



Impact Study

The impact of promoting student wellbeing on student academic and non - academic outcomes: An analysis of the evidence

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Executive summary

Introduction

The Oxford International Curriculum (OIC) focuses on wellbeing and the development of global skills, and aims to promote academic success through a focus on the joy of learning. The Curriculum includes six subject areas (English, maths, science, computing, wellbeing and global skills projects), and covers age groups from pre-primary to the end of lower secondary school (Year 9 in the UK, or age 13–14 years). In order to assess the evidence to support the OIC’s potential to raise academic attainment and improve other student outcomes, this report reviews the evidence on the links between wellbeing and academic attainment as well as other key non-academic (e.g. social-emotional) student outcomes, and in particular the effects of whole-school approaches to promoting wellbeing on these academic and non-academic outcomes.

Focal questions

The purpose of this report is to address the following questions:

To what extent does the promotion of wellbeing in schools lead to improved educational outcomes?

- *What effect(s), if any, do whole-school approaches to promoting wellbeing have on students’ academic attainment?*
- *What effect(s), if any, do whole-school approaches to promoting wellbeing have on additional student outcomes?*
- *What specific strategies are linked with positive outcomes (academic or otherwise)?*

Key findings

Relationships between wellbeing and academic attainment:

- There is convincing evidence of a relationship between wellbeing and academic attainment, drawing on research conducted in a wide range of countries (e.g. UK, China, Chile, Australia, France, Germany, Bhutan, Mexico, Peru), though this relationship is often weak to moderate.
- There is some complex variation in the relationship between wellbeing and academic attainment, and this is not consistent across age groups or countries.

Relationships between wellbeing and other student outcomes:

- There is robust, [longitudinal](#) evidence that wellbeing is also [associated](#) with a variety of additional student outcomes including engagement, experiences of transitions between primary and secondary school, and success compared to parents at the same stage of education (with “success” defined in terms of the highest level of education attained)

Effects of whole-school approaches to promoting well-being on academic attainment

- There is a strong international evidence base to support the assertion that whole-school approaches to promoting wellbeing can have an effect on academic attainment.

- There is some mixed evidence on this matter (e.g. studies finding a lack of effect), but some authors have suggested that where an effect has not been found this may be due to problems with implementation.
- Where effects are found they are often small to moderate¹, but further research is needed to assess whether there are longer-term effects of whole-school wellbeing approaches on academic attainment (which may be cumulative over time).

Effects of whole-school approaches to promoting well-being on non-academic (e.g. social and emotional) outcomes

- There is also strong evidence to suggest that whole-school approaches to promoting wellbeing can have positive effects on a wide range of other student outcomes, including mental health, self-esteem, self-efficacy, motivation, behaviour, and decreased probability of dropout.
- As was the case for academic outcomes, further evidence is needed from studies over longer time periods to improve understandings of the effects of whole-school approaches to promoting student wellbeing on non-academic student outcomes.

Strategies linked with positive outcomes

A wide variety of considerations may affect the ability of a whole-school intervention or strategy for promoting wellbeing to have positive effects on student academic and other outcomes. Some of the key advice from multiple authors based on [empirical](#) evidence suggests that schools should:

- Tailor to and account for specific school context
 - Engage in appropriate self-assessment prior to implementation in order to be aware of and act on assets and strengths of the school as well as specific problems that need to be addressed
 - Ensure that wider school policy supports implementation
- Take an integrated, cross-level (school and classroom) approach
- Actively engage the wider community, including parents/families
- Focus on professional development for teachers to support them with implementation
- Put monitoring systems in place to keep track of and adjust implementation as needed, as well as to assess impact
- Ensure that sufficient time and resources are in place to support implementation

Sources of evidence in this report include studies reported in peer-reviewed journals, evidence syntheses (not all peer-reviewed), reports commissioned and published by high-profile/credible organisations (e.g. the Department for Education in England), and doctoral research. These are [colour-coded in the references](#) with brief guidance regarding their perceived rigour/credibility.

¹ Small to moderate [effect sizes](#) are quite common in educational research. Although a small or moderate [effect size](#) suggests less practical importance in context than a large [effect size](#), this needs to be considered in terms of the relevant time frame of a study or studies (e.g. many types of school improvement initiatives may have effects that are small over one or two years but larger over a longer period of time).

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Introduction

Context and purpose of this report

The Oxford International Curriculum (OIC) focuses on wellbeing and the development of global skills, and aims to promote academic success through a focus on the joy of learning. The Curriculum includes six subject areas (English, maths, science, computing, wellbeing and global skills projects), and covers age groups from pre-primary to the end of lower secondary school (Year 9 in the UK, or age 13–14 years). Given the focus of the OIC on wellbeing as a way to promote academic success, the purpose of this report is to review the evidence on the links between wellbeing and academic attainment as well as other key non-academic (e.g. social-emotional) student outcomes, and in particular the effects of whole-school approaches to promoting wellbeing on these academic and non-academic outcomes.

Wellbeing in education: Definitions and challenges

In recent years, policymakers and practitioners have increasingly had their attention drawn to the importance of student wellbeing. However, the evidence on how schools and teachers can promote student wellbeing, and the effects of promoting wellbeing on other educational outcomes, has been somewhat complex and mixed.

An unavoidable complication involved in unpacking the concept of wellbeing, ways of promoting it and its relationship to other outcomes for students is that the term “wellbeing” itself has been spelled, defined and measured in a variety of ways (Dodge et al., 2012). Some authors use wellbeing as a term for general happiness, some as an overarching term encompassing physical and mental health, while others frame wellbeing as a component of physical and/or mental health (see e.g. Hascher, 2010). Seligman (2011; 2018) proposed that wellbeing is made up of five measurable elements: Positive emotion, Engagement, Relationships, Meaning and Accomplishment (PERMA). This particular theory of wellbeing has been demonstrated to be relevant for measuring adolescent wellbeing in school-age young people, albeit with slightly reworded factors of engagement, perseverance, optimism, connectedness and happiness (EPOCH; Kern et al., 2015).

An additional complication involves the measurement of wellbeing, in part because of the above-noted definitional challenge but also because of the impossibility of taking a direct measurement of wellbeing as such. Instead, studies have used teacher report, parent report and student self-report, for example, to access information about students’ wellbeing, and for each of these approaches there is a long list of available measures from which to choose. As Bethune (2020) points out, there are compelling reasons to measure wellbeing in schools, but schools need to consider carefully their specific aims in measuring wellbeing (e.g. to evaluate the impact of a specific intervention, or to track progress over time in general). The same is true in [empirical](#) studies relevant to wellbeing in schools, and as a result different studies have used different measures of wellbeing that do not mean exactly the same thing. This is important to take into consideration in interpreting the evidence base as a whole.

