>

¹² HM Government Horizon Scanning Programme. (2014). *Social attitudes by young people: A horizon scanning research paper by the social attitudes of young people community of interest*. Retrieved from https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/389086/Horizon_Scanning_-_Social_Attitudes_of_Young_People_report.pdf

the lowest mental wellbeing scores. Contrary to previous findings, pupils in this study who receive free school meals score very similarly in terms of their mental wellbeing to their peers from more advantaged backgrounds. Pupils from black ethnic backgrounds have higher mental wellbeing than pupils from Asian ethnic backgrounds, who in turn have higher scores than pupils from white and mixed ethnic backgrounds.

- Children and young people from Greater London tended to have the highest mental wellbeing scores, while those from Yorkshire and the Humber scored the lowest.

Exploring mental wellbeing and specific reading and writing components

- To explore the link between children and young people's subjective wellbeing and reading and writing in detail, we conducted analyses to see how specific components of reading and writing are linked to how people feel about themselves.
- We first looked at the correlations between mental wellbeing and our reading and writing variables, which allow us to explore the strength and direction of the relationship between them. We found that all the reading and writing variables are positively, albeit weakly, correlated with mental wellbeing, indicating that the more children enjoy reading and writing, the more often they read and write, the better they see themselves as readers and writers, and the more positive attitudes they have, the higher their mental wellbeing score is.
- When exploring what variables are most likely to predict mental wellbeing, we found that **reading attitudes** were the strongest predictors of mental wellbeing, followed by **writing attitudes** and **reading and writing enjoyment**. How good children and young people perceive themselves as writers and how often they write something in their free time were also predictive of their general mental wellbeing. So, the more positive children and young people feel about reading and writing, and the more they enjoy reading and writing, the higher their scores on our mental wellbeing index.
- Indeed, subsequent analyses showed that:
 - Children and young people who enjoy reading very much and who think positively about reading have, on average, higher mental wellbeing scores than their peers who don't enjoy reading at all and who hold negative attitudes towards reading.
 - The same relationships hold true for writing: children and young people who enjoy writing very much and who think positively about writing have, on average, higher mental wellbeing scores than their peers who don't enjoy writing at all and who hold negative attitudes towards writing. In addition, children who think that they are above average writers have higher mental wellbeing than those who think that they are below average writers
 - A special focus on attitudes showed that seeing writing as a useful skill in the future is the attitudinal component that was most strongly related with mental wellbeing, followed by their belief that they can succeed in writing and its reading equivalent, reading perseverance. While writing interest was significantly associated with mental wellbeing, this wasn't true for reading. This suggests that more children and young people agree that writing has a role to play in their future and the more they believe in their own ability to

overcome problems they might encounter when writing and reading, the higher they score in terms of their mental wellbeing.

Exploring mental wellbeing differences by literacy quartiles

- We were also keen to explore differences between children and young people depending on their engagement with reading and writing. To this end, we constructed a literacy score, a variable that sums all our reading and writing variables. This enabled us to explore mental wellbeing for those children and young people who score in the bottom 25% in the literacy score and those who score in the top 25% (i.e. the bottom and top quartile).
- We found that there is a steady increase in mean mental wellbeing scores as one progresses from one literacy quartile to the next, from a mean score of 6.6 out of 10 for those who have low literacy engagement (bottom quartile) to 7.9 out of 10 for those with a high level of literacy engagement (top quartile).
- Nearly 2 in 5 (37.4%) of those who have low literacy engagement also report low mental wellbeing, while only 1 in 9 (11.8%) of those who have low literacy engagement have high levels of mental wellbeing. Conversely, 2 in 5 (39.4%) of those who have high levels of literacy engagement also have high scores in their mental wellbeing.

Mental wellbeing quartiles and reading and writing

- In addition to the literacy quartiles, we also wanted to investigate how those at the bottom and top 25% of the mental wellbeing index (i.e. those with high and low levels of wellbeing) feel about reading and writing.
- We found a steady increase in literacy engagement scores as one progresses from one mental wellbeing quartile to the next, increasing from a mean score of 32.8 out of 52 for those who score in the bottom quartile (i.e. who have low mental wellbeing) to 38.2 out of 52 for those who score in the top quartile (i.e. those with a high mental wellbeing).
- More specifically, 2 in 3 (66.8%) children and young people with high levels of mental wellbeing say that they enjoy reading either very much or quite a lot compared with 1 in 2 (48.9%) of those who have low mental wellbeing. This difference is somewhat bigger with respect to writing, where 3 in 5 (62.3%) of those who have high levels of mental wellbeing say that they enjoy writing compared with 2 in 5 (40.8%) of those who have low mental wellbeing.
- Nearly 2 in 3 (64.3%) of those who have high levels of mental wellbeing consider themselves to be above average readers, compared with nearly 1 in 2 (46.1%) of those who have low levels of mental wellbeing. Conversely, those who have low levels of mental wellbeing are three times more likely to say that they are below average readers compared with those who have high levels of mental wellbeing (15.0% vs. 4.8% respectively). Similarly, nearly twice as many children and young people with high levels of mental wellbeing said that they are above average writers compared with those who have low levels of mental wellbeing (53.5% vs. 29.7% respectively). However, again, those who have low levels of mental wellbeing are three times more likely to consider themselves to be below average writers compared with their peers with high levels of mental wellbeing (21.3% vs. 7.2% respectively).
- 3 in 4 (76.4%) of those who have high levels of mental wellbeing think positively about reading compared with 1 in 2 (48.3%) of those with low levels of mental wellbeing.

Although the overall percentages are lower, the difference between the groups is amplified when it comes to writing, where nearly twice as many children and young people who have high levels of mental wellbeing think positively about writing compared with their peers who have low levels of mental wellbeing (58.1% vs. 27.9% respectively).

What about reading skill and mental wellbeing/mental health?

- We also felt that it is important to explore how reading skill in particular relates to mental wellbeing/mental health. In collaboration with Yvonne Kelly, a professor at University College London, we set out to test the relationship with two cohort studies: the 1970 British Cohort Study and Millennium Cohort Study, as well as our own data.
- Our data suggest that children and young people with a reading skill at or above the level expected for their age have higher mental wellbeing than their peers who read below their expected level.
- However, when reading skill is considered alongside other reading variables, it is not significantly associated with mental wellbeing, highlighting the importance of the affective side of reading to one's mental wellbeing.
- Using longitudinal data sets, we find an enduring relationship between mental health (e.g. social and emotional difficulties, drug use) and verbal scores, with those who have low verbal ability having worse mental health outcomes than those with higher verbal ability. This finding is true when one considers children from the 1970 cohort study as well as children from the more recent Millennium Cohort Study.
- In these longitudinal data sets, children from disadvantaged backgrounds are more likely to have low mental health and to have lower verbal scores but the effect isn't multiplicative; i.e. there is no double whammy. Therefore, the relationship between socioeconomic background, mental health and literacy also remained the same over time.

Mental wellbeing, reading, writing and sociodemographic background

- As previous research has shown that there are sociodemographic differences in both mental wellbeing and literacy, we wanted to find out more about these relationships.
- The relationships between mental wellbeing and reading or writing are independent of the child's gender, free school meal uptake (our proxy measure of socioeconomic background), ethnic background or where in the country they live.
- The only sociodemographic variable that is systematically associated with mental wellbeing and any of our literacy measures is age. Our data suggest that enjoying reading and writing, and having a high perception of one's reading skill and positive attitudes towards reading and writing are particularly beneficial for younger children in terms of mental wellbeing, with the difference in mental wellbeing scores diminishing as they get older.

A focus on specific mental wellbeing components

- Finally, in addition to our mental wellbeing index, we investigated how the specific components of wellbeing – life satisfaction, self-belief and coping skills – are related to reading and writing.

- Responses to the three components follow a similar dynamic, with children and young people who enjoy reading very much, who read daily, who think of themselves as very good readers and who hold positive reading attitudes reporting higher life satisfaction, better coping skills and higher self-belief than their peers who don't enjoy reading at all, who never or rarely read, who think of themselves as below average readers and who hold negative attitudes towards reading. The same holds true for writing.
- Similarly, more children and young people who have high levels of life satisfaction, coping skills or self-belief say that they enjoy reading or writing, that they think of themselves as above average readers and writers, and that they think positively about reading and writing than their peers who have low levels of life satisfaction, coping skills or self-belief. Again, the differences between the groups are smallest with respect to reading and writing behaviours.

What does this all mean?

Overall, this report shows that there is a link, albeit a weak one, between mental wellbeing and reading and writing enjoyment and attitudes. Attitudes towards reading and writing emerge consistently as the strongest predictors of mental wellbeing, which might suggest that children and young people who feel positively about life in general are also more likely to feel positive about reading and writing.

Our findings might also suggest that a positive learning environment is important for wellbeing: it is possible that children who have positive experiences of reading and writing in the classroom feel better about their ability, which, in turn, creates positive attitudes and motivation towards the activity and through that enforces more positive attitudes in general and therefore higher wellbeing.

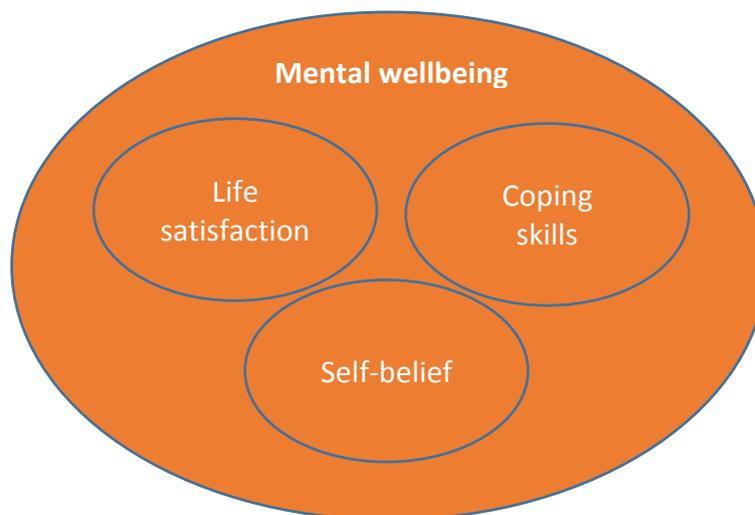
The lack of association between frequency of reading and writing and mental wellbeing might also suggest that content, rather than the actual act of reading or writing, is linked to higher mental wellbeing.

Children’s and young people’s mental wellbeing and its link with specific reading and writing experiences in 2017/18

As mentioned earlier, there is limited research exploring the link between literacy and mental wellbeing or mental health in great detail. We therefore wanted to know more about the link between wellbeing and specific components of literacy, such as reading and writing enjoyment, reading and writing behaviours, pupils’ self-perception of themselves as readers and writers, and their attitudes towards reading and writing.

To this end, we inserted a few questions about mental wellbeing in our annual literacy survey, which we conducted between November 2017 and January 2018. Overall, 49,047 pupils aged 8 to 18 participated. The items chosen were based on previous research and conversations with stakeholders, such as New Philanthropy Capital (NPC). While the literacy survey gave us an opportunity to explore mental wellbeing alongside reading and writing variables, we were limited in the number of items we could reasonably ask due to overall survey length. Therefore, we chose to focus on three aspects of mental wellbeing: life satisfaction, coping skills and self-belief (see Figure 1). For more detailed information on how we assessed each of these components, please see Appendix 1.

Figure 1: Conceptualising mental wellbeing



To explore how mental wellbeing in general is associated with aspects of reading and writing, we combined responses across the three components (life satisfaction, coping skills and self-belief) into one to create an overall wellbeing index with a range of 1 to 10, where a higher score equals a higher level of mental wellbeing.

Children and young people’s general mental wellbeing

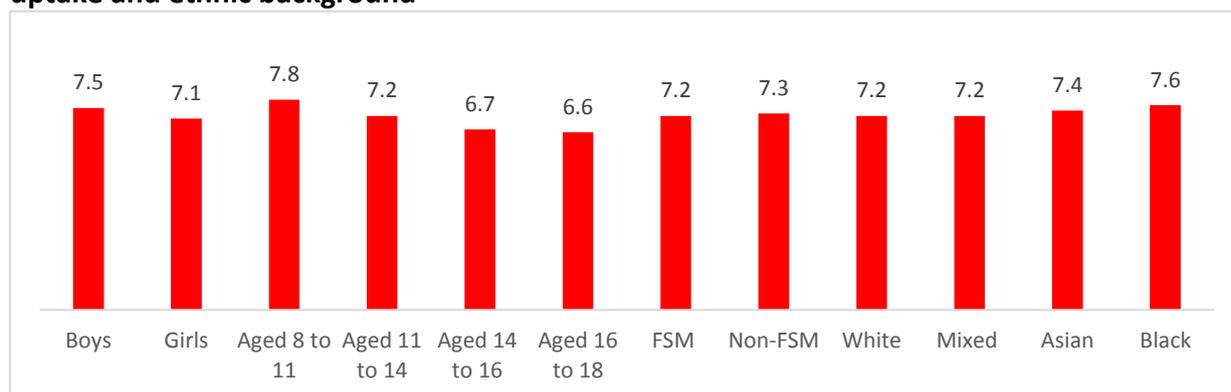
On average, children rated themselves towards the upper end of the index: 7.25 (SD = 1.70) out of 10. Overall, 1 in 10 pupils (9.5%, N = 4,315) scored below the mid-point on this index, indicating that they have lower than average mental wellbeing.

