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Developing mindfulness with children and young people: a review of the evidence and policy context

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Author biography
Katherine Weare is Emeritus Professor at the University of Exeter and Southampton where she is working to develop and evaluate mindfulness in schools and encourage programmes to work together effectively and use the principles of 'what works'. She is trained to teach adult mindfulness and has a long term mindfulness practice. Her overall field is social and emotional learning and mental health and wellbeing in schools: she is known as an international expert on evidence based practice and has written some of the leading books in this area and conducted several definitive reviews and led programmes which have informed policy and practice in many countries.

Keywords Children, adolescents, mindfulness, meditation, wellbeing, mental health.

Article classification: literature review

ABSTRACT

Purpose

This paper explores the growing field of the teaching of mindfulness to young people, looking at its social and policy context, its applications, and other areas of work which it might support and within which it might fit. It focuses particularly on the state of the current evidence for such teaching and the conclusions that can be drawn from it.

Design/methodology/approach

The paper is a literature review, drawing mainly on the twenty or so significant and good quality studies (i.e. those with significant numbers of participants, published in peer reviewed journals) that make up the evidence base for mindfulness and the young, plus some comments on the policy context into which mindfulness can and might fit.

Findings

Work on mindfulness with young people is popular with both staff and students, has a developing presence and can be effective in promoting a very wide range of outcomes. When well taught and when practiced regularly it has been shown to be capable of improving mental health and wellbeing, mood, self esteem, self regulation, positive behaviour and academic learning. There are many possible promising locations for mindfulness within mainstream education and the health services, including work to improve on mental health and wellbeing for staff and students, social and emotional learning, special education and mainstream subject based work.

Research limitations/implications

This is a rapidly growing and promising field that deserves serious attention to widen and deepen the growing evidence base for the much needed benefits for the young that mindfulness appears to bring. It is a young field and most existing studies have been pilots with small numbers, little use of control groups or

random allocation, as yet no standardised measures, a good deal of reliance on self report, and often biases created by having participants who volunteer rather than being chosen. There is an urgent need for more robust studies to support the exponential growth in practice.

Practical implications

The evidence base reviewed in this paper suggests that for schools and the health service to engage in mindfulness is likely to be highly acceptable to staff and students and likely to show beneficial results, while being relatively cheap to introduce, with sustained benefits and likely to have an impact fairly quickly.

Social implications

Mindfulness links with concerns to reduce the burden of health spending on physical and mental illness, including stress and chronic conditions, through preventive, low cost, population based interventions, including in schools. It links with work on positive health and positive psychology, with a growing interest eastern 'holistic' ways of thinking and contemplative approaches such as meditation and yoga, and with the growth of work on social and emotional learning.

Originality/value

Mindfulness is a new and growth area. Work with adults is well developed with a convincing evidence base, but work with the young, although developing rapidly, is much younger and this review is one of only a handful attempting to bring it to wider professional awareness.

Introduction

Aims of this paper

This paper explores the growing field of the teaching of mindfulness to young people. It does not claim to be exhaustive, or written for those at the forefront of mindfulness research, it is aimed at the general reader, perhaps without much knowledge of mindfulness, and is looking particularly at its social and policy context, its applications, and other areas of work which it might support and

within which it might fit. It focuses particularly on the state of the current evidence for such teaching and the conclusions that can be drawn from it.

What mindfulness is

Mindfulness is fast becoming a familiar term in the health services, occupational health and increasingly in education, with a plethora of research, books, training courses and projects connected with the development and evaluation of mindfulness based interventions and approaches.

The term mindfulness refers to the ability to direct the attention to experience as it unfolds, moment by moment, with open-minded curiosity and acceptance (Kabat-Zinn, 1996). It enables those who have learned it go on to practice it to be more able to be with their present experience, and respond more skilfully to whatever is actually happening. Mindfulness contrasts with the state of mindlessness which is the one in which much of life is lived for many people, moving through experience rarely noticing the present moment, ruminating on the past or worrying about the future and making premature and unhelpful judgments coloured by ingrained preconceptions and mental patterns. Living mindlessly is often accompanied by a sense of stress as one's experiences constantly fall short of one's expectations, and joys and pleasures are ephemeral (Williams and Penman, 2011).