In the OIC, in part inspired by Seligman’s PERMA model, wellbeing is defined in terms of four key domains:

- *Taking care of the body* – learning how to keep active and eating healthily can directly impact on positive mental health.
- *Taking care of the mind* – promoting mindfulness to train learners to be more optimistic and manage stress.
- *Taking care of relationships* – how to build and maintain friendships and relationships with family, how to communicate with others more effectively and how to connect through acts of kindness.
- *Finding meaning* – encouraging students to have a focus and find purpose in the world around them, helping them to aspire to be better citizens.

In the context of this report, wellbeing is broadly defined to allow the scope of the literature review to include studies that used a range of different but (at least loosely) related definitions and approaches to measurement.

The approach to promoting wellbeing in the OIC is intended to be a whole-school approach, with teachers who are not necessarily those using the curriculum themselves still adopting the ethos and approach of the OIC with regard to wellbeing in their teaching. The emphasis in this review, therefore, is on evidence of the effects of whole-school approaches to promoting wellbeing, in order to provide a relevant and applicable evidence base for the OIC and its potential to raise academic attainment. Relationships between wellbeing and attainment, as well as additional non-academic student outcomes, are also considered, however, as these also have the potential to provide some useful information towards implementation as well as preliminary indications of possible effects of wellbeing on various student outcomes where evidence from relevant interventions is limited.

Focal questions and review strategy

This report is driven by the following key questions:

To what extent does the promotion of wellbeing in schools lead to improved educational outcomes?

- *What effect(s), if any, do whole-school approaches to promoting wellbeing have on students' academic attainment?*
- *What effect(s), if any, do whole-school approaches to promoting wellbeing have on social and emotional student outcomes?*
- *What specific strategies are linked with positive outcomes (academic or otherwise)?*

In reviewing the evidence base to address these questions, the below sections also account for variation between geographical settings, age groups and subject areas where these are evident in the relevant research literature. The emphasis of the review is on [empirical](#) research published over the last 10 years (i.e. since 2010), though some earlier sources are cited to provide relevant background information. The search strategy included alternative spellings of wellbeing (e.g. “well being”, “well-being”) as well as terms closely related to wellbeing (e.g. “positive psychology” and “mental health”).

Sources of evidence in this report include studies reported in peer-reviewed journals, evidence syntheses (not all peer-reviewed), reports commissioned and published by high-profile/credible organisations (e.g. the Department for Education in England), and doctoral research. These are [colour-coded in the references](#) with brief guidance regarding their perceived rigour/credibility.

Relationships between wellbeing and student outcomes

Despite the above-noted challenges in defining what constitutes wellbeing, there is evidence of [associations](#) between wellbeing (albeit somewhat varyingly defined) and key academic and non-academic outcomes. This evidence base is still somewhat mixed in terms of specific relationships between dimensions of wellbeing and various student outcomes as well as in terms of the strength of inferences, but there seems to be general agreement in the [empirical](#) literature that wellbeing and attainment, as well as some social-emotional outcomes, are linked.

Links between wellbeing and academic attainment

There is a fair amount of evidence to suggest that academic attainment may be [associated](#) with or have an effect on students' wellbeing (Department for Education, 2011; Gutman et al., 2009), but only fairly recently has research been done to investigate how wellbeing may affect academic attainment (a considerable number of such studies have been conducted in higher education, which is beyond the scope of this review). Evidence of a relationship between wellbeing and academic attainment can be gleaned from [observational](#) as well as [experimental](#) studies (i.e. research involving the analysis of secondary data as well as [Randomised Controlled Trials](#)). However, the strength of inferences about the *impact of effect* of wellbeing on academic attainment depends at least in part upon timing – that is, if wellbeing and academic attainment are measured concurrently, there is no way to securely infer a causal relationship between the two, so [longitudinal](#) data are important to provide meaningful evidence of a directional relationship (e.g. if higher earlier wellbeing is associated with later higher attainment, this gives an initial indication of a possible causal link, although it is still not necessarily enough evidence to conclusively infer causation).

A [meta-analysis](#) of 47 studies by Bückner and colleagues (2018) provides compelling evidence of a relationship between wellbeing and academic achievement, but only a fairly weak relationship.² A study in Shanghai found positive (mostly moderate³) [correlations](#) between academic attainment of middle-school students (specifically in mathematics) and various measures of student wellbeing (Yao et al., 2018). Another study of elementary school students in China found a [significant](#) relationship between wellbeing and academic attainment, but only for students whose parents' communication with the school was frequent (Lv et al., 2016). Evidence from Chile also showed a positive relationship between socio-emotional wellbeing and student achievement (Berger et al., 2011). A study conducted on 855 students in France found that only some dimensions of wellbeing were [associated](#) with academic attainment, and others were [significantly associated](#) but counter-intuitively so (e.g. a negative relationship between academic success and engagement; Fanchini et al., 2019). The [cross-sectional](#) nature of these studies, however, leaves unclear whether one of these variables may act as a driver for the other. In Germany, Crede et al. (2015) found an [association](#) between high school students' grade point averages and their life satisfaction, but only for students whose mothers had achieved at least a high school education.

² Note that a weak relationship can still be [statistically significant](#) and have practical meaning – weak relationships at one point in time could be stronger measured over different periods of time, for example, although to be certain we would need research to specifically investigate this.

³ A moderate [correlation](#) means that the relationship is not weak but not strong – it is somewhere in-between.

Evidence from the UK also supports the existence of an [association](#) between students' wellbeing and their academic attainment (e.g. see reviews by Brooks, 2014; Weare, 2015; and White, 2017). One of the key studies heavily referenced in the UK context to support claims about the link between wellbeing and academic attainment is a secondary analysis of [longitudinal](#) data from Avon in the west of England by Gutman & Vorhaus (2012), which found that emotional, behavioural, social and school aspects of wellbeing were all [associated](#) with concurrent measures of academic attainment (i.e. Key Stage assessment results) at ages 11 and 14, and that wellbeing at ages 10 and 13 (but not age 7) were also [associated](#) with measures of attainment taken one year later. Emotional wellbeing at age 7 positively predicted academic progress in primary school, while at ages 10 and 13 not engaging in troublesome behaviours positively predicted academic progress in secondary school, and attention skills positively predicted academic progress in both primary and secondary school.

Interestingly, another – earlier – study in Northern Ireland by (Miller et al., 2008) found [correlations](#) between attainment in English and maths for Year 4 and Year 7 students, but only on some dimensions of wellbeing, and not the same dimensions across subject areas and age groups (e.g. weak to moderate negative relationships between English attainment and future aspirations and peer relationships in Year 4, which seems counter to what we might intuit; weak to moderate positive relationships between enjoyment of school and lower levels of bullying and both English and maths attainment in Year 7 as well as between physical wellbeing and maths, school environment and English). Taken together, this suggests that the relationships between different dimensions of wellbeing and academic attainment and progress may vary by age group, although it is important to generalise with some caution results from a study based on data from one county in England. Broadly, however, fairly similar relationships have been found elsewhere, such as in a Portuguese study of middle-school students that found hope, life satisfaction and self-worth (all theorised to be relevant to wellbeing) predicted students' academic attainment over a two-year period (Marques et al., 2011).

