

# Mindfulness and contemplative approaches in education

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There is a growing and promising quantitative evidence base on mindfulness in schools, which has continued to emerge over the last two years and which consistently suggests small to moderate impacts across a range of outcomes, most strongly and reliably on psycho-social health and well-being, especially mental health problems, with less definitive but promising evidence for small effects on behaviour, cognition, learning, and physical health. The overlapping field of ‘contemplative education’ is less concerned with measurable outcomes, aiming instead to put the learner, and their self-reflective mindfulness at the heart of the teaching and learning process. Interest is growing on how best to implement mindfulness and integrate it into the policies, practice and ethos of the whole institution, with some promising early findings, mainly from qualitative data. There is a particular and growing emphasis, supported by some emerging quantitative evidence, on the need for teachers to learn mindfulness themselves and establish their own practice if they are to cultivate mindfulness in schools effectively.

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## Introduction

The field of mindfulness and contemplative education has experienced an exponential growth in publications, research and programmes in schools and universities. There is now considerable published guidance on the theory and practice, including a recent reader on the whole field [1<sup>\*\*</sup>], guidance which includes both a quantitative evidence base from scientific research on outcomes, and more practice-based knowledge on implementation, based largely on qualitative data. This paper aims to give a broad overview of the field, drawing particularly on publications in the last two years and putting them in the context of longer-term work.

## The quantitative evidence base

The type of work which is generally cited as the ‘evidence base’ focuses largely on mindfulness-based interventions (MBIs). Their circumscribed and well-defined nature lends itself to evaluation using western scientific and experimental methods. The number of studies of MBIs has been growing steadily, and in the last decade a body of around 30 has emerged that regularly reoccur across reviews. In the last three years, the field has developed enough to allow for systematic reviews and meta-analyses of school aged young people, including some published in the last two years [2<sup>\*\*</sup>,3<sup>\*\*</sup>,4], and the most recent meta-analysis of mindfulness with young people found enough studies to be able to include only randomized trials [5<sup>\*\*</sup>]. This growing number of studies is also allowing for themed meta-analysis, including recently one on mental health impacts [6<sup>\*\*</sup>] and another on early adolescents [7]. Alongside studies of mindfulness for students, there is a long-term concern with the mindfulness and wellbeing of school personnel. There is less research on this group; however, two recent reviews were able to find 13 [8<sup>\*\*</sup>] and 16 [9] studies to include. There appear to be as yet no systematic reviews of mindfulness and contemplative approaches in higher education, but some theoretically based work and impressionistic summaries [10].

Although work has traditionally come most often from the US, there is increasing published activity across the world. There continue to be strong concerns expressed on some of the methodological weaknesses in the field [5<sup>\*\*</sup>,11] such as low powered studies, lack of active or sometimes any controls, unclear protocols, idiosyncratic measures, and delivery and evaluation by the same team. Such concerns are now starting to be explicitly addressed by some independent, larger and more robust studies which make their design clear, such as a recent published account of the protocol for the large scale Myriad study in the UK [12].

The overall picture continues to be cautiously positive. There has long been an emerging consensus from reviews, ratified by the most recent (cited above) that mindfulness in education is at least promising, and in some circumstances clearly efficacious. It is also popular and appears to be cost effective. It is proven possible to reliably identify between small and moderate positive effects of MBIs across a wide variety of outcomes, for both school aged students and school personnel. The impacts on psycho-social health and well-being have been the most reliably demonstrated, while impacts on behaviour, cognition, learning and physical health are smaller and

more variable, and at present the evidence in these areas is promising rather than definitive.

Reviews have recently begun to explore whether the age/developmental stage of the students makes a difference to impact, so far with mixed results. Interventions have been demonstrated to be effective at all ages, although there is some suggestive recent comparative evidence that older adolescents may respond better than younger age groups [6<sup>••</sup>,7].

The literature continues to report almost no evidence of adverse effects in either students or educators from short MBIs.

### Impacts on psycho-social health and wellbeing

There is total consensus across all the reviews carried out over the last decade, including the most recent ones cited above, is that well conducted MBIs can impact positively on the psychological, mental and social health and well-being of the young, with reliably between a small and medium impact.