Mindfulness is said to have originated in Buddhist philosophy and meditation practice over two and a half thousand years ago, the core and explicit mission of which was to address and relieving the suffering caused by the dysfunctional ways people habitually tend to respond to their experience. The secularisation, simplification and popularisation of mindfulness was initiated in the 1970s by Jon Kabat-Zinn, an experienced meditator in the Buddhist tradition, working at the Medical Centre at the University of Massachusetts. Inspired by his own experience of the value of contemplative practice, he introduced the first eight

week structured mindfulness skills training programme based on his own knowledge of mediation techniques, but greatly simplified, and eventually manualised. The short course he devised gave demonstrable, considerable and relatively rapid psychological, and often physical, relief, to a range of patients experiencing intractable severe pain and distress from a wide range of chronic physical health conditions (Kabat-Zinn, 1996).

Since then mindfulness interventions and research have proliferated across the world, and the emerging evidence base suggests that mindfulness has a wide range of potential applications. The most common form of mindfulness intervention for adults is to be found in 'the eight week course', a manualised course, usually experienced as one weekly two to three hour session spread over eight weeks, which aims to reduce stress (Mindfulness-Based Stress Reduction: 'MBSR') or to prevent depressive relapse (Mindfulness-Based Cognitive Therapy: 'MBCT', a therapy recommended by the UK National Institute for Clinical Excellence (NICE, 2009). for recurrent depression.) Other types of mindfulness interventions for adults include longer interventions, tailor made interventions for specific groups, one to one work and, most recently, on line courses. A range of interventions for children and young people, in schools and in clinical contexts, are also now starting to develop, as this paper will explore.

What is involved in learning mindfulness

Mindfulness is hard to convey adequately using words as it is essentially about developing forms of awareness which are not verbal but are meta-cognitive, i.e. being aware of the inner processes involved in doing, feeling and thinking and aware of impulses, thoughts and feelings as they arise in the mind and body. It is a sometimes elusive process which lies and above, in some sense behind thoughts and words. Learning to be mindful includes gradually acquiring the ability to be aware of and pay close attention to inner states such as thoughts, emotions and physical sensations, as well as to what is happening in the outside

world, and with curious and interested attention rather than critical and premature judgment.

These meta-cognitive forms of awareness are developed through practice, supported by some discussion to process and embed the experience.
On mindfulness courses, participants will generally initially be led by the teacher in simple mediation and concentration exercises. They typically include becoming more aware of, and giving close attention to sensations as they happen in the body, such as the sensations of breathing, the feeling of contact with the floor or the chair, and the fluctuating sensations that arise in different parts of the body. Practices carried out in class and for homework also include sensitising to feelings and sensations provoked by everyday actions such as walking, eating, hearing, seeing or showering.

Over time participants who practice regularly report that they gradually learn to sustain and focus their attention for longer periods of time and accept their experiences in a more curious, interested and open minded rather than a judgmental way. They discover how to use felt physical sensations of the breath and the body as ‘‘anchors’’ to return to when their minds wander and ruminating repetitive thoughts take over. They come to see that thoughts are mental events rather than facts and can be allowed to let come and go, rather than turning into distractions that preoccupy the attention. This realisation helps loosen the grip of habitual, mindless activity and produces less reactivity and impulsiveness, and a greater ability to examine thoughts more rationally and experience with greater acceptance and kindness. This gradually modifies habitual mental and behavioural patterns which otherwise create and maintain negative mental states, such as rumination, stress, anxiety and depression, and makes for greater mental stability, calm, acceptance, appreciation of what is rather than hankering after what is not, and thus higher levels of happiness and wellbeing.

Clearly teaching mindfulness to children and young people has to be rather different to teaching it to adults, and teaching it to 'conscript' audiences using a universal approach different again to teaching it to those who opt to learn it out of need or inclination. The various mindfulness programmes are empirically discovering what the best methods, content and materials are to reach children and young people of different ages and in various contexts. In their efforts, although it is hard to generalise, some similarities are emerging. Practice remains at the heart of and with the same basic content and aims as for adult mindfulness (such as paying attention, focusing on the moment, noting sensations in the body, following the breath, mindful walking, mindful eating etc). The degree to which students engage in home practice very much affect the impact of the course. Practices are generally shorter than for adult mindfulness, and based on concrete experience, and with less time spent on enquiry (unpacking the experience). Having an explicit focus on meta-cognition (standing back from thoughts, seeing that they are not facts, and being aware one is thinking) is generally introduced in later childhood and adolescence as it is hard for young children to grasp. Given that the time available is not generally as long (two to three hours for an adult mindfulness course compared with a lesson time of usually three quarters of an hour) aspirations are often lower and focus on awareness raising and student engagement as the goals. Methods, materials and activities are generally more pacey and lighthearted, with a focus on fun and seeing it as a game, and with less emphasis on long periods of silence.