Evidence from a [longitudinal](#) study in Australia indicates that students with persistent emotional or behavioural problems “fall a year behind their peers in numeracy in the four years between Years 3 and 7 with similar, although smaller [sic] trends in reading” (Centre for Adolescent Health, 2017). The same study found that low student-reported levels of wellbeing in primary school were linked to students' average loss of “eight months of numeracy” (Ibid, p4). While it is possible that earlier low levels of wellbeing and later low levels of attainment may relate to a common cause not measured in the study, these results do provide more robust evidence that wellbeing predicts later academic attainment than do [cross-sectional](#) studies reporting [associations](#) between concurrent wellbeing and academic attainment.

Although the majority of the available English-language research literature is from high-income economies, there is at least some evidence that promoting wellbeing can be [associated](#) with increased student attainment. A series of [cluster-randomised trials](#) (i.e. assigning schools to either an intervention group that received a wellbeing intervention, or a control group) in Bhutan, Mexico and Peru found that students in the intervention-group schools reported higher wellbeing and performed [significantly](#) better on national examinations in each country after a 15-month intervention (Adler, 2016). Due to the [experimental](#) nature of the study design, this provides quite robust evidence of an effect on each outcome (wellbeing and attainment).

Taken together, this evidence suggests strongly that there is a relationship between wellbeing and academic attainment, but that this relationship can be complex and may vary across settings and student background characteristics to some extent. Although there is evidence that wellbeing may vary internationally according to demographic characteristics such as race and class (Fusarelli, 2015; Högberg, 2019), it is promising to note that patterns of differences according to individual student background characteristics are not consistent across contexts or age groups (i.e. certain groups may not be at an automatic, straightforward disadvantage with regard to the potential of wellbeing to improve academic outcomes).

Beyond direct relationships between wellbeing and academic attainment, it is also relevant to consider possible trade-offs and tensions that may arise from implementing strategies to promote both wellbeing and academic attainment (Heller-Sahlgren, 2018b). For example, increased parental achievement pressure, homework and hours of instruction may increase achievement while decreasing pupil happiness, satisfaction with school and the quality of teacher-pupil relationships (Heller-Sahlgren, 2018a). This suggests that it may be important for schools and teachers to carefully consider what tensions may exist between different goals and initiatives in their specific contexts in order to navigate and mitigate such potential trade-offs between wellbeing and academic attainment.

Links between wellbeing and non-academic (e.g. social-emotional) student outcomes

In the UK, one of the key studies cited above with regard to relationships between wellbeing and academic attainment also found positive [associations](#) between wellbeing and concurrent, as well as later, engagement in school (Gutman & Vorhaus, 2012). These authors found that relationships between wellbeing and academic progress, and between wellbeing and engagement were fairly consistent across different genders and parents' levels of education, but that there were some complex differences between children with and without Special Educational Needs (SEN), in terms of relationships between specific dimensions of wellbeing and academic attainment and progress as well as engagement.

In Australia, the [longitudinal](#) study by the Centre for Adolescent Health (2017) also found that low levels of wellbeing in primary school predicted low levels of engagement in later years, while students with high levels of wellbeing in primary school were two times less likely to disengage from school by Year 7. A study of secondary school pupils in Portugal also found an [association](#) between engagement and wellbeing (Cadime et al., 2016), although without the [longitudinal](#) aspect of the other studies reported above. Further [longitudinal](#) evidence from Portugal based on a sample of middle-school students found that aspects related to wellbeing (particularly life satisfaction) predicted later mental health over a period of two years (Marques et al., 2011).

[Longitudinal](#) evidence from a study in Scotland (with a sample of over 2000 students) indicated that aspects of wellbeing were [significant](#) predictors of students' experiences of the transition between primary and secondary school; for example, higher pre-transition self-esteem was linked to a lower likelihood of negative transition experiences, while higher pre-transition disengagement, anxiety and aggression predicted higher likelihoods of negative transition experiences (West et al., 2010). In Germany, Steinmayr et al. (2016) found an [association](#) over the course of one year between test anxiety (and in particular the worry component of test anxiety) and both wellbeing and students'

grade point averages in 11th grade students; this relationship seems fairly intuitive, although it is worth noting that the sample for this study was fairly small relative to some of the others reported above (290 students). A French study of primary school students found [correlations](#) between wellbeing and two dimensions of creativity (“interest in new things” and intrinsic motivation; Fanchini et al., 2019).

In a longer-term context, a Swiss follow-up study of the PISA 2000 cohort (6343 pupils) found that higher wellbeing [significantly](#) increased the likelihood of successful intergenerational transfer of educational attainment; in other words, wellbeing contributed to the probability that adolescents would be more successful than their parents (Samuel et al., 2013), with “success” defined in terms of the highest level of education attained.

Effects of whole-school wellbeing strategies/interventions

The above sections have so far discussed relationships between wellbeing and various student outcomes. This section focuses with greater precision on whole-school interventions or strategies for promoting wellbeing, and their effects on various student outcomes.

Effects on academic attainment

Given the above-noted complexity and diverse definitions of wellbeing as a construct, the evidence reviewed here concerns the effects of whole-school approaches that may or may not explicitly focus on promoting student wellbeing but also on fostering improvement in related areas such as social-emotional development/skills, mental and physical health.

A large [meta-analysis](#) of 213 school-based, universal social and emotional learning programmes (Durlak et al., 2011) found that students’ participation in social and emotional learning programmes had an impact on their academic achievement equivalent to an 11-percentile-point gain⁴, on average, in a large sample of over 270,000 students in kindergarten through high school, which offers more robust evidence of a causal link between wellbeing programmes and achievement ([moderated](#) by implementation). Here, implementation was coded simply in terms of whether, in each included study, the researchers monitored implementation at all (yes or no), and whether any implementation problems were reported.

A review of school-based positive psychology interventions by Waters (2011) reviewed evidence from 12 interventions that each aimed to build positive factors (hope, gratitude, serenity, resilience, and/or character strengths) and that included examples of interventions from junior, middle and senior school populations that showed [significant](#) effects on wellbeing and academic attainment. This review pointed to the importance of whole-school approaches and the effectiveness of

⁴ This [meta-analysis](#) included a large number of studies of interventions with different age groups. Across all of these studies of different age groups in different contexts, students who participated in universal social and emotional learning programmes outperformed their peers who did not by 11 percentile points on whatever measure of attainment was used for their age group, *on average*. This does not easily translate to another measure of progress (e.g. number of months ahead) because of the different age groups and attainment measures.

strategies implemented by regular classroom teachers, and proposed the PERMA model (Seligman, 2011) as an appropriate and useful framework for whole-school approaches.

