UNIVERSITY OF SOUTHAMPTON

FACULTY OF SOCIAL AND HUMAN SCIENCES

School of Psychology

Mindfulness with children and adolescents: current research and future directions

by

Verity Hannah Holland

Thesis for the degree of Doctorate in Educational Psychology

August 2012

UNIVERSITY OF SOUTHAMPTON

ABSTRACT

FACULTY OF SOCIAL AND HUMAN SCIENCES

SCHOOL OF PSYCHOLOGY

Doctorate in Educational Psychology

MINDFULNESS WITH CHILDREN AND ADOLESCENTS: CURRENT RESEARCH AND FUTURE DIRECTIONS

by Verity Hannah Holland

Mindfulness, "the awareness that emerges through paying attention on purpose, in the present moment and non-judgementally to the unfolding of experience" (Kabat-Zinn, 2003; p.145) is associated with improved well-being, cognitive functioning and distress in a range of chronic disorders in adults and is additionally becoming more prevalent in the treatment of a number of clinical difficulties in young people, such as anxiety and ADHD. Evidence suggests mindfulness may promote young people's social and emotional functioning and academic performance. This has led to a growing interest in teaching mindfulness in schools to children and adolescents who do not have clinical diagnoses, where it is possible to use mindfulness in a universal, proactive way, to increase well-being and resilience in the face of potential challenges, rather than having a reactive focus on the alleviation of symptoms and problem behaviours. As with any emerging intervention, examining whether it works must be considered alongside the question of why it works. Focusing on mindfulness training delivered in schools, this paper updates a preliminary review (Burke, 2010) examining the effectiveness of mindfulness-based interventions delivered to children and adolescents, and provides an initial exploration of the possible underlying mechanisms of change facilitated by mindfulness in young people (e.g. relaxation, metacognitive awareness). There is increasing evidence to suggest that mindfulness training has a positive impact on a range of outcomes, however methodological issues remain and outcomes are less well established for some young people, for example adolescents in typical secondary settings. The review is therefore followed by a study that aimed to evaluate the effects of the '**.**b' (Stop-Breathe-Be) mindfulness course on early adolescents' well-being and academic functioning. 120 11 to 12 year olds from a mainstream secondary school took part in the intervention or control groups. Following the eight-week '**.**b' course, as hypothesised, participants in the intervention group (N=72) demonstrated increased resilience and improved experience of stress, as well as improved inattentive behaviour (as rated by teachers) compared to passive control group participants (N=48). There were no significant differences between groups on measures of mindfulness, aggressive behaviour or academic achievement. Implications for teaching mindfulness in schools are discussed.

List of Contents

List of Tables

List of Figures

Declaration of Authorship

I, VERITY HANNAH HOLLAND, declare that this thesis entitled “Mindfulness with children and adolescents: current research and future directions” and the work presented in the thesis are both my own, and have been generated by me as the result of my own original research. I confirm that:

- this work was done wholly or mainly while in candidature for a research degree at this University;
- where any part of this thesis has previously been submitted for a degree or any other qualification at this University or any other institution, this has been clearly stated;
- where I have consulted the published work of others, this is always clearly attributed;
- where I have quoted from the work of others, the source is always given. With the exception of such quotations, this thesis is entirely my own work;
- I have acknowledged all main sources of help;
- where the thesis is based on work done by myself jointly with others, I have made clear exactly what was done by others and what I have contributed myself;
- none of this work has been published before submission.

Signed:……

Date:……

Acknowledgements

I would like to thank my supervisor, Dr. Nick Maguire for his knowledge, advice and support in conducting this review and empirical study. My sincere gratitude to all the pupils and members of staff at St Crispin's School who participated in this study; it was a pleasure to work with them. My particular thanks to Mrs M. Sampson for the time and energy she gave to this project.

My love and thanks to Kati, Rachel, Jamie and the Severus Avenue gang for all their support during the writing of this thesis and throughout my Doctorate. My particular thanks to Lucy and my parents, Marj and Geoff Holland, for their unceasing love and belief in me. This is dedicated them.