Boys have, on average, higher mental wellbeing than girls (see Figure 2). Pupils aged 8 to 11 have, on average, higher mental wellbeing than their older peers, with those aged 16 to 18 having the lowest mental wellbeing scores across the board. These results corroborate findings from previous studies that found that, for example, emotional problems in girls increased between 2009 and 2014 while mental health problems for boys decreased over the same time period, and that rates of mental health problems rise steeply in mid to late-adolescence¹³.

There is no difference in our survey in terms of mental wellbeing and socioeconomic background, which we assessed using free school meal uptake as a proxy. While this is contrary to previous studies that show that those from disadvantaged backgrounds have a higher likelihood of experiencing poor mental health compared with their more privileged peers (e.g. Gutman, Joshi, Parsonage & Schoon, 2015¹⁴; BCS70 and MCS data, see page 22), this might be the result of our data being based on children’s self-report of free school meal uptake. Additionally, this might be due to our conceptualisation of mental wellbeing as a combination of three broad components: life satisfaction, self-belief and coping skills, rather than other indicators of mental wellbeing or mental health.

Pupils from black ethnic backgrounds have higher mental wellbeing than pupils from Asian ethnic backgrounds who, in turn, have higher scores than pupils from white and mixed ethnic backgrounds.

Figure 2: Mental wellbeing mean scores (out of 10) by gender, age group, free school meal uptake and ethnic background



Range 1 to 10, with higher scores indicating higher mental wellbeing

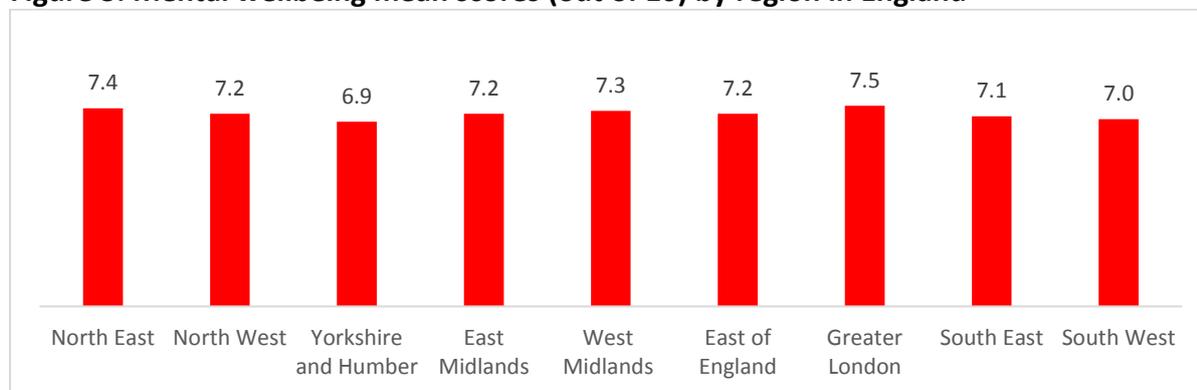
In addition to looking at mental health by individual characteristics, differences by region were explored to see whether there are particular places in England where children and

¹³ Harrison-Evans, P., Hargrave, R., & Noble, J. (2015). *That awkward age: Children, well-being and charities*. Retrieved from <https://www.thinknpc.org/resource-hub/that-awkward-age-children-well-being-and-charities/>

¹⁴ Gutman, L., Joshi, H., Parsonage, M. & Schoon, I. (2015). *Children of the New Century: Mental health findings from the Millennium Cohort Study*. Retrieved from <https://www.centreformentalhealth.org.uk/Handlers/Download.ashx?IDMF=9faa732d-883b-42c1-b223-bb9de11a109c>

young people struggle with mental wellbeing. Figure 3 presents the average mental wellbeing score by region in England and shows that children and young people in Greater London tend to score on average the highest in their mental wellbeing while children and young people in Yorkshire and Humber score the lowest. However, the regional differences are marginal and not statistically significant.

Figure 3: Mental wellbeing mean scores (out of 10) by region in England



Mental wellbeing, reading and writing

Although quite a few studies exist that explore children and young people’s subjective wellbeing, we are not aware of any studies that have looked at the link between how one feels about oneself and reading or writing. We therefore wanted to know how general mental wellbeing ratings are related to several reading and writing variables, such as enjoyment, frequency, self-rated perceptions of skill and attitudes.

The relationship between reading and writing, and wellbeing

Before exploring the relationships with reading and writing components in greater detail, we first wanted to know more about the relationship between our reading and writing variables and mental wellbeing. To this end, we first looked at the correlations between mental wellbeing and our reading and writing variables, which allow us to explore the strength and direction of the relationship between them.

As Table 1 shows, all the reading and writing variables are positively correlated with mental wellbeing. This indicates that the more children enjoy reading and writing, the more often they read and write, the better they see themselves as readers and writers, and the more positive attitudes they have, the higher their mental wellbeing score is. It should be noted, however, that the relationships overall are not very strong (correlations between 0 and 0.3 are conventionally described as weak).

The table also shows that reading and writing attitudes have the strongest relationship with mental wellbeing. On the other hand, while the relationship between reading and writing frequency and mental wellbeing is very weak, the relationship is stronger for reading frequency.

Table 1: Correlations between the reading and writing variables, and mental wellbeing

	Mental wellbeing
Reading enjoyment	.158**
Reading frequency	.146**
Reading self-perception	.174**
Reading attitudes	.280**
Writing enjoyment	.180**
Writing frequency	.114**
Writing self-perception	.224**
Writing attitudes	.275**

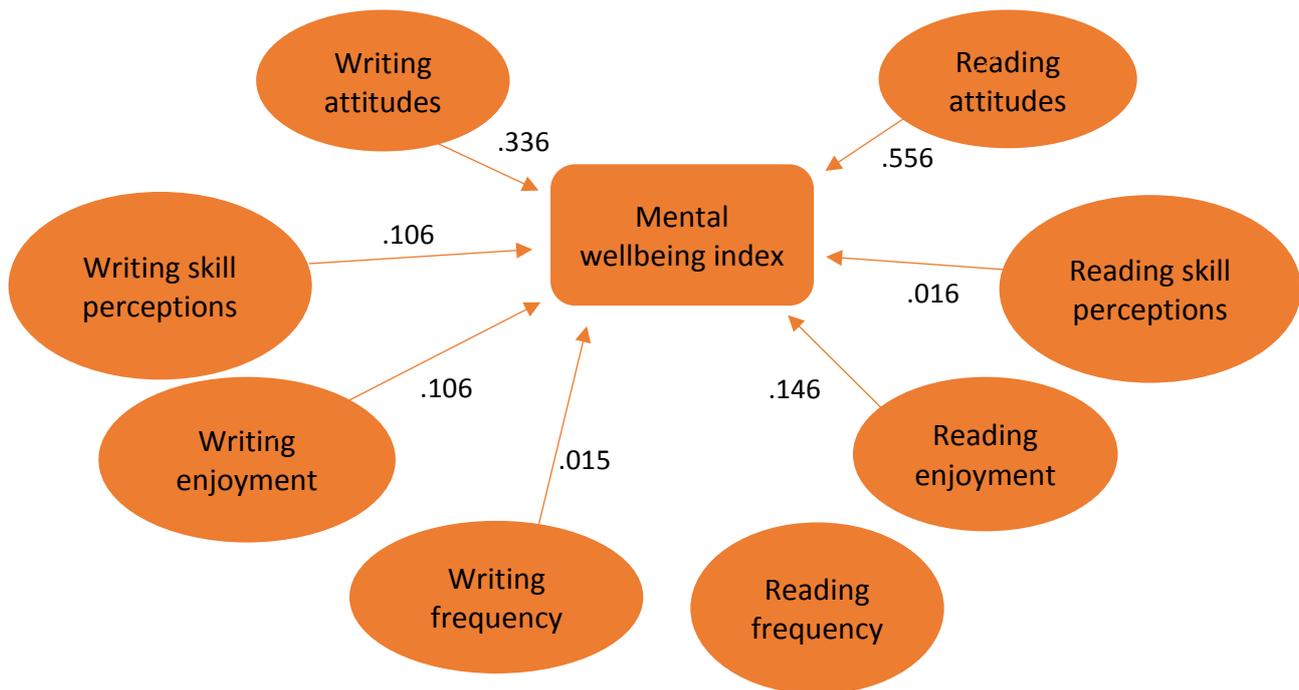
We now know that each of the reading and writing variables are individually linked to mental wellbeing but what happens when we look at all of them at the same time? To this end, we conducted regression analysis, which allowed us to explore which variables really matter when the effects of other variables are simultaneously considered.

This analysis indicated that overall mental wellbeing and our reading and writing variables were weakly associated (.345), with the eight reading and writing variables accounting for only 11.9% of the mental wellbeing scores.

Figure 4 shows that reading attitudes were most strongly associated with mental wellbeing, followed by writing attitudes. Enjoyment of reading was a slightly better predictor of mental wellbeing than enjoyment of writing. However, in both cases, enjoyment doesn't predict mental wellbeing as well as attitudes do. Self-perceptions of reading and writing skills are also associated with mental wellbeing, but only weakly. Interestingly, while reading frequency was more strongly correlated with mental wellbeing in the correlational analysis, when all variables are considered together, it has no predictive power, while writing frequency is still a significant, albeit very weak, predictor.

Overall, the more positive children and young people feel about reading and, in particular, writing, and the more they enjoy reading and writing, the higher their scores on our mental wellbeing index.

Figure 4: What reading and writing components predict mental wellbeing?

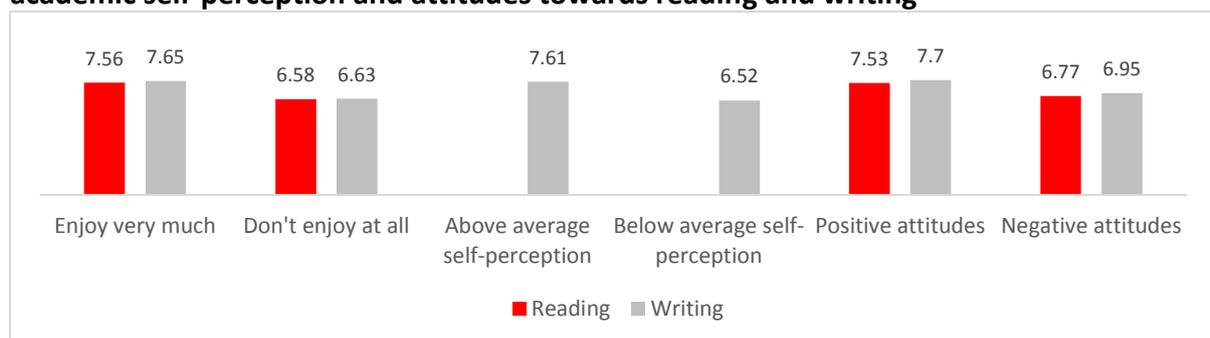


Higher numbers indicate stronger relationships

Indeed, this is borne out by Figure 5, which shows that children and young people who enjoy reading very much and who think positively about reading have, on average, higher mental wellbeing scores than their peers who don't enjoy reading at all and who hold negative attitudes towards reading. The relationship between reading skill perception and mental wellbeing is so weak that it is not considered for further analyses.

The same relationships hold true for writing: children and young people who enjoy writing very much and who think positively about writing have, on average, higher mental wellbeing scores than their peers who don't enjoy writing at all and who hold negative attitudes towards writing. In addition, children and young people who think that they are above-average writers have higher mental wellbeing than those who think that they are below average. While writing frequency was found to be a significant predictor of mental wellbeing, the relationship is so weak that it is not included in the following analyses.