A series of studies by Adler (2016)⁵ in Bhutan, Mexico and Peru demonstrated clear evidence of a medium-term (15 months) effect of teaching wellbeing in schools on academic attainment. As noted above, this is useful evidence of intervention effectiveness outside the context of high-income countries. The intervention itself consisted of explicit teaching of relevant skills but also the embedding of these into academic subjects. Sample size in each country was considerable (18 secondary schools and over 8,000 students in Bhutan, 70 secondary schools and nearly 60,000 students in Mexico, and 694 secondary schools and nearly 700,000 students in Peru). This, together with the study design (random assignment of schools to treatment and control groups) provides quite robust evidence.

A study of very young children in Australia (Ashdown & Bernard, 2012) found that explicit teaching of lessons focusing on confidence, persistence, organisation and emotional resilience had a positive effect on the reading achievement of lower-achieving Grade 1 students. While this evidence is based on a small sample (99 students) and the approach within the intervention wasn't implemented as a whole-school approach per se, this study is still relevant in that the intervention strategies are not so distant from those in the OIC. A two-year study of a universal, integrated school-based social-emotional learning and literacy intervention (the "4Rs Program") with slightly older children (age 8-9) in the USA found effects on both reading and maths attainment for students who had been identified as being at the highest risk by their teachers before the intervention (Jones et al., 2011).

An evaluation of the "KidsMatter Primary" mental health initiative in Australia found practical impact on academic attainment in 94 participating schools over two years, and further found that the quality of implementation in a school affected academic performance. However, the quality of evidence from this study is compromised by the fact that measures were largely aggregate and/or non-standardised (teacher report of whether each student's schoolwork had improved; Dix et al., 2012).

A recent [meta-analysis](#) of studies of whole-school approaches to enhance the social and emotional development of young people by Goldberg and colleagues (2019) found a lack of impact on academic attainment, in contrast to some of the other evidence presented above. This may well be because not all included studies measured attainment, and there is a need for longer-term research into effects on attainment (it may be that where an effect is not detected, the duration of the study is too short to detect a relevant change). A [systematic review](#) of 67 [cluster-randomised trials](#) involving physical health interventions by Langford et al. (2014) also pointed to the lack of evidence of any [significant](#) effect on academic attainment.

One of the difficulties in assessing this evidence base is that the inclusion of academic outcomes constitutes a gap in the relevant literature; evaluations of health and wellbeing interventions often focus on outcomes directly relevant to the intervention itself, leaving limited evidence regarding impact on academic outcomes (Murray et al., 2007). In other words, many studies measure the impact of health and wellbeing interventions on health and wellbeing; without having measured

⁵ Note that this study was done as the author's PhD research; although PhD studies may be rigorous and have been subjected to review by supervisors and internal/external examiners, they have not been subjected to academic peer review.

academic outcomes, they do not give us any information about their effects on those academic outcomes.

Effects on non-academic (e.g. social-emotional) student outcomes

It can be somewhat difficult to untangle wellbeing from a variety of social-emotional student outcomes, mainly because many of these (e.g. engagement, positive aspirations, or self-efficacy) are included by some authors *within* their definitions of wellbeing. Nonetheless, taking definitions of wellbeing at face value within a given intervention or initiative, there is a reasonable amount of evidence to suggest that however wellbeing may be defined, whole-school approaches to foster wellbeing are often [associated](#) with additional positive student social and emotional outcomes.

Although much of the relevant English-language evidence reviewed in this report is drawn from high-income settings, there is also at least some evidence from lower-income countries as well. For example, a [systematic review](#) of 22 studies (14 school-based) in low- and middle-income countries by Barry et al. (2013) found generally strong evidence of the effectiveness of mental health promotion interventions for students 6 to 18 years of age, with positive effects on student outcomes such as self-esteem, motivation and self-efficacy.

A study of the effects of an elementary school social-emotional and character education programme (“Positive Action”) in the USA (Snyder et al., 2012) showed positive effects of the school-wide intervention on teacher, student and parent perceptions of school safety and quality (framed in terms of involvement, satisfaction, student support, standards-based learning, focused and sustained action, professionalism, system capacity and coordinated teamwork). The [cluster-randomised](#) study design and 3-year duration of the study add to the credibility of this evidence, though additional outcome measures might have been useful.

A national evaluation of the Social and Emotional Aspects of Learning (SEAL) programme in secondary schools in England (Humphrey et al., 2010) compared 22 schools implementing the programme to 19 control schools as part of a [quasi-experimental](#) study. This research found that in a cohort of students starting in Year 7 (ages 11–12), there was a lack of impact on pupil and school outcomes (social and emotional skills, general mental health, pro-social behaviour and behaviour problems for students, and school climate scores at the school level). However, the authors point to several reasons for this lack of impact including a lack of resources in participating schools, lack of structure and consistency in implementation, and monitoring of fidelity to the intervention approach.

Another [quasi-experimental](#) evaluation of “Shaping the Social”, a Danish intervention in four intervention and six matched control schools (Andersen et al., 2018), demonstrated positive effects on student dropout in upper secondary school (i.e. reduced dropout rates). The intervention was designed to foster wellbeing in vocational/agricultural schools for students aged 16 and up, and to prevent dropout; specific components of the intervention were developed in collaboration with participating schools and tailored to individual school contexts. Student wellbeing was measured on four dimensions: school connectedness, teacher relatedness, student support and valuing the profession (about which students were learning). Higher levels of each wellbeing dimension were [associated](#) with lower dropout rates, but school connectedness in particular [mediated](#) the effect of the intervention on school dropout (i.e. the effect of the intervention, in a sense, operated *through* school connectedness). Another study of a whole-school positive psychology based intervention in a secondary school in Israel (Shoshani & Steinmetz, 2014), which involved 537 students in the seventh

to ninth grades, demonstrated decreased distress, anxiety and depression as well as increased self-esteem, self-efficacy and optimism compared to a control group of 501 students in a control school that was otherwise similar.

The same study by Ashdown and Bernard (2012) cited above with regard to academic attainment also showed positive effects of the explicit teaching of social and emotional learning skills on levels of social-emotional competence and wellbeing, as well as on (reduced) levels of problem behaviour in Grade 1 pupils in Australia. As noted above, despite the small sample, this study is relevant to the purpose of this review given the specific approach to teaching wellbeing, and additionally, evidence of the effectiveness of these strategies for promoting social and emotional wellbeing has also been found for older year groups (e.g. in a [quasi-experimental](#) study of Grade 5 students by Bernard & Walton, 2011). The study by Jones et al. (2011) also found effects on 8–9 year-olds' aggressive behaviours and depression (i.e. reductions of these) and on socially competent behaviour (i.e. improvements).

Elfrink and colleagues' (2017) process evaluation of the “Positive Education Programme” in the Netherlands suggested that a whole-school approach to promoting wellbeing has the potential to positively impact children's wellbeing, reduce problem behaviour and improve school climate. However, the strength of evidence from this type of study design is weaker, as there was no control or comparison group and quite a small sample of two schools.