THE EVIDENCE BASE

Mindfulness and adults

In terms of measurable outcomes the evidence, based on an extensive and growing set of randomized control trials, is reasonably solid that mindfulness interventions for adults can address successfully a very wide range of health, social and emotional problems, including stress, depression, anxiety, pain, and can even help fight infectious disease, apparently by impacting on the immune

system. There is reasonable certainty that mindfulness demonstrably helps participants to feel a greater sense of calm, happiness, wellbeing, and engagement with others and systematic reviews are generally concluding that mindfulness techniques with adults are a least ‘promising’ across a wide range of contexts and conditions (Baer, 2006).

Mindfulness and the young

Work on the effects of mindfulness and young people is not yet as extensive as work with adults but is now growing rapidly, particularly in developed countries such as the US and to a lesser extent the UK, and is results are promising. Research has developed rapidly in the last thirty years and two recent reviews (Burke 2010; Harnett and Dawe, 2012) which analysed the findings from around twenty recent studies concluded that mindfulness interventions are promising, generally acceptable and well liked by the young people who take part, and there have been no reports that any of them did any harm.

Selection of studies for this paper

The following sections briefly review the main significant studies that make up the evidence base for mindfulness and the young. As the field is so young it attempts to be comprehensive rather than systematic, and thus reviews work of varied quality. It includes however only on studies with significant numbers of children (some clinical work is with very small numbers, or even individuals) and only on papers published in peer reviewed journals, not unpublished work such as internal reviews by projects themselves or theses and on line reports.

As is usual in a new field, it is important to recognize the as yet embryonic state of the art, with many of the studies that have taken place having been pilots, and have a range of ‘methodological difficulties’ such as small numbers of participants, very little use made of control groups or random allocation of participants, as yet no standardised measures, a good deal of reliance on self report, and often biases created by having participants who volunteer rather than

being chosen. This means that conclusions have to be tentative at this stage. However the results of a wide range of studies in different contexts offer a set of promising results that suggest that mindfulness is well worth doing. Young people generally enjoy and appreciate the interventions, and the processes and the effects of mindfulness on the young are very similar to the positive changes observable in adults which gives cause for optimism that the same psychological and physiological processes are at work.

Universal approaches to teaching mindfulness in schools

There are now a range of mindfulness projects being developed for mainstream contexts, most usually schools but occasionally in others such as summer camps which use a universal approach i.e. are delivered to all children, not just those with problems.

Mindfulness in its modern sense was first developed in the United State and the country still leads the field both in terms of the number of universal projects, programmes and interventions and in attempts to evaluate them using rigorous methods. There are several well developed and well funded programmes in the US which have given rise to evaluations published in peer reviewed journals. Two of them, Inner Kids and MindUp can also be found outside of the US and in other parts of the world.

Susan Kaiser Greenland has been instrumental in developing a wide range of universal programmes for schools and for different age groups. Flook et al (2010) reviewed her 8 week “Inner Kids” mindfulness-skills programme which has been taught around the world. An RCT, using a wait list design, with sixty four 7 to 9 year-olds produced parent and teacher-rated improvements in so called ‘executive function’ in children (executive function refers to the ability to problem solve, plan, initiate and control and monitor one’s own actions, to pay attention, be mentally flexible and multi-task, and to employ verbal reasoning). Those with lower pre-course self-regulation were observed to experience greatest

improvements in behavioural regulation, meta-cognition (defined earlier as being aware of the inner processes involved e.g. in doing, feeling and thinking) and executive function.

The Hawn Foundation is another globally aspiring universal programme which combines mindfulness with social and emotional learning. Schonert-Reichl and Hymel (2007) reviewed their “MindUP” programme which fosters the development of well-being traits using social, emotional, attentional and self-regulation strategies, including mindfulness exercises. Although the study was not methodologically robust, involving teacher report and a before and after design, it did show improvements in 9 to 13 year-olds’ behaviour, attention and focus.