Figure 5: Average scores (on a scale of 1 to 10) on mental wellbeing index by enjoyment, academic self-perception and attitudes towards reading and writing



Scale of 1 to 10, with higher scores indicating greater mental wellbeing

Given the prominence of the link between attitudes and mental wellbeing, we also explored whether there were particular attitudinal components that were more strongly associated with mental wellbeing. Our reading attitudes could be subdivided into four components:

- Future orientation: contains two items that explore children and young people's view of the value of reading for their future in terms of their learning as well job opportunities
- Interest: contains three items that assess the extent to which children and young people feel able to find reading materials that align with their interests and motivations
- Perseverance: made up of one item that explores children and young people's commitment to reading even when they struggle
- Cultural relevance: contains one item that looks at the cultural norm around reading

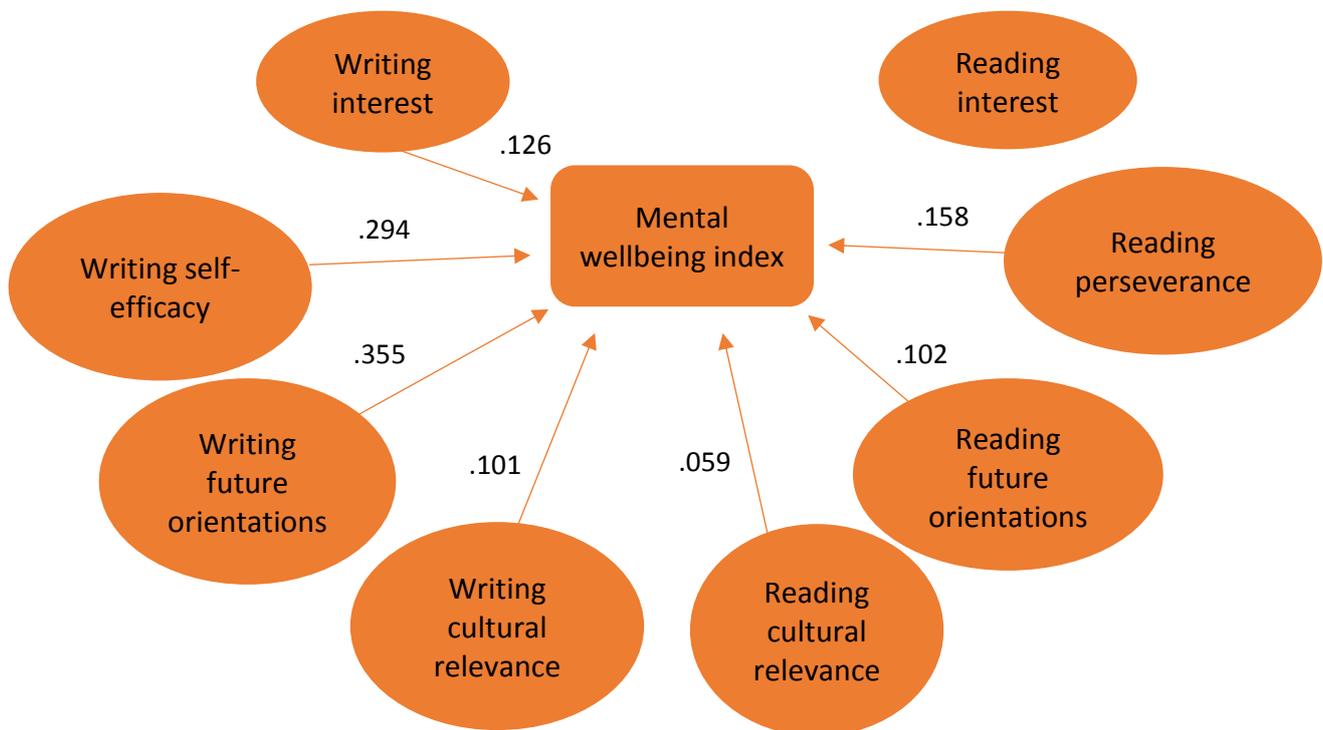
Similarly, we subdivided our writing attitudinal statements into four components:

- Future orientation: contains three items that explore the extent to which children and young people value writing for their future in terms of their learning and job opportunities
- Interest: three items looked at the extent to which children and young people feel writing is something that inherently interests them
- Self-efficacy: contains three items that explore the extent to which children feel writing is something they are able to master
- Cultural relevance: one item that explores the cultural norm around writing

As can be seen in Figure 6, future orientation for writing was the attitudinal component that was most strongly related with mental wellbeing (.355), followed by writing self-efficacy and its reading equivalent, reading perseverance. While writing interest was significantly associated with mental wellbeing, this wasn't true for reading. Overall, both cultural relevance of reading and writing were significantly associated with mental wellbeing, but the link was generally weak for both. It is perhaps also of interest to note that while writing future orientations were most strongly related to mental wellbeing, the reading equivalent was much less so.

Overall, therefore, the more children and young people agree that writing has a role to play in their future, and the more they believe in their own ability to overcome problems they might encounter when writing and reading, the higher they score in terms of their mental wellbeing.

Figure 6: A particular focus on what reading and writing attitudinal components predict mental wellbeing



Higher numbers indicate stronger relationships

Exploring mental wellbeing differences by literacy quartiles

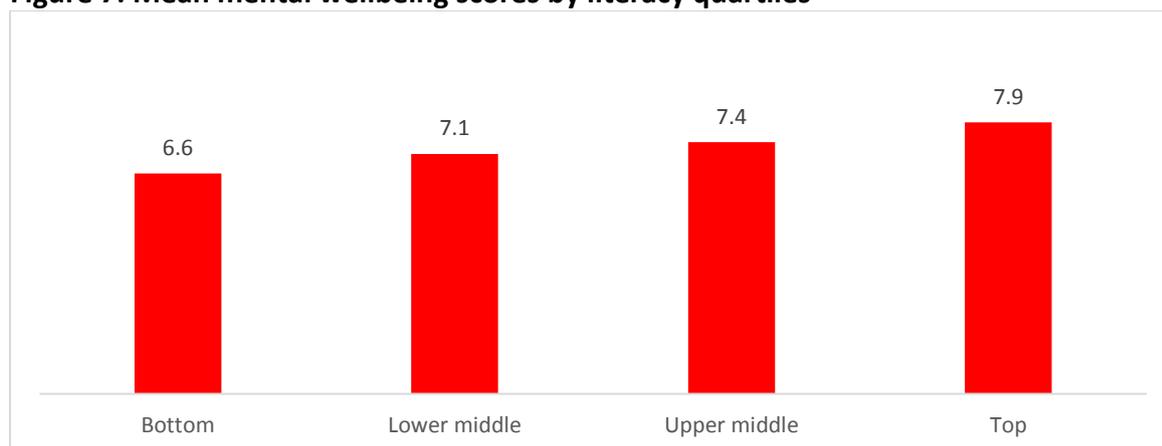
The previous section looked at all our variables of interest together to see how these predict a child or young person’s mental wellbeing. However, we were also keen to explore how children and young people who are engaged with both reading and writing differ from those who are less engaged in terms of their mental wellbeing to give a more comprehensive picture of the relationships.

To this end, we constructed a variable that summed the responses across all of our reading and writing variables, with positive responses being allocated higher scores (for a total of 52 scores). We then divided the sample into four quartiles to explore how those with low literacy engagement (bottom quartile) fare in terms of their mental wellbeing compared with those with high literacy engagement (top quartile)¹⁵.

As shown in Figure 7, there is a steady increase in mean mental wellbeing scores as one progresses from one quartile to the next, from a mean score of 6.6 out of 10 for those who score in the bottom quartile (i.e. who have low literacy engagement) to 7.9 out of 10 for those who score in the top quartile (i.e. those with a high level of literacy engagement).

¹⁵ Quartiles look at the distribution of responses and divide those into four roughly equal parts. The first quartile (also called the lower quartile) is the number below which lies the bottom 25 percent of data. The second quartile (the median) divides the range in the middle and has 50 percent of the data below it. The third quartile (also called the upper quartile) has 75 percent of the data below it and the top 25 percent of the data above it. In our study, the quartile scores are divided into the following four groups: bottom = 0-29.75; lower middle = 29.76-35.60; upper middle = 35.61-40.58; top = 40.59-52.

Figure 7: Mean mental wellbeing scores by literacy quartiles



Scale of 1 to 10, with higher scores indicating greater mental wellbeing

Table 2 cross-tabulates those who score in the bottom and top quartiles for literacy with those who score in the bottom and top quartiles for mental wellbeing. It shows that nearly 2 in 5 of those who have low literacy engagement also have low mental wellbeing, while only 1 in 10 of those who have low literacy engagement also have high mental wellbeing.

Conversely, 2 in 5 of those who have high literacy engagement also have high mental wellbeing. It also shows that children and young people who have high literacy engagement are more than twice less likely to have low mental wellbeing than their peers who have low levels of literacy engagement.

Table 2: Cross-tabulation of bottom and top quartile literacy engagement scores with bottom and top wellbeing quartile scores

	Low wellbeing (bottom quartile)	High wellbeing (top quartile)
Low literacy (bottom quartile)	37.4%	11.8%
High literacy (top quartile)	15.0%	39.4%

Comparing those who score in the bottom and top mental wellbeing quartiles

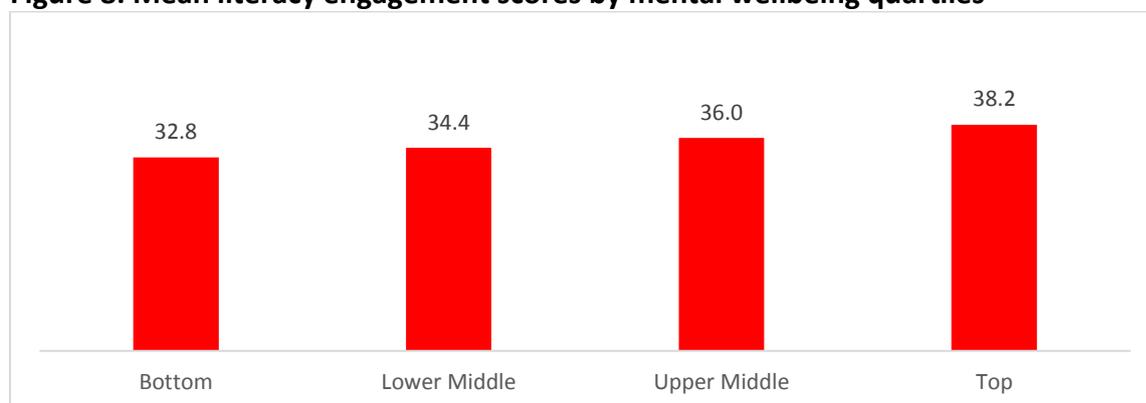
While the figure that explores the relationship using means already highlights some interesting differences between those who engage in reading and writing and those who don't in terms of their overall mental wellbeing, we thought it would be interesting to explore those differences in relation to children and young people who score at the bottom (N = 10,675) and top quartile (N = 10,863) of our mental wellbeing index¹⁶; i.e. how those who have low mental wellbeing vs. those who have high mental wellbeing differ in terms of their literacy experiences.

As can be seen in Figure 8, there is a steady increase in literacy engagement scores as one progresses from one mental wellbeing quartile to the next, increasing from a mean score of 32.8 out of 52 for those who score in the bottom quartile (i.e. those who have low mental

¹⁶ Quartile scores: bottom = 0-6.32; lower middle = 6.33-7.50; upper middle = 7.51-8.50; top = 8.51-10

wellbeing) to 38.2 out of 52 for those who score in the top quartile (i.e. those with high mental wellbeing).

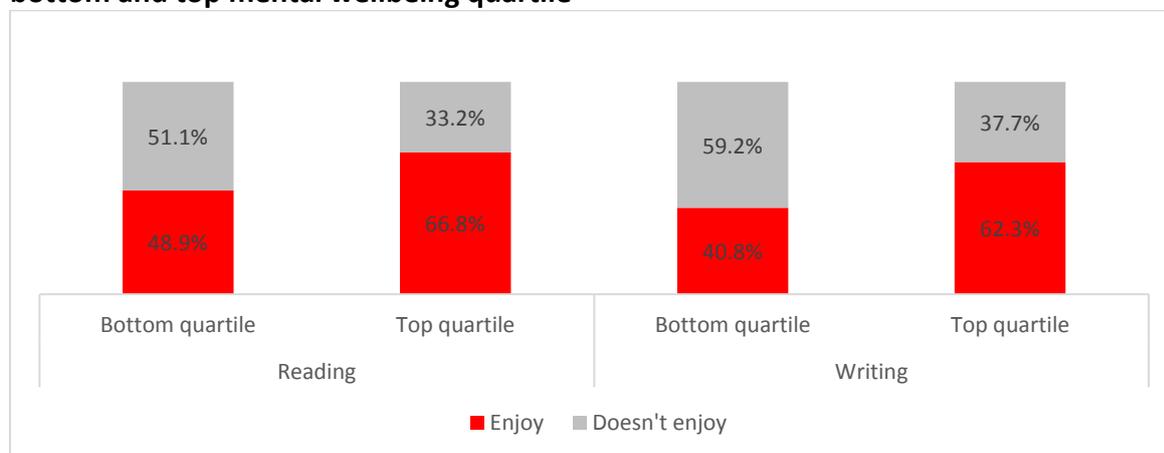
Figure 8: Mean literacy engagement scores by mental wellbeing quartiles



Scale of 1 to 52, with higher scores indicating greater literacy engagement

Exploring the link with reading and writing enjoyment more specifically, Figure 9 shows that 2 in 3 children and young people with who have high mental wellbeing say that they enjoy reading either very much or quite a lot compared with 1 in 2 of those who have low mental wellbeing. This difference is somewhat bigger with respect to writing, where 3 in 5 of those who score high in mental wellbeing say that they enjoy writing compared with 2 in 5 of those who score low in mental wellbeing.