#### Mental health and wellbeing

The main focus of investigation to date has been on the impact on mental health problems, with recent studies continuing this consistent theme, and showing small but clear impacts on depression, anxiety and stress in school aged children [13,14], and on the alleviation of stress in university students [15]. The research to date has shown mixed findings on whether the severity of the problems in the learner makes a difference to the size of the outcome.

In addition to an interest in problems and pathologies, interest in the impact of mindfulness on positive well-being of both students and school personnel has also been a long-term thread running through the field. There have been two recent studies of mindfulness for elementary school students that have added to the evidence for a small impact on wellbeing and positive affect [16,17], and two reviews of wellbeing in teachers that come to positive conclusions [8<sup>••</sup>,9].

A recent review concludes that the impact on wellbeing, though apparent, is weaker than on mental health problems, and that MBIs are currently more effective in showing decreases in negative mental traits than in positive ones [7].

#### Social and emotional learning

There is a developing and convincing evidence base for the contribution of mindfulness to the wider field of social and emotional learning (SEL), and for its impact on social and emotional skills, such as self-awareness, emotional regulation, resilience, motivation, optimism

and persistence, sociability and the ability to make relationships [18]. Self-regulation has long been a strong area of enquiry, and three recent studies [17,19,20] and one review [3<sup>••</sup>] have added to the increasingly convincing evidence base for an impact on this core and underlying skill in students, supported by a recent review of the positive impact of mindfulness on teachers' self-regulation [8<sup>••</sup>].

It is reasonable to hypothesize that this impact on social and emotional skills, and particularly self-regulation, might lead to visible and demonstrable improvements in behaviour classed as 'difficult'; however reviews and meta-analyses, including those published recently [2<sup>•</sup>], differ in how confident they are that MBIs impact on 'problem behaviour', although the most recent review has come to cautiously positive conclusions [5<sup>••</sup>].

A focus on compassion is now coming to the fore in work with young people, echoing this new emphasis within adult mindfulness. Mindfulness itself, and the core attitudes it cultivates of open-hearted curiosity and kindness, appear to generalise into a wider sense of compassion and empathy to the self and others, and recent research adds to this evidence base [17]. Some MBIs now include an explicit element on caring and compassion, and a recent study suggests this can have an enhanced impact on relationship skills, empathy, self-compassion and self-care [21].

Some programmes combine mindfulness and SEL, and two recent evaluations of the MindUp programme continue to add to a body of research findings which suggests this is an impactful way forward [17,22].

### Impacts on cognition and learning

There is growing evidence for the ability of mindfulness to impact on aspects of cognition and learning in the young, including in a recent meta-analysis by Klingbeil *et al.* [3<sup>••</sup>] which reported impacts on academic achievement, meta-cognition, attention and cognitive flexibility. Mindfulness appears to have the ability to influence self-regulation, noted above, to improve the ability to aim and sustain the attention, and generally to enhance various aspects of executive function, a finding summarized in a recent review by Dunning *et al.* [5<sup>••</sup>]. Increasingly this work is underpinned with a discussion of the neuroscientific mechanisms, and the whole area has been well summarized in a recent chapter in a reader [23], and a recent review [5<sup>••</sup>]. A recent study on mindfulness for early adolescents added to the specific evidence base on the impact on working memory and selective attention [13].

Meta-cognition is the ability to stand back from the thought process and 'think about thinking'. It is an essential component of strategic thinking and problem-solving, as

well as emotional and self-regulation. There is a growing evidence base for the ability of MBIs to develop meta-cognition in adults, and promising work in this area is now emerging with children and young people, noted in a recent meta-analysis [3\*\*]. A recent study with primary school children [24\*\*] comes to positive conclusions and suggests this area shows promise.

Studies of MBIs in school settings have concluded, from a scattering of results, that mindfulness with young people has promise in improving measured academic performance. A recent study [25] found improvements in elementary students' grade scores in reading and science grades. This emerging picture can be seen as either as the holy grail for mindfulness in education, or as introducing a sense of instrumentalism, competition and striving that is antithetical the whole spirit of the enterprise. A balanced reflection might be that, if not oversold, such instrumental findings may be helpful to efforts to introduce mindfulness into schools and universities, after which it may be that the deeper human benefits begin to be apparent, provided the teaching is of sound quality.