At the other end of the age range, and so far found only within the US, the universal “Learning to BREATHE” curriculum is an MBSR-derived mindfulness programme which was evaluated by Broderick and Metz (2009). Their study, a non randomized quasi- experimental pilot trial of a year group of one hundred and thirty seven 17 to 19 year-old female students in an American independent girls’ school showed decreases in negative affect, tiredness and aches and pains, and increases in calm, relaxation, self-acceptance, emotional regulation, awareness and clarity.

Some universal work has been aimed at younger children. Napoli, Krech and Holley (2005) reported on a project which integrated mindfulness and relaxation work with children aged 5- 8 with high anxiety. The research used an RCT design with 228 participants who were participating in the Attention Academy Program (AAP) intervention, which was twelve 45-minute sessions of mindfulness and relaxation over 24 weeks. Post treatment measures showed significant improvement in self-rated test anxiety, teacher rated attention, social skills and selective (visual) attention. Reported effect sizes ranged from small to medium. The study is unusually strong methodologically compared with most papers in the

field, with its RCT design, reasonable sample size and use of objective measures of attention. It was however an intervention which mixed mindfulness with relaxation and therefore makes direct comparison with MBSR/MBCT difficult.

There have been some smaller scale studies of US based universal programmes Wall (2006) evaluated a programme to teach MBSR and Tai Chi to 11 children aged between 11-13 years in the US, which used self report measures, and which brought perceived benefits such improved well-being, calmness, relaxation, improved sleep, less reactivity, increased self-care, self-awareness, and a sense of connection with nature. Saltzman and Goldin (2008) reported an 8-week MBSR intervention with 31 children, aged 9 to 11, who participated with their parents. The teachers were experienced mindfulness instructors. Analysis indicated improvements for children and parents in attention, emotional reactivity and some areas of meta-cognition, based on self and parent report measures, and objective measures of attention. Schonert-Reichl and Lawlor (2010) conducted a study of 12 elementary classrooms in which 6 were randomized to receive the Mindfulness Education (ME) program and six to waitlist control. The intervention was delivered by teachers and involved 10 lessons and three times daily practice of mindfulness meditation. Overall, there was a significant increase in scores on self-report measures of optimism and positive emotions. Teacher reports showed an improvement in social and emotional competence for children in the intervention group, and a decrease in aggression and oppositional behavior, although clearly the study would have been more robust with an evaluation which separated out the those who taught it from those who evaluated it.

One unusual universal study focused mainly on the effects of mindfulness on physical health. Gregoski et al (2011) in a randomized trial looked at the effect of mindful breathing meditation in the context of a summer camp with 166 Afro-American adolescents who were at risk of cardiovascular disease. The students experienced a twelve week mindfulness intervention during regular health

education and lifeskills classes. Breathing awareness meditation produced greater reductions in systolic blood pressure than did regular lifeskills or health education programmes. Participants taught breathing meditation also showed greater reductions for 24 hr diastolic blood pressure and heart rate compared to the other groups.

Studies of programmes outside of the US are rare. One UK based study of a universal programme was carried out by Huppert and Johnson (2010) who reported the outcomes of a control trial of the Mindfulness in Schools Project's ".b" pilot curriculum with a total of 173 boys in two English independent schools, aged 14 to 15 across 11 religious education classes, 6 of which received the intervention and 5 of which acted as controls. The intervention was a four-week, one lesson a week basic mindfulness training. It produced significant effects on mindfulness, ego-resilience, defined as the capacity to modify responses to changing situational demands, especially frustrating or stressful encounters (Tugade & Fredrickson, 2004) and well-being, among students who regularly did 10 minutes of home practice a day, but smaller and non significant changes among those who did not practice (Since this evaluation, this programme has now expanded to be a nine week course, and is being taught in a wide range of schools in the UK and Europe. It is currently the subject of a non randomized control trial with 9 schools and over 500 participants by the University of Exeter, in the UK and the team are about to publish some promising results, showing a significant impact on wellbeing, depression and anxiety (Kuyken et al, forthcoming).

Targeted approaches in educational setting

Some mindfulness programmes have focused on children with special needs and difficulties in an educational rather than a clinical context. As is common with work in clinical contexts, which is reviewed below. many have been one to one or with very small numbers, and the studies themselves are aimed at a varied set of

needs and challenges, so it is difficult to generalize from them, but they make for a promising and suggestive set of results.