Figure 9: Differences in reading and writing enjoyment between those who score in the bottom and top mental wellbeing quartile

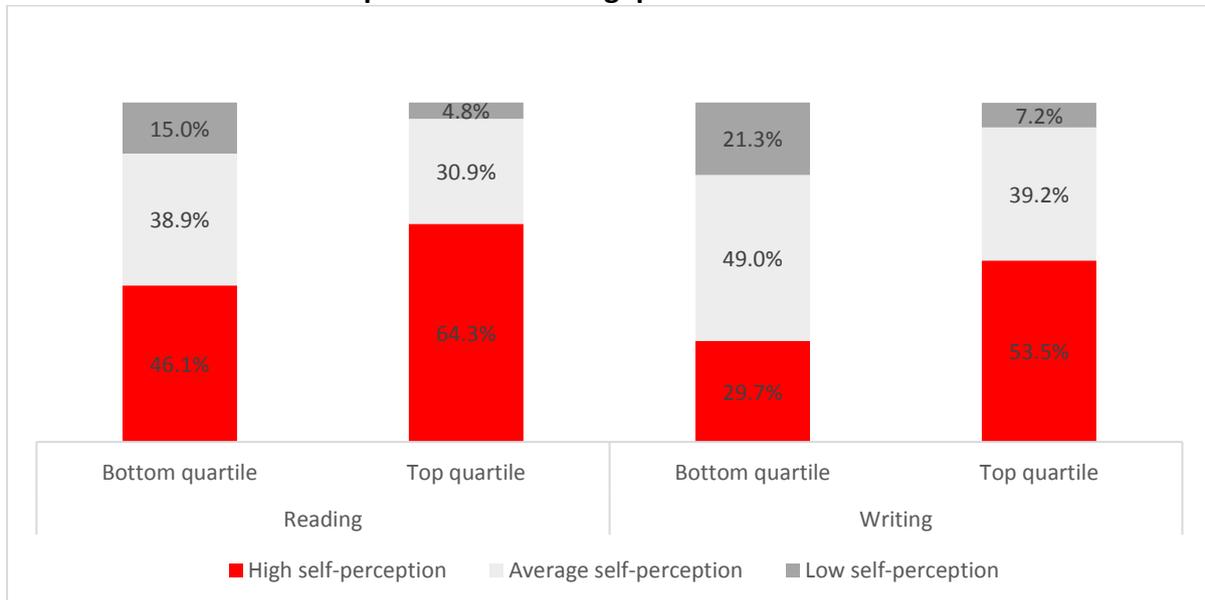


With respect to children and young people's self-perceptions of how good a reader or writer they are, nearly 2 in 3 of those who score high in mental wellbeing consider themselves to be above-average readers, compared with nearly 1 in 2 of those who have low mental wellbeing (see Figure 10). Conversely, those who have low mental wellbeing are three times more likely to say that they are below-average readers compared with those who have high mental wellbeing.

Similarly, nearly twice as many children and young people who have high mental wellbeing said that they are above-average writers compared with those who have low mental wellbeing. However, again, those who have low mental wellbeing are three times more likely

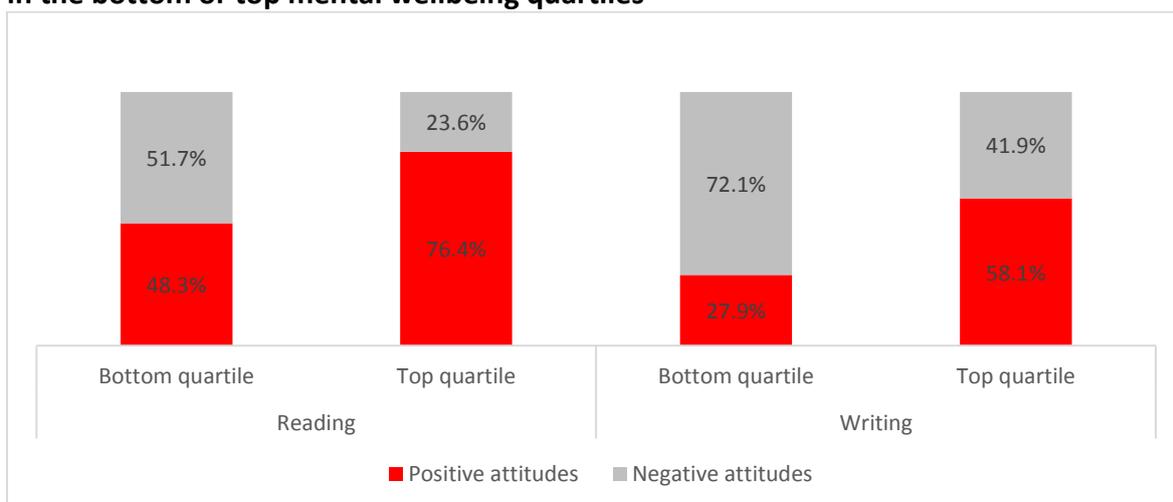
to consider themselves to be below-average writers compared with their peers who have high mental wellbeing.

Figure 10: Differences in self-perception of reading and writing skill between those who score in the bottom and top mental wellbeing quartiles



3 in 4 of those who have high mental wellbeing think positively about reading compared with 1 in 2 of those who have low mental wellbeing (see Figure 11). Although the overall percentages are lower, the difference between the groups is amplified when it comes to writing, where nearly twice as many children and young people who have high mental wellbeing think positively about writing compared with their peers who have low mental wellbeing.

Figure 11: Differences in attitudes towards reading and writing between those who score in the bottom or top mental wellbeing quartiles



Figures 12 and 13 provide a closer look at the different components of reading and writing attitudes by whether children and young people have high or low mental wellbeing. They show that more children who have high mental wellbeing agree with positive statements across all the components while those who have low mental wellbeing are more likely to agree with the negative statements. The difference is particularly large in some components. For example, nearly twice as many children and young people who have high mental wellbeing than those who have low mental wellbeing feel that reading is cool (see Figure 12).

The same trend is evident with writing attitudes and mental wellbeing. Children and young people who have high mental wellbeing have more positive attitudes towards writing overall than their lower-scoring peers (see Figure 13).

Figure 12: Percentage agreement with reading attitude statements by those who score in the bottom or top mental wellbeing quartiles

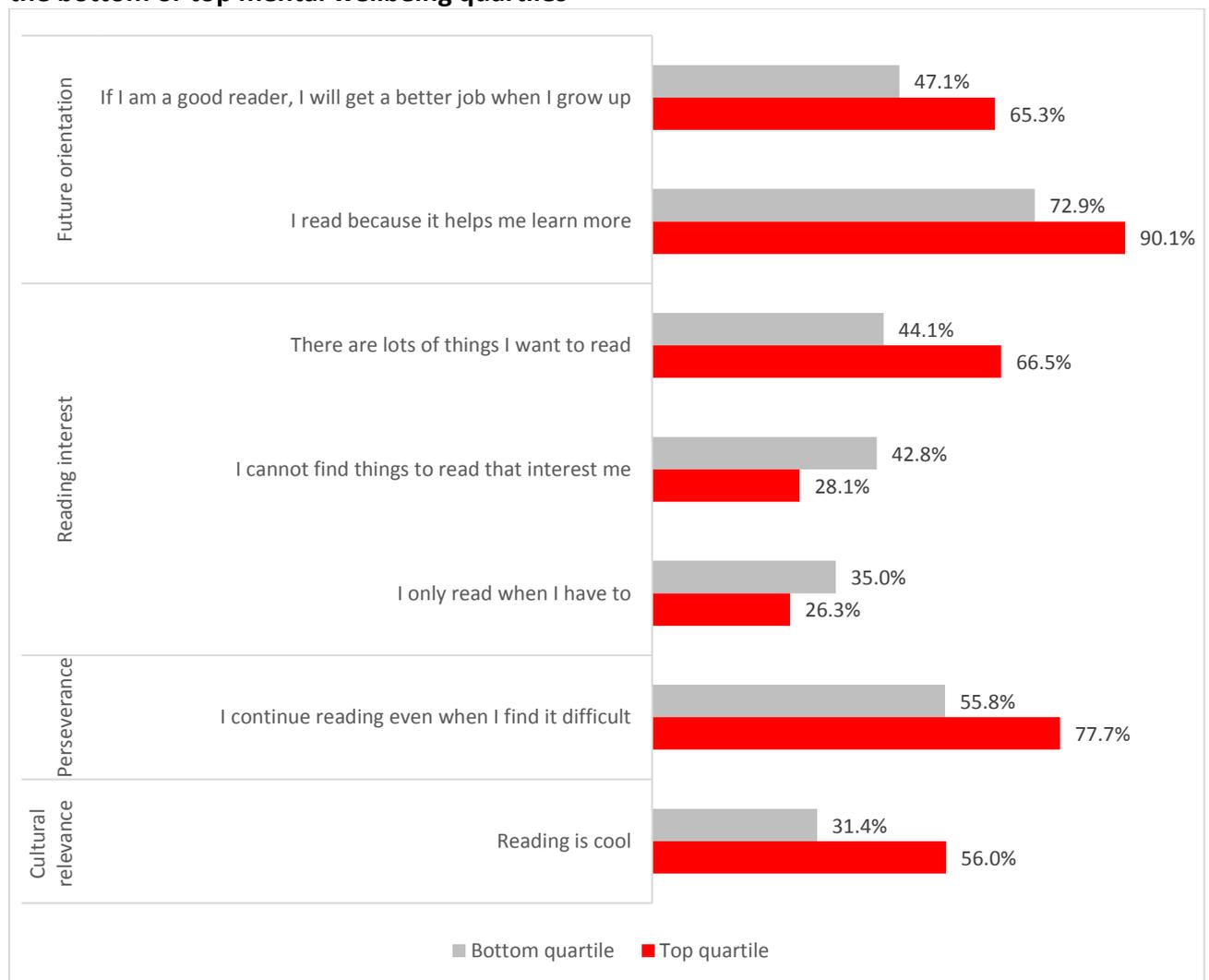
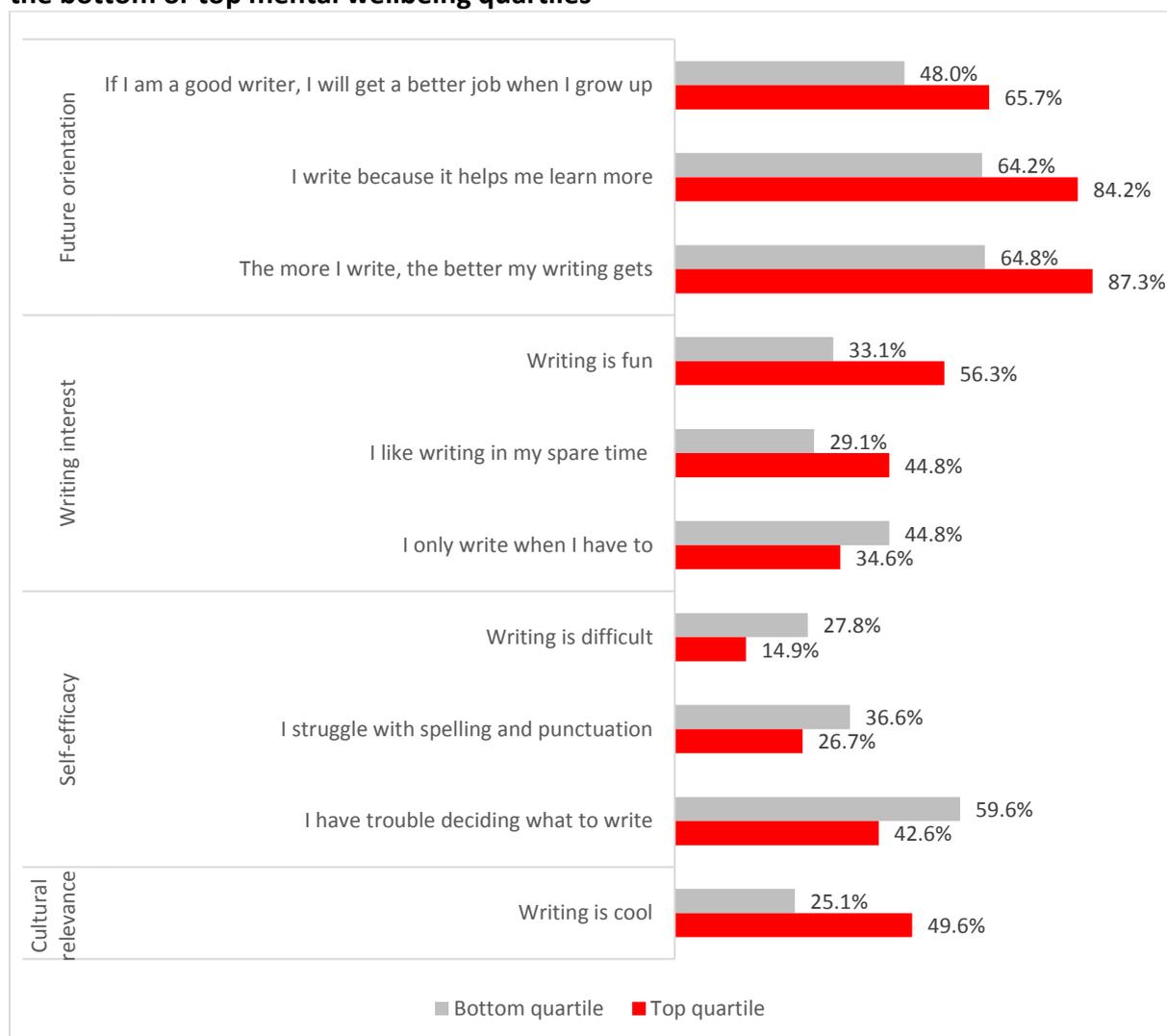