The [meta-analysis](#) of studies of whole-school approaches to enhancing the social and emotional development of young people by Goldberg and colleagues (2019), despite finding a lack of effect on academic attainment, found small but [significant](#) effects on social emotional adjustment and behavioural adjustment.

Effective and/or promising strategies

As a precursor to effective strategies for promoting improved academic attainment by fostering student wellbeing, it is essential to consider what makes an effective whole-school strategy to foster student wellbeing in the first place. Research published by NatCen in the UK (based on an analysis of secondary data) indicates that young children's wellbeing is strongly negatively [associated](#) with neighbourhood deprivation (Chanfreau et al., 2008). While neighbourhood deprivation is obviously not a factor over which schools and teachers have direct control, awareness of this relationship may be helpful to inform whole-school approaches that endeavour to mitigate or counterbalance negative neighbourhood effects. The same report also indicates a general pattern of decline in wellbeing in young people over the course of secondary school (between ages 11 and 15), and suggests some particular issues [associated](#) with this decline including “substance abuse and extensive computer gaming” (Ibid, p.13), which might be useful to inform whole-school approaches promoting wellbeing in secondary schools.

Evidence from high-income countries suggests that integrative strategies combining approaches at the school and classroom levels have the potential to be effective towards positive mental health outcomes (Fazel et al., 2014), but more research is needed on how such cross-level interventions (i.e. interventions that are implemented at the school and classroom levels) and initiatives may impact additional student outcomes. According to the results of a [meta-analysis](#) across 30 different interventions (Goldberg et al., 2019), the inclusion of a community component also impacts the effectiveness of whole-school interventions focussed on social and emotional development.

Research from Australia further suggests that an emphasis on relationships may be key to successful efforts to support and promote student wellbeing, including teacher-student relationships and relationships inside and outside of school (Graham et al., 2017).

Drawing upon [systematic review](#) findings, Weare (2015) offers specific and evidence-based advice for effective implementation of whole-school approaches. These include: prioritization of professional learning and staff development, ensuring that supportive school policies are in place, engaging pupils and parents/carers in genuine participation, implementing targeted programmes and explicit teaching of social and emotional skills, implementing targeted responses (e.g. for at-risk groups), and connecting appropriately with behaviour management approaches (e.g. taking time to model and teach positive alternatives to “difficult” or problematic behaviour). Clarke (2019) offers further recommendations for implementation of whole-school approaches based on [empirical](#) evidence, including contact with other schools engaged in similar work, collaborative practice within and between schools as well as with parents and other agencies, developing and enhancing leadership relevant to mental health and wellbeing at various levels of the school, development of realistic and sustainable materials and processes, attention to the need for professional development for teachers, and acknowledgment of local school context including initiatives and linking with priorities that are already underway. Humphrey et al. (2010) further underscore the importance of structure and consistency of implementation, monitoring of fidelity to the intended approach, provision of appropriate resources and time to allow for successful implementation, and engagement with families to bolster school efforts.

Stirling and Emery (2016) offer practical advice towards successful strategies for embedding evidence-based whole-school approaches to promoting wellbeing, including assessing current school policies and strategies in order to identify assets and strengths as well as problems that need to be overcome to inform implementation. Recent research by Barry et al. (2017) also underscores the utility of consulting teachers and students about their needs relevant to supporting the social and emotional wellbeing of young people within the development and design phase of school-based interventions and approaches.

Conti and Heckman (2012), drawing on an economic perspective, underscore the importance of long-run evaluations of effectiveness. While this is a recommendation for further research, it is also a useful point to note for schools implementing approaches to promoting student wellbeing; thoughtful and intentional self-evaluation based on robust data over longer periods of time (e.g. from beginning to end of primary or secondary school, or across Key Stages or phase transitions) may help to inform and improve effectiveness in context as compared to evaluations of effectiveness that only last one or two years.

As noted above, it may also be useful for schools and teachers to take stock of what interventions and initiatives are being prioritised concurrently alongside whole-school strategies to promote student wellbeing, and to consider what tensions might arise as a result (Heller-Sahlgren, 2018b).

Conclusions

Drawing on the above review of the evidence, this section revisits and addresses the focal questions framing this report.

To what extent does the promotion of wellbeing in schools lead to improved educational outcomes?

There is clear evidence of a positive [association](#) between wellbeing and academic attainment, although the evidence base is still too limited to be conclusive regarding the range of [effect sizes](#) and exact mechanisms driving this [association](#). There is some evidence that earlier wellbeing is positively linked to later academic attainment as well, which is encouraging preliminary evidence of an “effect” of wellbeing on attainment. There is some indication that these relationships can be complex and can vary by context and student characteristics (e.g. SEN) to some extent, however, which suggests the importance of schools taking stock of their own contexts and priorities so as to be able to tailor the implementation of an approach to promoting wellbeing to the needs of their students and settings.

There is also evidence of [associations](#) between wellbeing and other outcomes (e.g. positive relationships with engagement in school, positive transitions between school phases, creativity and likelihood of success compared to parents; negative relationships with test anxiety and mental health) with some of the same caveats as above for academic attainment.

What effect(s), if any, do whole-school approaches to promoting wellbeing have on students’ academic attainment?

There is a strong international evidence base to support the assertion that whole-school approaches to promoting wellbeing can have an effect on academic attainment. There is some mixed evidence on this matter, but some authors have suggested that where an effect has not been found this may be due to problems with implementation. Where effects are found they are often small to moderate, but further research is needed to assess whether there are longer-term effects of whole-school wellbeing approaches on academic attainment (which may be cumulative over time).

What effect(s), if any, do whole-school approaches to promoting wellbeing have on non-academic (e.g. social and emotional) student outcomes?

There is also strong evidence to suggest that whole-school approaches to promoting wellbeing can have positive effects on a wide range of other student outcomes, including mental health, self-esteem, self-efficacy, motivation, behaviour, and decreased probability of dropout.

What specific strategies are linked with positive outcomes (academic or otherwise)?

A wide variety of considerations may affect the ability of a whole-school intervention or strategy for promoting wellbeing to have positive effects on student academic and other outcomes. Some of the key advice from multiple authors based on [empirical](#) evidence suggests that schools should:

- Tailor to and account for specific school context

- Engage in appropriate self-assessment prior to implementation in order to be aware of and act on assets and strengths of the school as well as specific problems that need to be addressed
- Ensure that wider school policy supports implementation
- Take an integrated, cross-level (school and classroom) approach
- Actively engage the wider community, including parents/families
- Focus on professional development for teachers to support them with implementation
- Put monitoring systems in place to keep track of and adjust implementation as needed, as well as to assess impact
- Ensure that sufficient time and resources are in place to support implementation

Although, on the whole there seems to be strong evidence of a positive link between wellbeing and academic attainment as well as additional non-academic outcomes, there is also some evidence that there *can* be trade-offs between wellbeing and academic attainment, for example when strategies for raising attainment involve increased academic pressure on students (e.g. via increased homework or increased instructional time). Schools and teachers considering implementing a whole-school approach to promoting wellbeing need to carefully consider the potential tensions that may arise if this is implemented alongside additional, possibly conflicting initiatives, and to engage in intentional planning and prioritizing of school-wide aims in order to mitigate or avoid such tensions.