One study looked at anxiety in younger children. Semple et al. (2005) reports on a before and after study of feasibility and acceptability of a modified, manualised MBCT course taught by experienced, trained mindfulness teachers in a school-based setting. It lasted for 6 weeks at 45 minutes a week with 5 children suffering from anxiety aged between 7–9 years, at an urban elementary school. Participants showed improvements in academic performance, attention and problem behaviour, as reported by teachers. The reliance on teacher report and the before and after design, with no control makes this study suggestive rather than definitive, and generalising from this study is problematic.

Two studies focused on children with learning needs. Semple et al. (2010) assessed the impact of a 12-week school-based group program based on MBCT with 25 children aged between 9 and 13 year old who were struggling academically, using a wait-list randomized control group. Compared with controls who had not yet experienced the programme, significant improvements were found on measures of attention and reductions in anxiety and behaviour problems. Beauchemin et al (2008) looked at older children, conducting a pre–post no control design intervention of a 5 week mindfulness meditation with 34 volunteer students with learning difficulties aged 13–18 years in classrooms in a special school. All outcome measures showed significant improvement, with participants who completed the program demonstrating decreased state and trait anxiety, enhanced social skills, and improved academic performance. The authors hypothesised that mindfulness meditation decreases anxiety and negative self belief, which, in turn, promotes social skills and academic outcomes.

Joyce et al (2010) looked at behavior problems and depression. They reported pre- and post-group differences in children aged 10– 13 years from a 10 week

mindfulness programme delivered by school teachers. It led to a significant reduction in self-reported behavioural problems and depression scores, particularly in pupils with clinically significant levels of problem before the intervention.

One study was in an unusual setting, a summer camp, and looked at minority and disadvantaged children. Liehr and Diaz (2010) carried out a small randomized trial comparing a mindfulness-based intervention with a health education approach in a summer camp. Eighteen children were randomly assigned to either a brief course of mindfulness-based sessions, or to a heath education group, both interventions focusing on depression and anxiety. There was a significant reduction in depression symptoms for those in the mindfulness group and a reduction in anxiety for both groups, in the immediate post-treatment follow up.

Mindfulness in clinical contexts

A few studies have taken place with young people in clinical (e.g. psychological and psychiatric) contexts rather than in schools. Some of them again involve very small numbers or individual case studies. This section reports on the six conducted with reasonable numbers of participants.

One clinically based study so far has looked at the impact on children in the middle years and from a disadvantaged background. Mendelson et al. (2010) employed a mindfulness-based intervention to improve the ability to self regulate in nine and ten year olds from disadvantaged backgrounds, which included yoga-based physical activity, breathing techniques and guided mindfulness practice. Some significant reductions were found on before and after measures of involuntary response to stress (meaning automatic and physiologically-mediated responses such as rumination and intrusive thoughts) and there was a trend for participants to show greater trust in friends.

Another clinically based study spanned the age ranges. Using an RCT, Biegel *et al* (2009) studied the effects of a modified 8 week MBSR course for one hundred and two 4 to 18 year olds with a wide range of diagnoses. When compared with a control group, the young people who received MBSR self-reported significantly reduced symptoms of anxiety, depression, and somatic distress, global assessment of functioning and increased self-esteem and sleep quality. At 3 month follow up, those who practiced more showed improved clinicians' ratings of anxiety and depression compared with those who did not. With its use of an RCT design, large sample and 3 month follow up this study is reasonably robust methodologically.

Two clinical studies looked at children with behavioural issues. Bogels et al (2008) evaluated the impact of mindfulness on a 14 adolescents aged between 11 to 18 diagnosed with attention and behaviour-control deficits. They reported significant increases in self and parent reported measures of personal goals, sustained attention, happiness and mindful awareness. Zylowska (2008) reported the results of a pilot study of 8 adolescents with ADHD who took part in a mindfulness course (along with a larger group of adults) and showed improvements on self reported ADHD symptoms, tasks measuring memory, attention and cognitive inhibition, and in externally observed and self reported anxiety and depressive symptoms.