Figure 13: Percentage agreement with writing attitude statements by those who score in the bottom or top mental wellbeing quartiles



Exploring the link between reading skill and mental wellbeing

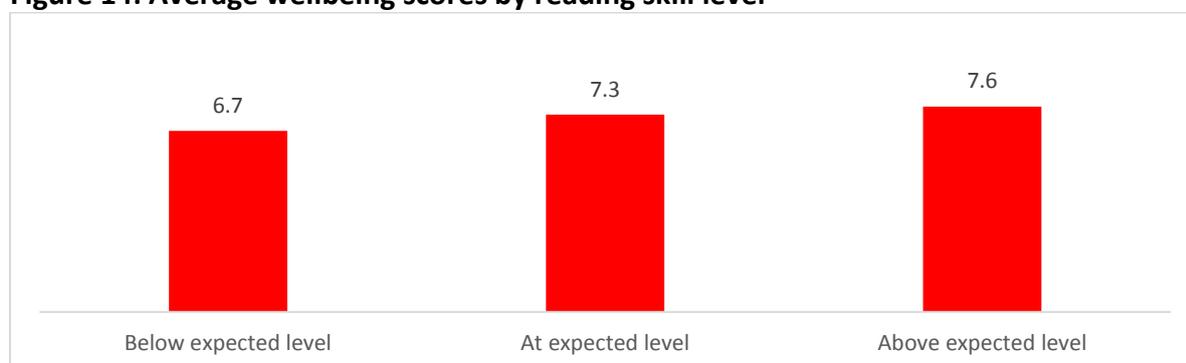
Previous research has shown that reading skill is linked to mental wellbeing, with children who struggle with reading having worse mental wellbeing outcomes¹⁷. We had reading skill data for 1,098 pupils aged 11 to 15, which allowed us to explore not only the link between mental wellbeing and reading skill but also how important reading skill is when other reading components are considered.

Schools measured reading skill using different assessments, and we therefore categorised pupils into three groups depending on whether or not they were reading at the level expected for their age: reading below expected level (13.2%), reading at expected level (75.5%) and reading above expected level (11.3%).

¹⁷ Schoon, I., Parsons, S., Rush, R. & Law, J. (2010). Children's language ability and psychosocial development: a 29-year follow-up study. *Pediatrics*, 126(1). doi: 10.1542/peds.2009-3282

As Figure 14 shows, children and young people who read at or above the level expected for their age have higher mental wellbeing scores, on average, than their peers whose reading skills are below expected levels.

Figure 14: Average wellbeing scores by reading skill level



Scale of 1 to 10, with higher scores indicating greater mental wellbeing

Focusing on the mental wellbeing quartiles also shows a relationship between reading skills and mental wellbeing. Table 3 looks at the percentage of children who have a reading level that is below and above the level expected for their age and many, in turn, score at the bottom or top quartile of our mental wellbeing index.

It shows that nearly three times as many children and young people whose reading skill is below their expected level score in the bottom wellbeing quartile than score in the top quartile. Conversely, for those whose reading skills are above their expected level, over twice as many children score in the top quartile than in the bottom quartile for wellbeing.

Table 3: Reading levels by wellbeing quartiles

Reading levels	Children in the top quartile for mental wellbeing	Children in the bottom quartile for mental wellbeing
Below expected level	13.1%	35.2%
Above expected level	40.3%	17.7%

Exploring the link between skill and mental health over time

The previous section has shown that there is a link between reading skill and mental wellbeing. This ties in with previous studies that have used data from the 1970 British Cohort Study (BCS70), which also indicate that there is a relationship between early verbal scores and later mental health and broader social outcomes (e.g. Schoon, Parsons, Rush & Law, 2010¹⁸).

Contextual changes over the last 30 years, such as the expansion of the higher education market and increasing pressures on young people to do well at school, might have implications for the life course effects of low levels of literacy in the childhood years. In collaboration with **Professor Yvonne Kelly** and her team from University College London, we

¹⁸ Schoon, I., Parsons, S., Rush, R. & Law, J. (2010). Children's language ability and psychosocial development: a 29-year follow-up study. *Pediatrics*, 126(1). doi: 10.1542/peds.2009-3282

set out to test this idea in two cohorts of young people born approximately 30 years apart: the 1970 British Cohort Study and the Millennium Cohort Study (MCS).

Using markers of verbal ability that were collected at ages 5 and 16 in the BCS70 and at ages 5 and 14 in the MCS, we explored whether these are differently linked with markers of mental health during adolescence across the two datasets. The markers considered here were those that were equivalent (sometimes roughly) across the studies. In the BCS70 these were assessed at age 16 and in the MCS at age 14: socioemotional difficulties, psychological distress, binge drinking, smoking and illicit drug use.

Using the bottom quartile of the distribution as an indicator of 'low' ability, our analyses showed that there is an enduring relationship between verbal scores and mental health over time, with those who scored in the bottom quartile of verbal ability, i.e. those who have 'low' verbal ability also having negative mental health outcomes in adolescence (see Appendix 2 for graphs illustrating this).

However, we couldn't find any strong evidence to support different associations for the young people of today compared with those born 30 years earlier. We also found that there appeared to be no added disadvantage for those from disadvantaged backgrounds in that young people from disadvantaged families have higher likelihood of poor mental health, and those with low verbal scores are, on average, at increased risk of poor mental health but there appeared to be no multiplicative effect.

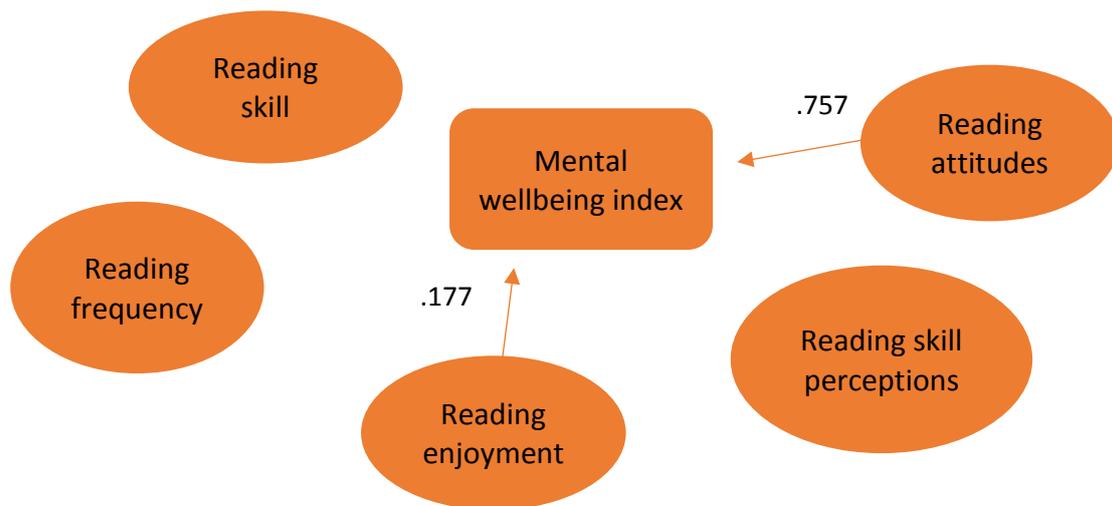
We also performed sensitivity analyses in which we used a more stringent indicator of 'low' verbal skills i.e. the bottom decile of the distribution. There were no substantive differences in the findings.

What happens to the link between reading skill and mental wellbeing when other reading components are also considered?

We also wanted to know how reading skill predicts mental wellbeing when other reading variables are considered¹⁹. As Figure 15 shows, when all the reading variables are considered simultaneously, reading skill is not found to be significant predictor of mental wellbeing. This highlights that enjoyment and attitudes are more important for mental wellbeing, which, in turn, might suggest that focusing on improving positive attitudes and enjoyment of reading might be particularly beneficial in the classroom.

¹⁹ We only focused on reading variables in this analysis because writing skill data were not available

Figure 15: What reading components predict mental wellbeing?



Higher numbers indicate stronger relationships

Sociodemographic differences, mental wellbeing, reading and writing

Previous research has established that there are sociodemographic differences in both reading and writing. For example, we know that girls and children aged 8 to 11 enjoy reading and writing more and read and write more often outside class than boys or those aged 14 and older. As we said earlier, there are also differences in mental wellbeing based on sociodemographic background.

Given the sociodemographic differences for reading and writing, as well as wellbeing, we also wanted to know how each of these relationships with mental wellbeing differ by pupils' gender, age group, free school meal (FSM) background, ethnic background and region in England.

We found that the only sociodemographic variable that was systematically associated with wellbeing and enjoyment, frequency, skill and attitudes is age group (see Table 4). More specifically, there are statistically significant age differences between mental wellbeing scores and all our reading variables and two writing variables, namely writing enjoyment and writing attitudes.

Table 4: Whether the relationship between mental wellbeing score and reading and writing variables varies significantly by sociodemographic background variables

	Reading	Writing
Enjoyment		
Gender		
Age		
FSM		
Ethnicity		
Region		
Daily (not sig)		
Gender		
Age		
FSM		
Ethnicity		
Region		
Self-perception		
Gender		
Age		
FSM		
Ethnicity		
Region		
Attitudes		
Gender		
Age		
FSM		
Ethnicity		
Region		

Green – statistically significant interaction @ p = .001; grey – not statistically significant

The analyses of the relationship between reading and writing, and mental wellbeing by age showed that enjoying reading and writing, reading daily, having a high perception of one’s reading skill and positive attitudes towards reading and writing are particularly beneficial for younger children in terms of mental wellbeing, with the difference in mental wellbeing scores diminishing as they get older. The mean mental wellbeing scores by reading and writing attitudes for age are presented in Table A3.1 in Appendix 3.

While there was no systematic relationship with gender, free school meal uptake, ethnicity or region in England, Tables A3.2 and A3.3 in Appendix 3 outline the mean mental wellbeing scores by enjoyment, frequency, perceived skill and attitudes for all the sociodemographic variables.

Exploring the subcomponents of mental wellbeing

So far, we have explored how a child or young person’s overall mental wellbeing is related to reading and writing. We will now look at how the three different mental wellbeing components – life satisfaction, coping skills and self-belief – that made up our index are related to literacy.

As Table 5 shows, the reading and writing variables were associated with our three components of wellbeing in similar ways. It’s interesting that the strongest associations were found with respect to life satisfaction, while the reading and writing variables were only weakly related to self-belief. Overall, the eight reading and writing components predicted more of the variance in life satisfaction scores than they explained either coping skills or self-belief. However, across the board those percentages were very low.