Recommendations for future research

In order to have robust evidence regarding the impact of a whole-school approach to promoting wellbeing (such as the OIC), below are some key recommendations for future research and/or impact studies.

1. [Longitudinal](#) data collection: While there is no specific duration or spacing of time points at which data must be collected for a robust [longitudinal](#) study (this depends very much on resources and contextual considerations), it would seem sensible to focus on longer durations to understand [effect sizes](#) over a practically-meaningful period of time in students' educational careers. So, for example, studies that follow Y1 children up through to the end of primary school (or up to Y7 to account for the transition to secondary school) and/or studies that follow Y7 young people up to the end of secondary school (or up through post-secondary transitions) would be particularly powerful.
2. Consistent and sustainable monitoring: Monitoring systems must fit within the context of the school, i.e. they must not be too disruptive or time-consuming for students or for teachers and other school staff to allow them to get on with the business of teaching and learning. Key considerations include what to measure (at a minimum: wellbeing with commensurate definitions to fit the objectives of the curriculum, and attainment on measures that are as consistent across schools as possible to allow for comparisons).
3. Validated measures, or appropriate piloting of measures: Valid and reliable measures of attainment should be relatively easy to obtain, but wellbeing measures will need to be carefully vetted for match to intended definition of wellbeing in the specific programme. If designing a new measure, it will be important to pilot that measure with a smaller sample (ideally separate from the main impact study) in order to validate it.
4. Qualitative information to understand processes: Interviews with teachers and/or other school staff and pupils may help to illuminate the *why* and *how* aspects of successes or

challenges, beyond measurement of positive and negative effects. Direct observations of processes in schools can also be useful in this way to understand mechanisms and processes in addition to effects.

5. Comparison schools: If at all possible, although this may be resource-intensive, an impact study should ideally include a comparison group of schools and students (as it is not generally realistic to conduct an [experimental](#) study for this purpose on the scale that might be required). There are different ways of accomplishing this, e.g. finding “matching” schools (e.g. based on demographics and/or Ofsted inspection ratings) and getting permission to measure wellbeing in these comparison schools in some manageable and cost-effective way (e.g. online questionnaires).

Glossary of research-related terms

association: A directional (e.g. positive or negative) relationship between measured concepts, e.g. wellbeing and attainment. A positive relationship means that when one measure increases, so does the other; a negative relationship means that when one measure decreases, the other increases. However, association *does not imply causation*. For example, amount of ice cream eaten may be positively associated with the likelihood of getting sunburnt, but ice cream does not cause sunburn. Both may be caused by something else, e.g. hotter/sunnier weather may lead to an increase in both ice cream eating and likelihood of sunburn.

correlation: A directional relationship between measured concepts, as was the case above for association. The numeric value of a correlation gives the strength of the relationship (how far from zero the numeric value of the correlation is – closer to zero is weaker) as well as the direction (positive or negative).

cross-sectional: Research that gives a “snapshot” in time. Data are collected at essentially one point in time. Findings can tell us something about relationships between different measured concepts, and can compare different groups that already exist at that point in time, but cannot tell us about *causal* relationships because we do not know the mechanisms of any observed relationships without knowing something about them *over time*.

effect size: A numeric measure that helps us to gauge how substantial a statistical finding is, e.g. how strong a relationship is between variables (e.g. an intervention and an outcome), or how big a difference is between groups. There are standard rules of thumb for classifying different types of effect sizes (e.g. differences or correlations) as small, moderate or large, based in the academic literature (e.g. Cohen, 1988). A detailed breakdown of effect size guidelines goes beyond the scope of this report, as practical meaning varies depending on the specific measures (e.g. of attainment). However, in general, the larger the effect size, the more important the relationship or difference is in practical terms.

empirical study/research: Research based on actual experience, observation and/or measurement rather than pure theory.

experimental: Research that (in its simplest form) involves an intervention group and a control group, and participants (or “clusters”, e.g. schools or classes) are randomly allocated to these intervention and control groups. Provides what is considered the “gold standard” of evidence of a causal relationship between an intervention and a measured outcome. Also referred to as a **Randomised Controlled Trial (RCT)** in simplest form or **cluster-randomised (controlled) trial** when random allocation to intervention/control groups is of schools rather than individual pupils.

longitudinal: Research that involves repeated observations over time. This can tell us something about causal relationships depending on what is measured and how it is measured, but is generally not as secure evidence of causal relationships as an experimental or quasi-experimental finding. There is no specific guideline for the duration or number of time points required for a longitudinal study; these choices depend on the specific research questions being investigated and the context of the phenomenon of interest.

mediated/mediation: When a relationship between two variables is mediated by a third variable, that third variable represents the *process* or *mechanism* through which the two main variables are related.

meta-analysis: Research that uses a statistical technique to combine the results from multiple studies that address the same research question. The purpose of a meta-analysis is to understand and quantify a common effect if one exists across the included studies. A meta-analysis typically begins with a **systematic review** to identify relevant studies. Like a systematic review, a meta-analysis provides quite secure evidence as it draws on multiple studies, although it is important to consider inclusion and exclusion criteria and sample size (e.g. how many studies were included? Were they all from the same country, in which case we may not be able to generalise to other countries?).

moderated/moderation: A “moderator” variable affects the direction and/or strength of a relationship between two other variables. Here, for example, implementation can affect the strength of the relationship between a whole-school wellbeing intervention and academic attainment.

observational: Research that does not involve manipulations (e.g. interventions) on the part of the researcher, but instead studies the “state of the world” or a population or sample as it is. This can be cross-sectional or longitudinal; if longitudinal, observational studies can provide evidence of causal relationships, depending on what is measured, how it is measured and what other features the research may have (e.g. to compare pre-existing groups in a sample or population).

quasi-experimental: Research that involves an intervention group and a control or comparison group, much like an experiment, but does not involve random allocation to intervention and control groups. Provides secure evidence of a causal relationship between an intervention and a measured outcome, but slightly less so than an experiment/Randomised Controlled Trial because of the lack of random allocation.

significant/significance: A statistically significant result is meaningful in that it is unlikely to be due to chance (e.g. it is not a quirk of the particular sample selected for a given study). A significant result may be small or large, weak or strong.

systematic review: An approach to reviewing the literature that involves a tightly-defined research question or questions, a clearly-specified and systematic protocol for searching the literature, and explicit inclusion and exclusion criteria (e.g. types of studies – qualitative/quantitative/mixed). Systematic reviews typically involve quality assessments of included studies, and attempt to synthesise the evidence from those studies to draw broader conclusions across them. A systematic review provides quite secure evidence as it draws on multiple studies, although it is important to consider inclusion and exclusion criteria and sample size (e.g. how many studies were included? Were they all from the same country, in which case we may not be able to generalise to other countries?).