Bootzin and Stevens (2005) investigated the impact of a mindfulness intervention on adolescents with substance abuse and sleep problems using a quasi-experimental control study. They looked at 55 adolescents aged between 13 and 19 years who received a 6 session intervention that included components of Mindfulness Based Stress Reduction (MBSR) and insomnia treatment. There were significant reductions in mental health distress and improvements in sleep, both in quality and time for young people who completed the course. After 12 months those who took the course showed decreased substance use while those who did not continued to increase their substance use.

Sibinga et al. (2011) reported work with youth from a clinic with a range of medical and psychological issues. Their evaluation of an 8-week MBSR program for 33 urban youth aged 13–21 years of age from paediatric and adolescent clinics in an urban academic hospital showed participants, compared with controls, had a significant reduction in self reported levels of emotional discomfort and hostility, and perceived improvements in school achievement, health, relationships, levels of conflict and stress.

Work with school staff

It is axiomatic within the community of mindfulness teachers that those who would teach mindfulness to others need to be experienced practitioners themselves and practice mindfulness on a regular basis. Courses are demonstrably more effective when taught by those who can model and embody the particular qualities mindfulness develops, including within their everyday interactions with children. Qualities include open minded curiosity, kindliness, empathy, compassion, acceptance, trust, patience, and non-striving, and the skills of focusing, and paying and switching attention. It is also important to understand through experience the meta-cogntive, non verbal processes that the students themselves will be going through which were discussed earlier. .

Teachers also experience the well evidenced improvements in physical and mental health that tend to follow the learning of mindfulness, including conditions particularly relevant to the teaching profession such as stress and burnout. Thus it is unsurprising that several mindfulness in schools courses have elements of teacher education, and several specific courses that teach mindfulness to teachers and other school staff have been developed, some of them evaluated.

The Mindfulness-Based Wellness Education (MBWE) at the Ontario Institute for Studies in Education of the University of Toronto (OISE/UT) involves trainee teachers and aims to address their potential stress and burnout . The programme

is part of the initial teacher education program, lasts for 9 weeks over 36 hours and is an elective course. Based on the 8 week MBSR adult mindfulness programme it focuses on positive wellbeing and applies mindfulness and wellness to teaching strategies such as reflective practice, professional identify, emotional competence and mindful listening. It applies the learning to the students themselves, as well as their pupils, parents, and their teaching colleagues (Soloway et al. 2011). A controlled 2 year study suggested that the course improved teaching self-efficacy and physical health at immediate follow up (Poulin et al. 2008; Poulin 2009); a longitudinal study is underway with teachers who have taken MBWE into their first years of teaching.

The Cultivating Awareness and Resilience in Education (CARE) program for teachers (www.garrisoninstitute.org) is run in several sites in the US, including its place of origin at the Garrison Institute in New York, as well as San Francisco, Denver and Philadelphia, It aims to improve teachers' overall wellbeing, their effectiveness in providing support for students' emotional wellbeing, behaviour and learning, their relationships with their students, to improve classroom climate and enhance students' prosocial behavior. Strategies include helping teachers recognize and regulate emotions in themselves and others; the learning of mindful stress reduction techniques to help them to be more present and engaged, and mindful listening to help them increase their understanding and empathy for their students and colleagues (Jennings, 2011, Jennings and Greenberg, 2009). The course has been delivered in various ways and with different durations, the longest being a 5-day intensive retreat. Classroom instruction is supported by email and one to one phone mentoring and coaching. Pilot before and after studies with both student teachers and their mentors, and with experienced teachers, suggest improvements in teachers' mindfulness, well-being, and their ability to give more appropriate support for students by through being more motivated and autonomous (Jennings et al. 2011). Experienced teachers reported feeling more able to manage their classrooms and have more supportive relationships with students.

The Stress Management and Relaxation Techniques (SMART) in Education (http://smart-in-education.org/) is a programme for teachers and administrators. It is modelled on the 8 week MBSR programme and includes a elements which focus on concentration and attention, on awareness of emotion and empathy and on compassion. It is currently being piloted in Colorado and Vancouver and teachers report that it has positively influenced their interactions with students and colleagues, increased their own mindfulness, decreased their stress and increased their work motivation (Jennings, 2011).

The policy context: where mindfulness fits in

Given the growing evidence base for the wide range of impacts of mindfulness it fits in with and makes a contribution to addressing many issues of concern to policy makers. This section reviews some examples. The analysis is necessarily rather crude and not very nuanced, due to lack of space, and most of what is said here applies most clearly to secular mindfulness in the developed and English speaking world, although mindfulness in the broader sense can be found in traditions all over the world, especially in the east where it originated.