Table 5: Reading and writing predictors of life satisfaction, coping skills and self-belief

	Life satisfaction	Coping skills	Self-belief
Reading enjoyment	.161	.080	.063
Reading frequency	.029	-	.013
Reader self-perception	.033	.010	.010
Reading attitudes	.593	.308	.279
Writing enjoyment	.112	.056	.034
Writing frequency	.040	-	-
Writer self-perception	.159	.042	.026
Writing attitudes	.352	.192	.156
Variance explained	8.5%	7.2%	5.5%

Higher numbers indicate stronger relationships

Generally, responses to each of the three components follow a similar dynamic, with children and young people who enjoy reading very much, who read daily, who think of themselves as very good readers and who hold positive reading attitudes reporting higher life satisfaction, better coping skills and higher self-belief than their peers who don't enjoy reading at all, who never or rarely read, who think of themselves as below-average readers and who hold negative attitudes towards reading. The same holds true for writing.

The relationship between the subcomponents and wellbeing is also evident if we compare those with high and low levels of mental wellbeing in their reading and writing. As attitudes towards reading and writing are most strongly linked to mental wellbeing, Table 6 presents reading and writing attitudes by bottom and top mental wellbeing quartiles for the subcomponents. It shows that children who score at the bottom of the quartile in the subcomponents are as likely to have positive and negative attitudes towards writing. However, considerably more children and young people who score at the top of the quartiles have positive attitudes towards reading. For example, three times as many children and young people in the top quartile for coping skills have positive attitudes towards reading compared with those at the bottom.

Table 6: Reading and writing attitudes by bottom and top mental wellbeing quartiles

		Reading		Writing	
		Positive attitudes	Negative attitudes	Positive attitudes	Negative attitudes
Life satisfaction	Bottom	49.0%	51.0%	29.1%	70.9%
	Top	72.4%	27.6%	53.9%	46.1%
Coping skills	Bottom	51.7%	48.3%	31.0%	69.0%
	Top	75.2%	24.8%	56.9%	43.1%
Self-belief	Bottom	52.7%	47.3%	29.9%	70.1%
	Top	73.5%	26.5%	54.9%	45.1%

Table 7: Reading and writing enjoyment by bottom and top mental wellbeing subcomponent quartiles

		Reading		Writing	
		Enjoy	Don't enjoy	Enjoy	Don't enjoy
Life satisfaction	Bottom	48.1%	51.9%	40.8%	59.2%
	Top	64.1%	35.9%	60.2%	39.8%
Coping skills	Bottom	50.8%	49.2%	42.8%	57.2%
	Top	66.1%	33.9%	61.1%	38.9%
Self-belief	Bottom	51.9%	48.1%	43.0%	57.0%
	Top	63.9%	36.1%	59.9%	40.1%

Table 8: Reading and writing self-perceptions by bottom and top mental wellbeing quartiles

		Reading		Writing	
		High self-perception	Low self-perception	High self-perception	Low self-perception
Life satisfaction	Bottom	43.8%	16.2%	29.2%	22.9%
	Top	62.6%	6.7%	53.4%	8.8%
Coping skills	Bottom	47.6%	13.6%	31.7%	20.5%
	Top	64.6%	5.8%	53.0%	8.4%
Self-belief	Bottom	50.3%	11.7%	33.1%	17.4%
	Top	59.6%	7.1%	49.3%	11.2%

Table 9: Reading and writing frequency by bottom and top mental wellbeing quartiles

		Reading		Writing	
		Daily	Not daily	Daily	Not daily
Life satisfaction	Bottom	26.4%	73.6%	17.3%	82.7%
	Top	35.6%	64.4%	23.3%	76.7%
Coping skills	Bottom	27.7%	72.3%	16.2%	83.8%
	Top	37.5%	62.5%	24.1%	75.9%
Self-belief	Bottom	28.5%	71.5%	15.6%	84.4%
	Top	35.7%	64.3%	23.2%	76.8%

Summary

Overall, this report shows that there is a link between mental wellbeing and reading and writing enjoyment and attitudes; however, it is perhaps not as strong as could be expected.

The analysis of mental wellbeing and verbal scores in the 1970 and Millennium cohort studies shows that those with lower verbal ability have worse mental wellbeing outcomes, a finding that is borne out in our annual literacy data, which showed that children who read below the level expected of their age have lower mental wellbeing scores than their peers who read above expected levels. However, our study also showed that once other variables, such as enjoyment, attitudes and behaviours are taken into account, only reading and enjoyment and attitudes have a relationship with mental wellbeing, while reading skill is not a significant predictor.

Overall, across all of our analyses, reading and writing attitudes are the components that are most strongly associated with mental wellbeing. This might suggest that children and young people who feel positively about life in general are also more likely to feel positive about certain aspects of it, such as how they feel about reading and writing. However, it also might highlight that a positive learning environment is important for wellbeing: it is possible that children who have positive experiences of reading and writing in the classroom feel better about their ability, which, in turn, creates positive attitudes and motivation towards the activity and through that enforces more positive attitudes in general and therefore higher wellbeing.

The lack of association between frequency of reading and writing and mental wellbeing might suggest that content, rather than the actual act of reading or writing, is linked to improved wellbeing outcomes. For example, studies have shown that writing about positive emotions can be beneficial for alleviating stress and anxiety²⁰. Similarly, a survey of adult readers showed that those who read regularly report less stress and depression compared with those who don't read regularly²¹. Future research should further investigate reading and writing in relation to mental wellbeing, with a particular focus on behaviours. It would also be beneficial to explore the link between literacy and wellbeing with a wider variety of mental wellbeing variables.

²⁰ Smith, M. A., Thompson, A., Hall, L. J., Allen, S. F. & Wetherell, M. A. (2018). The physical and psychological health benefits of positive emotional writing: Investigating the moderating role of Type D (distressed) personality. *British Journal of Health Psychology*. Retrieved from <https://onlinelibrary.wiley.com/doi/full/10.1111/bjhp.12320>

²¹ Quick Reads & Billington, J. (2015). *Reading between the Lines: The Benefits of Reading for Pleasure*. Retrieved from http://www.letterpressproject.co.uk/media/file/The_Benefits_of_Reading_for_Pleasure.pdf

Our sincere thanks to Slaughter and May for their generous financial contribution that enabled us to conduct this annual survey.

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Appendix 1

Life satisfaction

One way to explore a person's mental wellbeing is to look at their general satisfaction or happiness with life. One approach used with children and young people in the past to assess this global happiness with life has been to present them with an image of a ladder where the rungs correspond to different levels of life satisfaction (see Figure A1.1 for an example). This is known as the Cantril Scale or Cantril Ladder, which has been used numerous times in national and international research (see e.g., Levin & Currie, 2010; Bartels & Boomsma, 2009; OECD, 2015).

Figure A1.1: Example of a Cantril Ladder

Assume that this ladder is a way of picturing your life. The top of the ladder represents the best possible life for you. The bottom rung of the ladder represents the worst possible life for you.

Indicate where on the ladder you feel you personally stand right now by marking the circle.



We adapted the scale slightly and asked pupils: If 1 is your worst possible life and 10 is your best possible life, how would you rate your life right now? Using this scale we found that, on average, they rated themselves towards the upper end of the scale: 7.36 (SD = 2.36) out of 10. Overall, 1 in 5 pupils (21.6%) scored below the mid-point on that scale, indicating that they aren't happy with their life currently.

Pupils' average life satisfaction scores are similar to that found in other studies. For example, the ONS (Household Survey Wave 16, May/June 2017) found that out of a scale of 10, on average, 10- to 17-year-olds rated themselves as 7.5. While this is the first time that we have asked about general mental wellbeing, there is some indication from other sources that pupils' happiness with life has decreased over the past few years. For example, the Good Childhood Report (2017)²² showed that there was a significant decrease in pupils' life happiness as a whole between 2009 and 2010 and from 2014 to 2015.

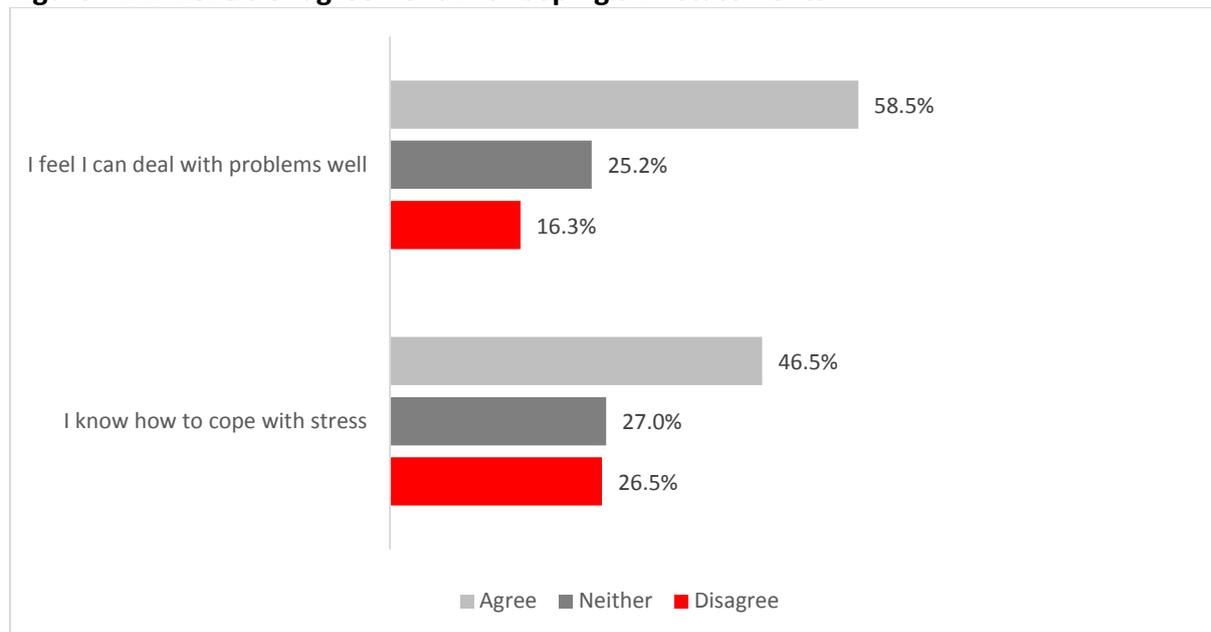
²² The Children's Society. (2017). *The good childhood report 2017*. Retrieved from https://www.childrengsociety.org.uk/sites/default/files/the-good-childhood-report-2017_full-report_0.pdf

Coping skills

We assessed pupils' coping skills with two agreement/disagreement statements measured on a five-point scale: I feel I can deal with problems well; and I know how to cope with stress. Both items were adapted from the resilience scale of NPC's wellbeing measure²³.

Figure A1.2 shows the percentage of pupils who agreed with each of these statements (combining those who agree and those who strongly agree) and indicates that the majority of pupils feel that they can cope with their problems and can cope with stress. While these findings are encouraging, the figure also shows that 1 in 4 pupils felt that they didn't know how to cope with stress and 1 in 6 didn't feel that they could deal with problems well.

Figure A1.2: Levels of agreement with coping skill statements



To look at how coping skills are associated with reading and writing variables, we combined responses across the two variables into one by summing responses over the two items²⁴, with a maximum of 10 points²⁵.

Self-belief

The last component of wellbeing we explored was self-belief, which we assessed by agreement/disagreement with two attitudinal statements on a five-point scale: Overall, I like being the way I am; and I don't care what other people think about me. Items were adapted from the self-esteem scale of NPC's wellbeing measure²⁶.

As Figure A1.3 shows, 3 in 4 children and young people agreed (combining those who agree and those who strongly agree) with the statement that they like themselves the way they are.