References

- Adler, A. (x016). *Teaching well-being increases academic performance: Evidence from Bhutan, Mexico, and Peru* [University of Pennsylvania].
<https://repository.upenn.edu/edissertations/1572>
- Andersen, S., Rod, M. H., Holmberg, T., Ingholt, L., Ersbøll, A. K., & Tolstrup, J. S. (2018). Effectiveness of the settings-based intervention Shaping the Social on preventing dropout from vocational education: a Danish non-randomized controlled trial. *BMC Psychology*, 6(1), 45.
<https://doi.org/10.1186/s40359-018-0258-8>
- Ashdown, D. M., & Bernard, M. E. (2012). Can explicit instruction in social and emotional learning skills benefit the social-emotional development, well-being, and academic achievement of young children? *Early Childhood Education*, 39(6), 397–405. <https://doi.org/10.1007/s10643-011-0481-x>
- Barry, M. M., Clarke, A. M., & Dowling, K. (2017). Promoting social and emotional well-being in schools. *Health Education*, 117(5), 434–451. <https://doi.org/10.1108/HE-11-2016-0057>
- Barry, M. M., Clarke, A. M., Jenkins, R., & Patel, V. (2013). A systematic review of the effectiveness of mental health promotion interventions for young people in low and middle income countries. *BMC Public Health*, 13(1), 835. <https://doi.org/10.1186/1471-2458-13-835>
- Berger, C., Alcalay, L., Torretti, A., & Milicic, N. (2011). Socio-emotional well-being and academic achievement: evidence from a multilevel approach. *Psicologia: Reflexão e Crítica*, 24(2), 344–351. <https://doi.org/10.1590/S0102-79722011000200016>
- Bernard, M. E., & Walton, K. (2011). The effect of You Can Do It! Education in six schools on student perceptions of wellbeing, teaching, learning and relationships. *Journal of Student Wellbeing*, 5(1), 22–37. <https://doi.org/10.21913/JSW.v5i1.679>
- Bethune, A. (2020). *Measuring wellbeing in schools and colleges*. What Works Wellbeing.
<https://whatworkswellbeing.org/blog/measuring-wellbeing-in-schools-and-colleges/>
- Brooks, F. (2014). *The link between pupil health and wellbeing and attainment: A briefing for headteachers, governors and staff in education settings*. London: Public Health England.
- Bücker, S., Nuraydin, S., Simonsmeier, B. A., Schneider, M., & Luhmann, M. (2018). Subjective well-being and academic achievement: A meta-analysis. *Journal of Research in Personality*, 74, 83–94. <https://doi.org/https://doi.org/10.1016/j.jrp.2018.02.007>
- Cadime, I., Pinto, A. M., Lima, S., Rego, S., Pereira, J., & Ribeiro, I. (2016). Well-being and academic achievement in secondary school pupils: The unique effects of burnout and engagement. *Journal of Adolescence*, 53, 169–179.
<https://doi.org/https://doi.org/10.1016/j.adolescence.2016.10.003>
- Centre for Adolescent Health. (2017). *Student wellbeing, engagement and learning across the middle years*. Victoria: Centre for Adolescent Health, Murdoch Children’s Research Institute.

- Chanfreau, J., Lloyd, C., Byron, C., Roberts, C., Craig, R., De Feo, D., & McManus, S. (2008). *Predicting wellbeing*. London: NatCen Social Research; Department of Health.
<http://www.natcen.ac.uk/media/205352/predictors-of-wellbeing.pdf>
- Clarke, A. M. (2019). Promoting Children's and Young People's Mental Health in Schools. In M. M. Barry, A. M. Clarke, I. Petersen, & R. Jenkins (Eds.), *Implementing Mental Health Promotion* (pp. 303–339). Springer International Publishing. https://doi.org/10.1007/978-3-030-23455-3_10
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences*. L. Erlbaum Associates.
- Conti, G., & Heckman, J. J. (2012). *The economics of child well-being*. Cambridge, MA: National Bureau of Economic Research. <http://www.nber.org/papers/w18466>
- Crede, J., Wirthwein, L., McElvany, N., & Steinmayr, R. (2015). Adolescents' academic achievement and life satisfaction: the role of parents' education. *Frontiers in Psychology, 6*, 52.
<https://doi.org/10.3389/fpsyg.2015.00052>
- Department for Education. (2011). *Youth cohort study and longitudinal study of young people in England: The activities and experiences of 19-year-olds: England 2010*. London: Department for Education.
- Dix, K. L., Slee, P. T., Lawson, M. J., & Keeves, J. P. (2012). Implementation quality of whole-school mental health promotion and students' academic performance. *Child and Adolescent Mental Health, 17*(1), 45–51. <https://doi.org/10.1111/j.1475-3588.2011.00608.x>
- Dodge, R., Daly, A. P., Huyton, J., & Sanders, L. D. (2012). The challenge of defining wellbeing. *International Journal of Wellbeing, 2*(3), 222–235. <https://doi.org/10.5502/ijw.v2i3.4>
- Durlak, J. A., Weissberg, R. P., Dymnicki, A. B., Taylor, R. D., & Schellinger, K. B. (2011). The Impact of Enhancing Students' Social and Emotional Learning: A Meta-Analysis of School-Based Universal Interventions. *Child Development, 82*(1), 405–432. <https://doi.org/10.1111/j.1467-8624.2010.01564.x>
- Elfrink, T. R., Goldberg, J. M., Schreurs, K. M. G., Bohlmeijer, E. T., & Clarke, A. M. (2017). Positive educative programme: A whole school approach to supporting children's well-being and creating a positive school climate: a pilot study. *Health Education, 117*(2), 215–230.
<https://doi.org/10.1108/HE-09-2016-0039>
- Fanchini, A., Jongbloed, J., & Dirani, A. (2019). Examining the well-being and creativity of schoolchildren in France. *Cambridge Journal of Education, 49*(4), 391–416.
<https://doi.org/10.1080/0305764X.2018.1536197>
- Fazel, M., Hoagwood, K., Stephan, S., & Ford, T. (2014). Mental health interventions in schools in high-income countries. *The Lancet Psychiatry, 1*(5), 377–387.
[https://doi.org/https://doi.org/10.1016/S2215-0366\(14\)70312-8](https://doi.org/https://doi.org/10.1016/S2215-0366(14)70312-8)
- Fusarelli, L. (2015). Child welfare, education, inequality, and social policy in comparative perspective. *Peabody Journal of Education, 90*(5), 677–690.
<https://doi.org/10.1080/0161956X.2015.1087779>