### Impacts on physical health

Compared with work with adults, the impact of MBIs on the physical health and well-being of children and young people is relatively unexplored territory, but there is some promising early evidence. Methodologically work in this area is breaking new ground for mindfulness by moving away from the familiar self-report to explore indicators of physiological signs and symptoms. The papers cited in the recent review by Black [4] included evidence of impacts on systolic and diastolic blood pressure, on heart rate, on urinary sodium excretion rate, on reductions in levels of cortisol, and improvements in sleep.

Mindful eating practice is a regular part of most mindfulness courses, including with young people, with participants invited to eat slowly, savouring their food, with awareness of the sensations that accompany eating. Recent research by Barnes *et al.* [26], adds further evidence to a small but growing number of studies suggesting that mindful eating has shown promising early results for a wide range of dietary and eating related problems.

### Contemplative education

Alongside mindfulness in schools we are seeing a steady growth in literature on contemplative education (CE) [10,27\*\*]. CE is a slightly wider approach than mindfulness and tends to be more integrated into the core business of teaching and learning in classrooms (although MBIs aiming to reduce stress and depression have also taken place in higher education contexts). CE is based in philosophical and educative reflection, theory and practice [28] rather than in the world of therapeutic interventions and the data generated are generally

qualitative. It is grounded in a wide range of wisdom traditions, including not only Buddhism but also traditions such as Taoism, Sufism, Christianity and Judaism. It aims to integrate introspection and experiential learning into academic study, to support both academic and social engagement, the development of self-understanding, of analytical and critical capacities, the skills for engaging constructively with others, and a sense of engagement, connectedness, purpose and meaning [29\*\*]. It is generally inspired by a critique of higher education as having lost sight of these broader and deeper aims, in favour of a more shallow and instrumental view of education as learning of facts and preparation for the current workplace. CE initiatives are usually focused within a particular university and led by committed individual staff or sometimes a team, who generate their own approaches, rather than the overarching evaluated programmes that are more common in the school system. There may be much that schools can learn from these perspectives, and it is promising that the fields are starting slowly to come together [27\*\*].

### Implementation

Now programmes and curricula are becoming established, and the measurable outcomes of mindfulness are becoming clearer, there is growing recognition that variations in impact have as much to do with how a programme is implemented as they do with the programme itself, bringing an increased interest in implementation strategies in schools and universities. This work is in its infancy and several papers and some books published recently have explored a wide and rather scattered range of aspects of implementation of mindfulness in educational organizations [30–32]. There is not the space here to do more than indicate a handful of the most obvious themes and findings in this emergent landscape.

Interest is growing into ways in which to integrate mindfulness into everyday organizational practices of classrooms in schools and universities, the so called 'whole school' approach. The evidence base is presently mainly based on qualitative data, case studies, accounts and interviews, with some theoretical underpinnings and some reflections on what can be learned from educational implementation in other contexts, especially SEL [30,33\*\*]. Some illustrative findings that have emerged to date include: the need for committed champions to promote mindfulness with the organization; the allocation of sufficient resources of time and money; patience to allow sufficient time and to recognize that progress is not in a straight line; and building shared understandings across the community.

The strongest and most recurrent theme is the central importance of beginning the process of developing mindfulness in education with the adults rather than the young people, and for the establishment of the teacher's

personal practice. The temptation for schools and universities is to go straight to the learners, and to see mindfulness as a superficial technique that can ‘fix’ problems. However the emerging qualitative, and recently quantitative, evidence suggests teachers need first to develop their own understanding, skills, and a solid personal practice, if they are to convey authentic mindfulness effectively [34]. Such a firm base helps cultivate teachers’ own well-being, enables them to act as credible and embodied role models, and to create calm, focused and prosocial environments where all may thrive. Several recent guidance resources [28,33,35] outline the potentially transformative effect of authentic, grounded mindfulness on the tasks of teaching, such as deepening the relationship with students through a greater sense of authentic presence and empathy, putting the learner at the heart of teaching and learning, and encouraging students towards self-knowledge.

There is some emerging quantitative evidence on this issue, investigating empirically, with the use of controls, what aspects of the individual facilitator/teacher make a difference. One recent review suggests that it is a nuanced picture, but that optimum results are achieved by programmes being delivered by teachers within the school/university, rather than outsiders, but only provided they have a solid mindfulness practice: if not a well-educated outside facilitator with a personal practice is more effective [6].