²³ Harrison-Evans, P., Hargrave, R., & Noble, J. (2015). That awkward age: Children, well-being and charities. Retrieved from <https://www.thinknpc.org/resource-hub/that-awkward-age-children-well-being-and-charities/>

²⁴ Cronbach's alpha = .690, M = 6.81, SD = 2.03, range = 2 to 10

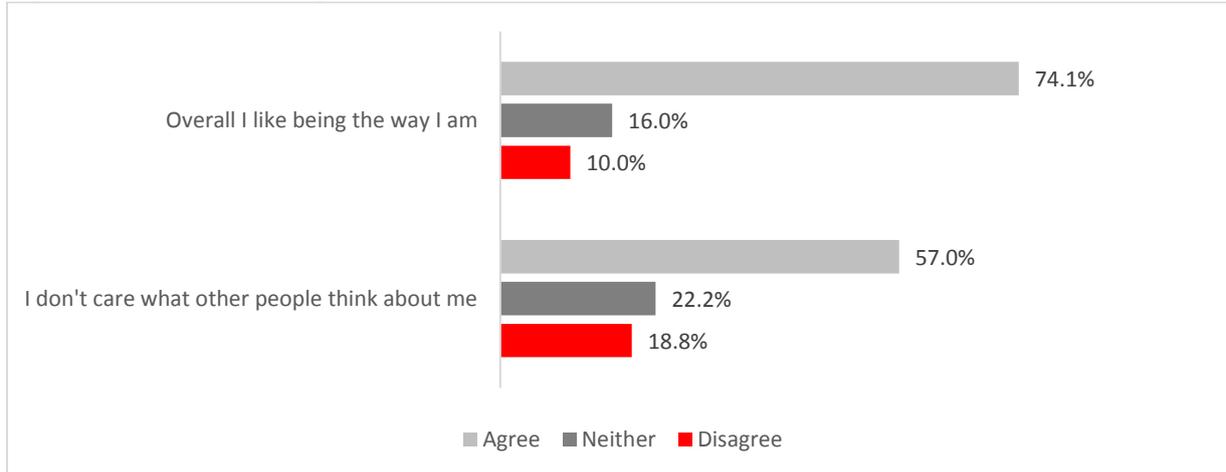
²⁵ Higher coping skill scores indicate higher agreement with statements

²⁶ Harrison-Evans, P., Hargrave, R., & Noble, J. (2015). That awkward age: Children, well-being and charities. Retrieved from <https://www.thinknpc.org/resource-hub/that-awkward-age-children-well-being-and-charities/>

However, 1 in 10 also disagreed with this item, indicating dissatisfaction with themselves. Nearly 6 in 10 agreed that they don't care what other people think about them. However, nearly 1 in 5 disagreed, indicating that other people's opinions of them mattered to them.

Again, these two items were collapsed into one variable for some of the analyses²⁷ in this report.

Figure A1.3: Levels of agreement with self-belief statements



²⁷ Cronbach's alpha = .682; M = 7.57, SD = 1.96, range = 2 to 10

Appendix 2: Verbal ability and well being in adolescence – comparison of the 1970 and Millennium Cohort studies

We also wanted to explore the relationship between verbal ability and mental wellbeing over time across two cohort studies. *Verbal ability* tests were administered in the

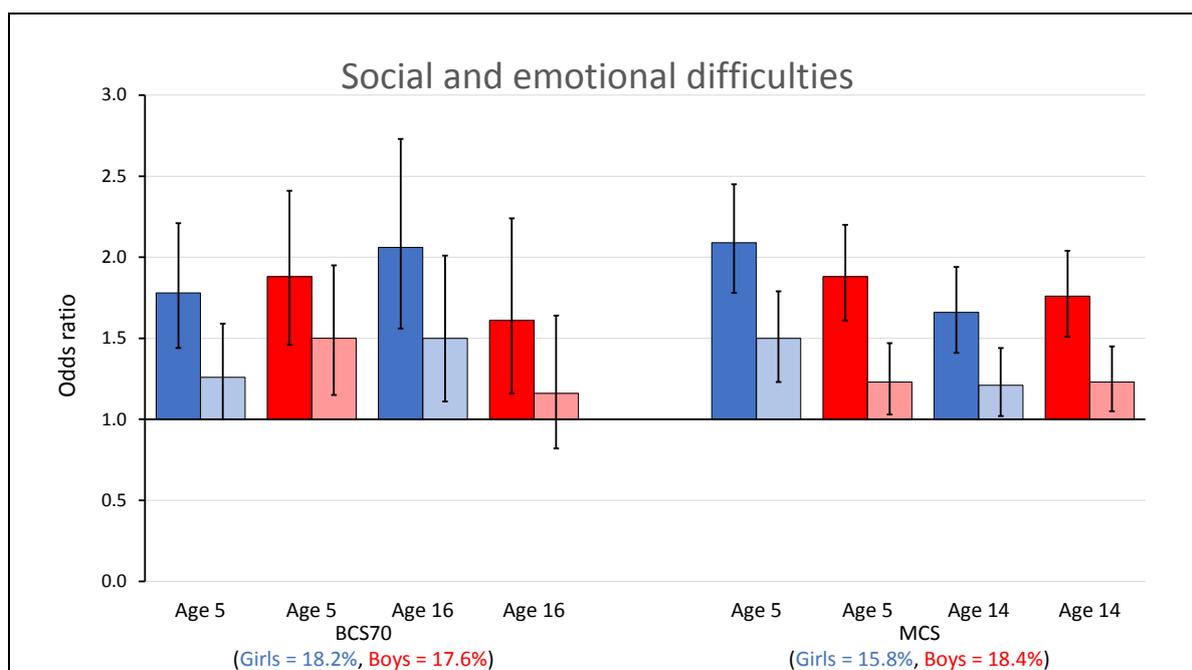
- 1970 cohort at ages 5 and 16
- MCS at ages 5 and 14

We take the bottom quartile of the distribution as an indicator of ‘low’ ability. Girls and boys are considered separately in the following graphs.

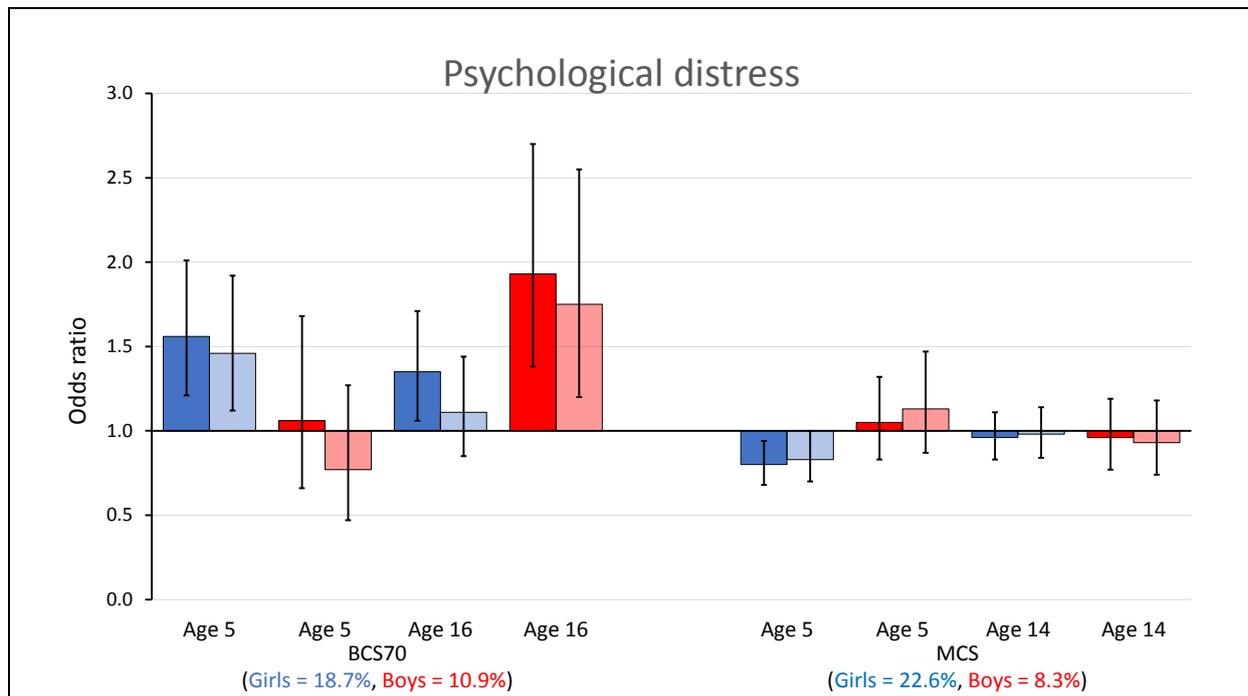
Wellbeing markers considered here were those that were equivalent (sometimes roughly) across the studies – in the ’70 these were assessed at age 16, and in the MCS at age 14, as follows: Socioemotional difficulties, psychological distress, binge drinking, smoking and illicit drug use.

Overall, there is no strong evidence to support different associations for young people of today compared with those born 30 years earlier. However, there are important differences in the prevalence of some wellbeing measures, which might aid interpretation of these findings. For example, compared with participants in the MCS, the ’70 participants were two years older at the time they were surveyed, and the prevalence of drinking, smoking and drug use were much higher. Markers of socioemotional difficulties and psychological distress are not as prone to these measurement challenges as fixed points (e.g. top 10 or 15 percent) in the distribution are used as indicators of problem scores.

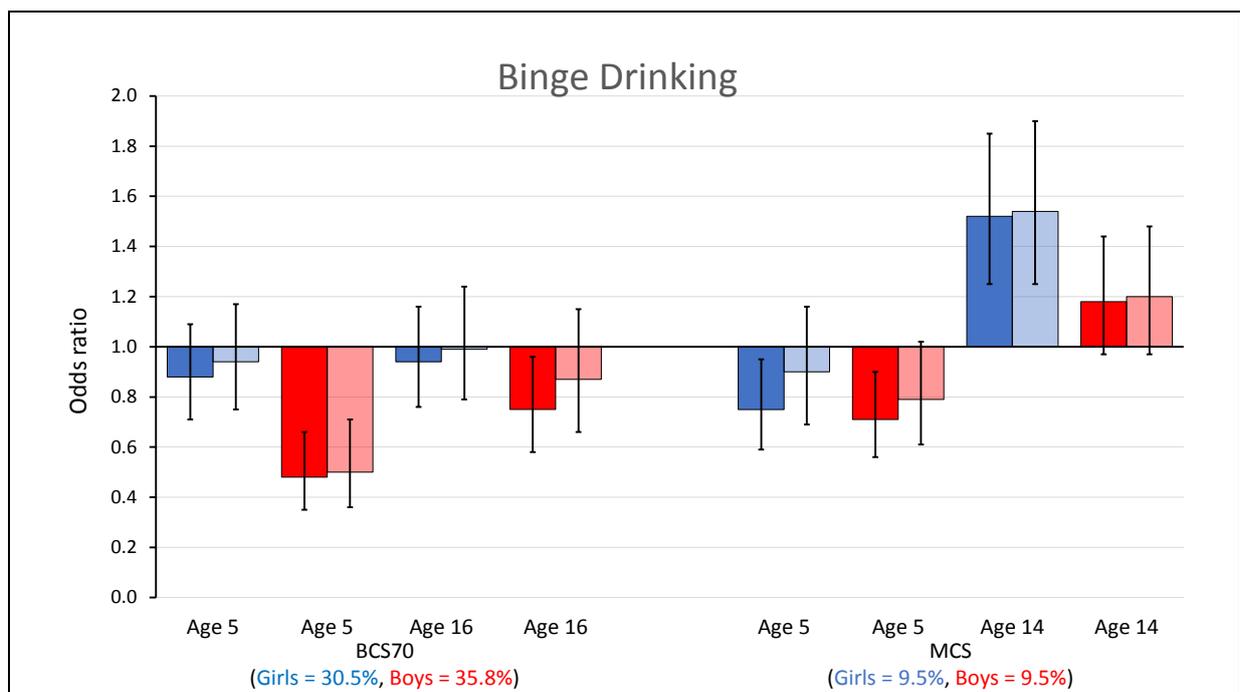
We find that socioemotional difficulties are more common for young people with low verbal ability scores in both cohorts



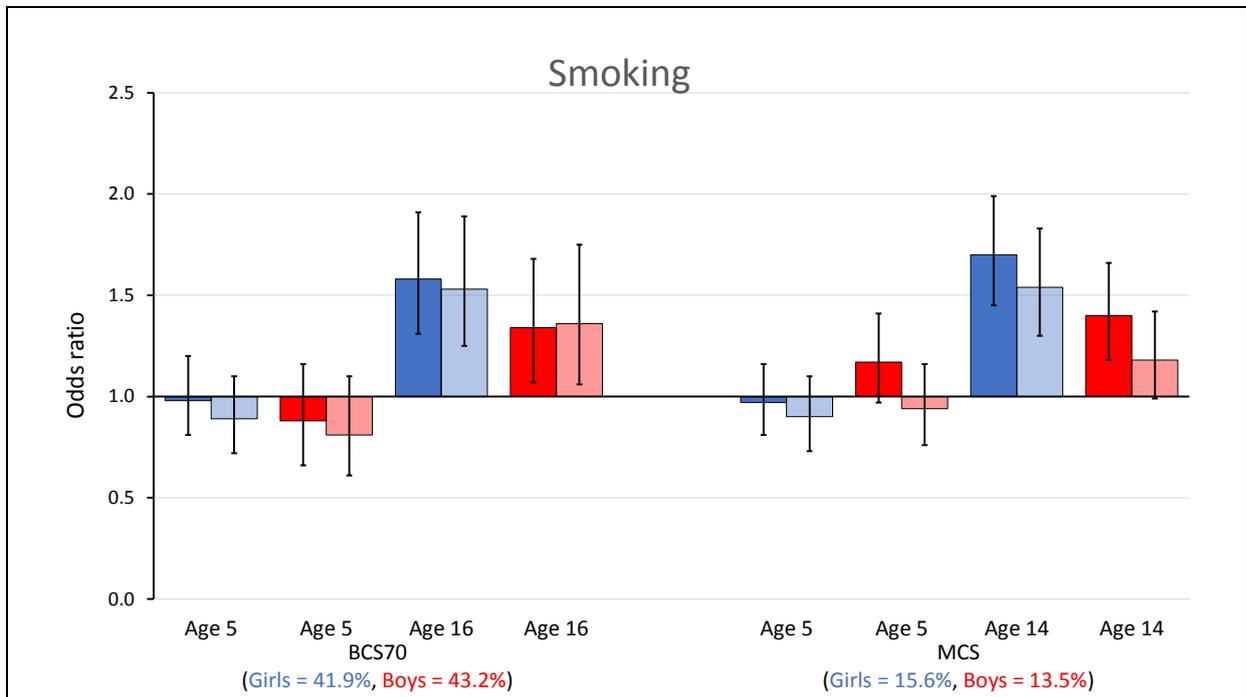
Psychological distress was more common in boys of the '70 cohort if they have low verbal skills at age 16, and for girls with low verbal skills at age 5. In the MCS these associations were pretty much null.