- Goldberg, J. M., Sklad, M., Elfrink, T. R., Schreurs, K. M. G., Bohlmeijer, E. T., & Clarke, A. M. (2019). Effectiveness of interventions adopting a whole school approach to enhancing social and emotional development: a meta-analysis. *European Journal of Psychology of Education, 34*(4), 755–782. <https://doi.org/10.1007/s10212-018-0406-9>
- Graham, A., Powell, M. A., Thomas, N., & Anderson, D. (2017). Reframing ‘well-being’ in schools: the potential of recognition. *Cambridge Journal of Education, 47*(4), 439–455. <https://doi.org/10.1080/0305764X.2016.1192104>
- Gutman, L. M., Brown, J., Akerman, R., & Obolenskaya, P. (2009). *Wellbeing from childhood to adolescence: Risk and protective factors*. London: Department for Children, Schools and Families.
- Gutman, L. M., & Vorhaus, J. (2012). *The impact of pupil behaviour and wellbeing on educational outcomes*. London: Institute of Education, University of London; Childhood Wellbeing Research Centre.
- Hascher, T. (2010). Wellbeing. In P. Peterson, E. Baker, & B. B. T. McGaw (Eds.), *International Encyclopedia of Education* (3rd ed., pp. 732–738). Oxford: Elsevier. <https://doi.org/https://doi.org/10.1016/B978-0-08-044894-7.00633-3>
- Heller-Sahlgren, G. (2018a). Smart but unhappy: Independent-school competition and the wellbeing-efficiency trade-off in education. *Economics of Education Review, 62*, 66–81. <https://doi.org/https://doi.org/10.1016/j.econedurev.2017.10.005>
- Heller-Sahlgren, G. (2018b). *The achievement-wellbeing trade-off in education*. London: Centre for Education Economics.
- Högberg, B. (2019). Educational policies and social inequality in well-being among young adults. *British Journal of Sociology of Education, 40*(5), 664–681. <https://doi.org/10.1080/01425692.2019.1576119>
- Humphrey, N., Lendrum, A., & Wigelsworth, M. (2010). *Social and emotional aspects of learning (SEAL) programme in secondary schools: National evaluation*. London: Department for Education.
- Jones, S. M., Brown, J. L., & Aber, J. L. (2011). Two-Year Impacts of a Universal School-Based Social-Emotional and Literacy Intervention: An Experiment in Translational Developmental Research. *Child Development, 82*(2), 533–554. <http://www.jstor.org/stable/29782851>
- Kern, M. L., Waters, L. E., Adler, A., & White, M. A. (2015). A multidimensional approach to measuring well-being in students: Application of the PERMA framework. *The Journal of Positive Psychology, 10*(3), 262–271. <https://doi.org/10.1080/17439760.2014.936962>
- Langford, R., Bonell, C. P., Jones, H. E., Poulou, T., Murphy, S. M., Waters, E., Komro, K. A., Gibbs, L. F., Magnus, D., & Campbell, R. (2014). The WHO Health Promoting School framework for improving the health and well-being of students and their academic achievement. *Cochrane Database of Systematic Reviews, 4*. <https://doi.org/10.1002/14651858.CD008958.pub2>
- Lv, B., Zhou, H., Guo, X., Liu, C., Liu, Z., & Luo, L. (2016). The Relationship between Academic Achievement and the Emotional Well-Being of Elementary School Children in China: The Moderating Role of Parent-School Communication. *Frontiers in Psychology, 7*, 948. <https://doi.org/10.3389/fpsyg.2016.00948>

- Marques, S. C., Pais-Ribeiro, J. L., & Lopez, S. J. (2011). The Role of Positive Psychology Constructs in Predicting Mental Health and Academic Achievement in Children and Adolescents: A Two-Year Longitudinal Study. *Journal of Happiness Studies*, 12(6), 1049–1062. <https://doi.org/10.1007/s10902-010-9244-4>
- Miller, S., Lundy, L., Connolly, P., Maguire, L., & McEvoy, L. (2008). *Well being and educational attainment of primary school pupils in Northern Ireland: Final report*. Belfast: Queens University Belfast.
- Murray, N. G., Low, B. J., Hollis, C., Cross, A. W., & Davis, S. M. (2007). Coordinated school health programs and academic achievement: a systematic review of the literature. *The Journal of School Health*, 77(9), 589–600. <https://doi.org/10.1111/j.1746-1561.2007.00238.x>
- Samuel, R., Bergman, M. M., & Hupka-Brunner, S. (2013). The Interplay between Educational Achievement, Occupational Success, and Well-Being. *Social Indicators Research*, 111(1), 75–96. <https://doi.org/10.1007/s11205-011-9984-5>
- Seligman, M. (2011). *Flourish: A visionary new understanding of happiness and well-being*. New York: Free Press.
- Seligman, M. (2018). PERMA and the building blocks of well-being. *The Journal of Positive Psychology*, 13(4), 333–335. <https://doi.org/10.1080/17439760.2018.1437466>
- Shoshani, A., & Steinmetz, S. (2014). Positive Psychology at School: A School-Based Intervention to Promote Adolescents' Mental Health and Well-Being. *Journal of Happiness Studies*, 15(6), 1289–1311. <https://doi.org/10.1007/s10902-013-9476-1>
- Snyder, F. J., Vuchinich, S., Acock, A., Washburn, I. J., & Flay, B. R. (2012). Improving Elementary School Quality Through the Use of a Social-Emotional and Character Development Program: A Matched-Pair, Cluster-Randomized, Controlled Trial in Hawai'i. *Journal of School Health*, 82(1), 11–20. <https://doi.org/10.1111/j.1746-1561.2011.00662.x>
- Steinmayr, R., Crede, J., McElvany, N., & Wirthwein, L. (2016). Subjective Well-Being, Test Anxiety, Academic Achievement: Testing for Reciprocal Effects. *Frontiers in Psychology*, 6, 1994. <https://doi.org/10.3389/fpsyg.2015.01994>
- Stirling, S., & Emery, H. (2016). *A whole school framework for emotional well-being and mental health*. London: National Children's Bureau. https://www.ncb.org.uk/sites/default/files/field/attachment/NCB_School_Well_Being_Framework_Leaders_Resources_FINAL.pdf
- Waters, L. (2011). A Review of School-Based Positive Psychology Interventions. *The Australian Educational and Developmental Psychologist*, 28(2), 75–90. <https://doi.org/10.1375/aedp.28.2.75>
- Weare, K. (2015). *What works in promoting social and emotional well-being and responding to mental health problems in schools?* London: National Children's Bureau.
- West, P., Sweeting, H., & Young, R. (2010). Transition matters: pupils' experiences of the primary–secondary school transition in the West of Scotland and consequences for well-being and attainment. *Research Papers in Education*, 25(1), 21–50. <https://doi.org/10.1080/02671520802308677>

White, J. (2017). *Evidence summary: Reducing the attainment gap – the role of health and wellbeing interventions in schools*. Edinburgh: NHS Health Scotland.

Yao, Y., Kong, Q., & Cai, J. (2018). Investigating Elementary and Middle School Students' Subjective Well-Being and Mathematical Performance in Shanghai. *International Journal of Science and Mathematics Education*, 16(1), 107–127. <https://doi.org/10.1007/s10763-017-9827-1>