Mindfulness fits in well with the general emphasis in education, health and social policy across the globe, on evidence based practice. Originating in Massachusetts medical school, secular mindfulness has been developed with a clear involvement of scientific departments in Universities and other research units, and thus retained a strong attachment to the idea of a robust evidence base and the kind of proof provided by systematic review and randomised control trials – the number of RCTS involving mindfulness has increased exponentially in the last ten years, including trials of interventions with children and young people.

Mindfulness training is popular with funding bodies across the globe in cash strapped times, by being relatively cheap to run and with the promise of some fairly rapid and sustained benefits. In some follow-ups of mindfulness

interventions the immediate effects on stress and well-being were still apparent after three years, and the majority of subjects continued their formal mindfulness practice over this period. The time spent learning mindfulness does not have to be extensive to show benefits. Pre-post analysis showed that five days of twenty minute mindfulness meditations in adults reduced anxiety, depression, anger and fatigue, improve immune-reactivity and decrease cortisol (a stress hormone), and four days of mindfulness training was sufficient to improve mindfulness, visual-spatial memory, working memory and sustained attention (Hozel et al, 2011).

Work on mindfulness is intimately connected with neuroscience, which is a major growth area for scientific research. Brain-imaging studies in adults show that mindfulness meditation can reliably and profoundly alter the structure and function of the brain and produce, for example, greater blood-flow to and a thickening of the cerebral cortex in areas associated with attention and emotional integration (Davidson and Lutz, 2008). The changes are most dramatic in long-term mediators, but are also perceptible in the short term, and participants on eight week courses have been shown in pre-post analysis to have increased grey-matter density in the areas of the brain associated with learning, memory, self-awareness, compassion, introspection, and reduced density in areas associated with anxiety and stress (Davidson and Lutz, ibid).

Mindfulness links with the urgent concerns of governments and other agencies across the world to reduce the burden of health spending on physical and mental illness, ideally through preventive, low cost, population based interventions. It addresses widespread concern with increasing levels of stress and chronic mental health problems in the developed world, such as depression and anxiety in adults and children. It locates too ‘softer’ areas such as a more positive emphasis in terms of health rather than illness and problems, for example on positive psychology, on happiness and wellbeing. At the same time its origins in eastern ‘holistic’ ways of thinking of thinking chime with an increasing interest by the general public and even to some extent the health professions, in alternative

therapies (although medical scepticism remains high), the general acceptance of the idea of a link between mind and body, and with contemplative approaches such as mediation, yoga and prayer.

Mindfulness links too with the increased interest in the importance of emotional intelligence and coping skills in such contexts as the school, the workplace, the home and the family (Goleman,1996; 2006) . Mindfulness has been shown to have effects on emotional and social qualities in both adults and children such as the ability to feel calm and in control of one's emotions, to make meaningful relationships, to accept experience without denying the facts, to manage difficult feelings, and to be resilient, compassionate and empathic. Adolescents who are mindful, either through temperament or training, tend to experience greater well-being; and mindfulness correlates positively with positive emotion, popularity and friendship-extensiveness, and negatively with negative emotion and anxiety (Miners, 2008).

One of the most obvious locations for mindfulness is the growing work on social and emotional learning (SEL) which operates in various parts of the developed world under a wide range of titles such as emotional intelligence/ literacy, social and emotional learning, citizenship, resilience, positive psychology, character, values, happiness, and wellbeing (Weare, 2004). Worldwide there are literally thousands of SEL programmes, with a solid overall success rate (Durlak et al, 2011, Zins *et al.*, 2004), and although there have been some criticisms and concerns, systematic reviews (e.g Weare and Nind, 2011) have found no evidence of any widespread adverse effects. The goals of SEL include increasing self awareness, emotional regulation, calm, resilience, compassion and empathy (Goleman, 1996), all attributes which have been shown to be increased by mindfulness (Baer 2003; Baer (ed) 2006: Salmon *et al*, 2004). The structure of SEL programmes, many of which contain regular curriculum based lessons which spiral through the years of schooling, explicitly building emotional and social skills, often supported by staff development and whole school approaches,

offers a promising framework into which mindfulness can easily and naturally fit (Weare and Nind, 2011). As evidence for the impact of mindfulness, and thus its respectability, increases, work to link mainstream SEL with mindfulness is now developing rapidly. ‘Inner Resilience Programme’ (2010) (Lantieri, 2008; (Jennings and Foltz, 2009; Hawn Foundation, 2010; Schonert-Reichel, 2008).