## Conclusions and future directions

Mindfulness in education is becoming well established, steadily weathering accusations that it is a ‘fad’ by simply continuing steadily to deliver qualities and attributes in students and staff/faculty that schools and universities need and value. As well as generally adding to the fairly solid evidence base on psycho-social health and wellbeing, the next few years may well see additional investigation into areas where the evidence is less clear, such as impacts on cognition and learning, behaviour, and physical health. We should start to see the publication of useful results from some larger and more robust studies which may bring greater certainty. We may well see a greater coming together of the quantitative and qualitative evidence base to deepen our knowledge on what aspects of implementation matter in delivering mindfulness in education in a way that is authentic and personally and institutionally transformative, as well as acceptable and cost effective.

It is a process that cannot be hurried, but it shows considerable promise in contributing to efforts that are being made in many quarters to transform education to meet the serious challenges of the rapidly changing world in which we are all, and especially our children, attempting to live.

## Conflict of interest statement

Nothing declared.

## References and recommended reading

Papers of particular interest, published within the period of review, have been highlighted as:

- of special interest
- of outstanding interest

1. Schonert-Reichl KA, Roeser RW (Eds): *Handbook of Mindfulness in Education: Integrating Theory and Research Into Practice*. New York: Springer; 2016.  
This substantial reader provides a comprehensive and authoritative summary of a wide range of work on mindfulness and contemplative approaches, mainly from those at the forefront of this work in the United States. It summarises the state of the science and describes current and emerging applications and challenges, integrating history, theory, philosophy, research, practice, and policy.
2. Maynard BR, Solis MR, Miller VL, Brendel KE: **Mindfulness-based interventions for improving cognition, academic achievement, behaviour, and socio-emotional functioning of primary and secondary school students**. *Campbell Syst Rev* 2017, **5** <http://dx.doi.org/10.4073/csr2017.5>.  
An influential systematic review and meta-analysis of MBIs for school aged children in a range of settings, which identified 61 studies for systematic review, and 35 randomized or quasi-experimental studies for further meta-analysis. It found small positive effects on cognitive and socioemotional outcomes, positive but non-significant effects on academic and behavioural outcomes, but insufficient studies for to estimate the size of impacts on physiological measures of health.
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A meta-analysis of 76 studies in a range of youth related settings. It concluded that MBIs yield a small positive average treatment effect across all outcomes, with the largest effect being seen academic achievement and school functioning, and slightly lower but still positive effects on meta-cognition, attention, cognitive flexibility, emotional/behavioural regulation, distress, depression and anxiety, positive emotions and self-appraisal. It reported larger effect sizes at follow up than immediately after interventions.
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A systematic literature search of RCTs of MBIs produced 33 studies. Across all RCTs the authors found significant positive effects of MBIs, relative to controls, for the mindfulness, executive functioning, attention, depression, anxiety/stress and negative behaviours, with small effect sizes. However, when considering only those RCTs with active control groups, significant benefits of an MBI were restricted to the outcomes of mindfulness, depression and anxiety/stress.
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Twenty-four studies were included in the meta-analysis. Overall, mindfulness interventions were found to be helpful, with small to moderate significant effects pre-post intervention, compared to control groups. Interventions that were delivered during late adolescence (15–18) and that consisted of combinations of various mindfulness activities had the largest effects on mental health and well-being outcomes. The effects on specific mindfulness and mental health outcomes differed according to whether the intervention was delivered by an outside facilitator compared to trained educators/teachers.
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An opening chapter in the definitive reader on mindfulness and contemplation in education authored by the first director of the Center for Contemplative Mind in Society, who pioneered the application of contemplative practices within higher education. It gives a succinct and comprehensive account of the whole area, sketching its origins in both western and the eastern wisdom traditions/philosophy, explores its meaning, its place within higher education, and its principles and core practices.
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Written by an ex-head teacher and, at one time, director of the international arm of the UK Mindfulness in Schools project, this very accessible and influential book provides practical guidance on how to implement mindfulness across the stressful and busy lives of teachers and the entirety of the school, as well as into classroom teaching. Lived examples taken from work in many countries give it plenty of colour and authenticity.