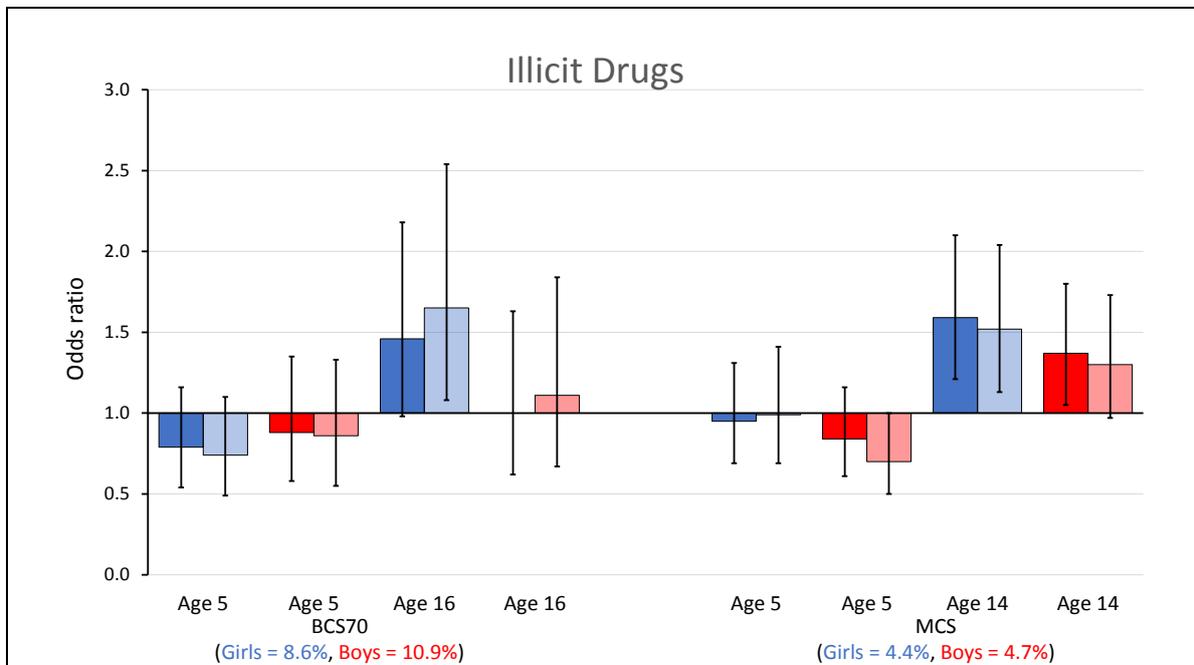
There was some suggestion of a difference across cohorts in terms of their alcohol consumption. In particular, we see an increased likelihood of binge drinking in the MCS data, particularly for girls. In the '70 data there is some suggestion of lower rates of binge drinking for those with lower verbal skills e.g. boys with low skills at age 5.



Smoking was associated with low verbal skills (measured contemporaneously) in both cohorts for girls and boys.



Drug use was more common in the MCS for girls and boys with low skills measured contemporaneously. A similar pattern was seen for girls in the '70.



Appendix 3

Table A3.1: Estimated marginal means for wellbeing index by age

	Reading	Writing
KS2 enjoy reading	8.1	8.1
KS2 don't enjoy reading	7.5	7.5
KS3 enjoy reading	7.5	7.5
KS3 don't enjoy reading	7.0	7.0
KS4 enjoy reading	6.8	6.9
KS4 don't enjoy reading	6.8	6.7
KS5 enjoy reading	6.6	6.6
KS5 don't enjoy reading	6.5	6.5
KS2 read daily	8.0	8.2
KS2 don't read daily	7.8	7.9
KS3 read daily	7.4	7.5
KS3 don't read daily	7.2	7.2
KS4 read daily	6.8	6.9
KS4 don't read daily	6.8	6.8
KS5 read daily	6.7	6.8
KS5 don't read daily	6.5	6.5
KS2 high self-perception	8.1	8.2
KS2 average self-perception	7.8	7.8
KS2 low self-perception	7.1	7.0
KS3 high self-perception	7.5	7.6
KS3 average self-perception	7.2	7.3
KS3 low self-perception	6.4	6.5
KS4 high self-perception	6.9	7.0
KS4 average self-perception	6.9	6.9
KS4 low self-perception	6.2	6.2
KS5 high self-perception	6.5	6.7
KS5 average self-perception	6.5	6.5
KS5 low self-perception	6.6	6.1
KS2 positive reading attitudes	8.1	8.2
KS2 negative reading attitudes	7.2	7.4
KS3 positive reading attitudes	7.6	7.7
KS3 negative reading attitudes	6.8	7.0
KS4 positive reading attitudes	7.0	7.0
KS4 negative reading attitudes	6.6	6.8
KS5 positive reading attitudes	6.6	6.8
KS5 negative reading attitudes	6.4	6.4

Table A3.2: Estimated marginal means for wellbeing index by pupil background

	Reading	Writing
Girls enjoy	7.0	7.0
Girls don't enjoy	6.7	6.7
Boys enjoy	7.5	7.6
Boys don't enjoy	7.2	7.2
FSM enjoy	7.2	7.3
FSM don't enjoy	6.9	6.9
Non-FSM enjoy	7.3	7.4
Non-FSM don't enjoy	7.0	7.0
White enjoy	7.1	7.2
White don't enjoy	6.9	6.8
Mixed enjoy	7.1	7.0
Mixed don't enjoy	6.7	6.8
Black enjoy	7.6	7.6
Black don't enjoy	7.3	7.3
Asian enjoy	7.3	7.5
Asian don't enjoy	7.0	6.9
Girls daily	7.0	7.0
Girls not daily	6.9	6.9
Boys daily	7.5	7.7
Boys not daily	7.4	7.4
FSM daily	7.2	7.3
FSM not daily	7.1	7.1
Non-FSM daily	7.3	7.4
Non-FSM not daily	7.2	7.2
White daily	7.0	7.2
White not daily	7.0	7.0
Mixed daily	7.1	7.0
Mixed not daily	6.9	6.9
Black daily	7.5	7.7
Black not daily	7.4	7.4
Asian daily	7.3	7.5
Asian not daily	7.2	7.2
Girls high self-perception	7.0	7.1
Girls average self-perception	6.8	6.9
Girls low self-perception	6.3	6.1
Boys high self-perception	7.6	7.7
Boys average self-perception	7.4	7.4

Boys low self-perception	6.8	6.8
FSM high self-perception	7.2	7.3
FSM average self-perception	7.1	7.1
FSM low self-perception	6.6	6.4
Non-FSM high self-perception	7.3	7.5
Non-FSM average self-perception	7.2	7.2
Non-FSM low self-perception	6.6	6.5
White high self-perception	7.1	7.2
White average self-perception	7.0	6.9
White low self-perception	6.6	6.3
Mixed high self-perception	7.1	7.1
Mixed average self-perception	6.8	6.9
Mixed low self-perception	6.4	6.3
Black high self-perception	7.6	7.7
Black average self-perception	7.5	7.5
Black low self-perception	6.9	6.6
Asian high self-perception	7.4	7.5
Asian average self-perception	7.1	7.2
Asian low self-perception	6.5	6.5
Girls positive attitudes	7.0	7.1
Girls negative attitudes	6.5	6.7
Boys positive attitudes	7.6	7.8
Boys negative attitudes	7.1	7.2
FSM positive attitudes	7.3	7.4
FSM negative attitudes	6.7	6.8
Non-FSM positive attitudes	7.4	7.5
Non-FSM negative attitudes	6.9	7.0
White positive attitudes	7.2	7.3
White negative attitudes	6.7	6.8
Mixed positive attitudes	7.1	7.1
Mixed negative attitudes	6.6	6.7
Black positive attitudes	7.6	7.7
Black negative attitudes	7.1	7.3
Asian positive attitudes	7.4	7.6
Asian negative attitudes	6.7	6.9

Table A3.3: Estimated marginal means for wellbeing index by region (England only)

	Reading	Writing
North East enjoy	7.4	7.4
North East don't enjoy	7.1	7.1
North West enjoy	7.3	7.4
North West don't enjoy	7.0	7.0
Yorkshire enjoy	6.7	6.8
Yorkshire don't enjoy	6.6	6.6
East Midlands enjoy	7.4	7.5
East Midlands don't enjoy	7.1	7.1
West Midlands enjoy	7.5	7.6
West Midlands don't enjoy	7.2	7.2
East of England enjoy	7.3	7.3
East of England don't enjoy	7.0	7.0
Greater London enjoy	7.4	7.5
Greater London don't enjoy	7.1	7.1
South East enjoy	7.2	7.2
South East don't enjoy	6.9	6.9
South West enjoy	7.1	7.2
South West don't enjoy	6.7	6.8
North East daily	7.4	7.4
North East not daily	7.2	7.3
North West daily	7.3	7.4
North West not daily	7.1	7.2
Yorkshire daily	6.7	7.0
Yorkshire not daily	6.7	6.7
East Midlands daily	7.5	7.5
East Midlands not daily	7.3	7.3
West Midlands daily	7.4	7.7
West Midlands not daily	7.4	7.4
East of England daily	7.2	7.4
East of England not daily	7.1	7.2
Greater London daily	7.4	7.5
Greater London not daily	7.3	7.3
South East daily	7.2	7.2
South East not daily	7.0	7.0
South West daily	7.1	7.2
South West not daily	6.9	7.0
North East high self-perception	7.4	7.5
North East average self-perception	7.3	7.3
North East low self-perception	6.6	6.5
North West high self-perception	7.3	7.4
North West average self-perception	7.2	7.2

North West low self-perception	6.8	6.5
Yorkshire high self-perception	6.7	6.9
Yorkshire average self-perception	6.7	6.8
Yorkshire low self-perception	6.2	5.9
East Midlands high self-perception	7.4	7.6
East Midlands average self-perception	7.2	7.3
East Midlands low self-perception	6.8	6.6
West Midlands high self-perception	7.6	7.7
West Midlands average self-perception	7.4	7.5
West Midlands low self-perception	6.6	6.7
East of England high self-perception	7.3	7.4
East of England average self-perception	7.1	7.1
East of England low self-perception	6.7	6.6
Greater London high self-perception	7.4	7.5
Greater London average self-perception	7.2	7.2
Greater London low self-perception	6.9	6.7
South East high self-perception	7.2	7.3
South East average self-perception	7.1	7.1
South East low self-perception	6.6	6.5
South West high self-perception	7.1	7.2
South West average self-perception	7.0	7.0
South West low self-perception	6.2	6.2
North East positive attitudes	7.5	7.6
North East negative attitudes	6.9	7.0
North West positive attitudes	7.4	7.5
North West negative attitudes	6.8	6.9
Yorkshire positive attitudes	6.9	6.9
Yorkshire negative attitudes	6.4	6.5
East Midlands positive attitudes	7.5	7.6
East Midlands negative attitudes	7.0	7.1
West Midlands positive attitudes	7.7	7.7
West Midlands negative attitudes	6.9	7.2
East of England positive attitudes	7.3	7.4
East of England negative attitudes	6.8	6.9
Greater London positive attitudes	7.4	7.6
Greater London negative attitudes	7.0	7.0
South East positive attitudes	7.3	7.3
South East negative attitudes	6.8	6.9
South West positive attitudes	7.2	7.3
South West negative attitudes	6.6	6.8