Mindfulness can also clearly be linked with what is traditionally seen as the core business of education, improving academic learning and performance, with the development of conventional cognitive intelligences and the concept popular in business and in education of ‘executive function’. Several of the studies cited above (e.g. Flook et al, 2010; Schonert-Reichl and Hymel, 2007; Semple et al., 2005) and Beauchemin et al, 2008) have shown mindfulness to have positive effects on intellectual skills, improving sustained attention, visual-spatial memory, working memory, and concentration in adults and increasingly with children: several of the studies with young people discussed above show strong links with learning. It would appear that when children and young people learn to be more ‘present’ and less anxious they can pay attention better and improve the quality of their performance, in the classroom, on the sports field, and in the performing arts for example. They often become more focused, more able to approach situations from a fresh perspective, use existing knowledge more effectively, and pay attention. Such indicative evidence of the impact of mindfulness on cognitive skills is likely to appeal to all schools, including those which do not rate mindfulness, social and emotional learning and wellbeing very highly as priorities. It will be interesting to see if work on mindfulness develops within mainstream school subjects, as has been done to a small extent already within physical education for example (Napoli, Krech & Holley (2005).

More broadly, mindfulness can support efforts to consider the most fundamental social and even spiritual issues of all, such as social responsibility, the place of the human race on the planet and even questions of the ultimate meaning and purpose of life. There is an increased awareness of humanity’s social

interdependence and mutual responsibility, resulting in an increased political will to address major social, ecological and economic issues such as poverty, war and conflict, climate change, and global shortages of basic commodities. Education is increasingly called upon to help address such problems by enabling students to develop attributes such as a sense of connectedness, altruism, empathy, compassion, and control of acquisitiveness and greed (Battistich *et al,* 1997). To all of these goals, mindfulness, with its known impacts on these qualities, is being suggested as having a major potential contribution to make (Lawlor & Schonert-Reichl, 2008; Mind Life Institute, 2010).

Contemplatives in particular are increasingly interested in the role the school can play in developing a deeper awareness of mindfulness, spirituality, the need to live simply and sustainably and the applicability of ancient wisdom in the modern world. To give but two examples. Thich Nhat Hahn, a Zen master and noble peace prize nominee, whose concepts of 'interbeing' and 'engaged buddhism' has led his order to integrate with secular efforts to promote peace, goodwill and sustainable living is leading a set of retreats around the world on the theme of mindfulness and education, focusing particularly on the need to nourish and sustain teachers and build supportive school communities. The influential Mind Life Institute, in which the Dalai Llama is a major figure, which aims to bring together eastern wisdom with western science, held its annual conference in 2009 on the theme of 'Educating world citizens: Educators, scientists and contemplatives dialogue on cultivating a healthy mind, brain and heart' (Mind Life Institute, 2010).

Conclusions

Work on mindfulness with young people has a developing presence and can be effective on a very wide range of outcomes. Well conducted mindfulness interventions have been shown to be popular with students and staff, and capable of addressing the problems of the young people who take part, and improve their wellbeing, reduce worries, anxiety, distress, reactivity and bad

behaviour, improve sleep, self esteem, and bring about greater calmness, relaxation, and self-regulation and awareness as well as improving aspects of cognitive function, and also some aspects of physical health. Mindfulness correlates positively with wellbeing, positive emotion, popularity and friendships, and negatively with negative emotion and anxiety. There are several possible promising locations for it within mainstream education and the health services, for example within SEL, work on mental health, work on the process of learning, and staff development. The various studies reviewed in this paper, taken together with the strong support from the pilot work with teachers, and the substantial work with adults and on social and emotional learning more generally, suggest that for schools and the health service to engage in mindfulness is likely to have beneficial results on the emotional wellbeing, mental health, ability to learn and even the physical health of their students and patients as well as on the staff and carers. In these straitened times, it is worth reflecting that such interventions are relatively cheap to introduce and have an impact fairly quickly.

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