Abbreviations

.b	"Stop-Breathe-Be" (mindfulness course for children and adolescents)
%	percent
ACT	Acceptance and Commitment Therapy
ADHD	Attention Deficit Hyperactivity Disorder
ANOVA	analysis of variance
APA	American Psychiatric Association
ASQ	Adolescent Stress Questionnaire
β	standardised beta
CAMM	Child and Adolescent Mindfulness Measure
CBT	Cognitive Behaviour Therapy
CD	Conduct disorder
DBT	Dialectic Behaviour Therapy
df	degrees of freedom
EP	Educational Psychologist
ERS	Ego-Resiliency Scale
F	test statistic of analysis of variance
KIMS	Kentucky Inventory of Mindfulness Scale
LKM	Loving-Kindness Meditation
M	mean
Mdn	median
MANOVA	multivariate analyses of variance
MBCT	Mindfulness-Based Cognitive Therapy
MBCT-C	Mindfulness-Based Cognitive Therapy for Children

MBSR	Mindfulness-Based Stress Reduction
MiSP	Mindfulness in Schools Project
N	sample size
p	probability (significance of a test statistic)
PMR	Progressive Muscle Relaxation
PTSD	Post-Traumatic Stress Disorder
r	Pearson's correlation test statistic
SD	standard deviation
τ	Kendall's tau correlation test statistic
T1	Time 1 (pre-intervention)
T2	Time 2 (post-intervention)
TaMHS	Targeted Mental Health in Schools
TAU	treatment-as-usual
TD	Typically Developing
TRF	Teacher Report Form
U	test statistic of Mann-Whitney U test
UK	United Kingdom
V	Pillai's trace, test statistic for multivariate analysis of variance
W_s	test statistic of Wilcoxon signed-rank test

Chapter 1: Literature review

Mindfulness meditation with children and adolescents: Does it work? How does it work?

"The faculty of voluntarily bringing back a wandering attention, over and over again, is the very root of judgment, character, and will. . . An education which should improve this faculty would be the education par excellence"

William James, 1890

The *Educational Psychology* journal has been used as a guide in determining the preparation of this paper.

1.1 Introduction

Mindfulness meditation, which is referred to in the literature as simply mindfulness, is a natural, cultivatable skill, which is used extensively and has proven to be effective with clinical populations of adults in the treatment of a range of chronic stress and pain-related disorders (Kabat-Zinn, Lipworth & Burney, 1985; Teasdale et al, 2000) and in the cultivation of enhanced emotional well-being and mental health (Fang et al, 2010). The application of mindfulness to non-clinical populations of adults is also becoming more widespread, where it is utilized in a proactive, preventative way, in line with positive psychology (Seligman & Csikszentmihalyi, 2000), which aims "to understand and build those factors that allow individuals, communities, and societies to flourish" (p. 13), rather than focusing solely on pathology. Research supports this shift, demonstrating a number of benefits of mindfulness on psychological and social functioning (Falkenström, 2010; Fredrickson et al, 2008).

More recently, there has been growing interest in the application of mindfulness with children and adolescents, and although the literature base is not as extensive, research suggests that mindfulness is enjoyed and accepted by young people and may have an efficacious impact on a range of outcomes including emotional and social well-being and behaviour. Moreover, there are reports (Garrison Institute Report, 2005), pilot projects (The Oxford Mindfulness Centre, The Mindfulness in Schools Project) and media attention (Brown, 2007; Lister, 2010) which highlight the widespread growing interest in developing mindfulness in this younger population.

A preliminary review of the evidence in children and adolescents was carried out by Burke (2010) who concluded that extant research suggested that teaching mindfulness to children and adolescents is feasible and acceptable. The reviewed studies' methodological weaknesses precluded any certainty in drawing further conclusions about the efficacy of mindfulness in this population; this was due in part to the nature of these "innovative" studies as a prelude to further empirical research. The number of studies exploring mindfulness with young people has increased rapidly since Burke's review, and so an update on this is warranted, to ascertain whether her suggestions regarding the need for larger-scale, methodologically sound controlled trials, with non-clinical populations (particularly adolescents), using age-appropriate measures and apposite adaptations of adult mindfulness curriculums, have been upheld.

As with any emerging intervention, the question of whether it is effective must be considered alongside the equally pertinent question of *why* it is effective. As the empirical evidence for mindfulness-based interventions grows, there is increasing acknowledgement

of the importance of examining the processes or mechanisms that lead to beneficial outcomes (Bishop et al, 2004; Dimidjian & Linehan, 2003). Preliminary attempts to do this have suggested, for example, relaxation, attention-regulation or self-regulation as possible underlying processes (e.g. Coffey, Hartman & Fredrickson, 2010; Shapiro, Carlson, Astin & Freedman, 2006). However, no previous attempts have been made to draw together the different models and examine extant evidence for these possible mechanisms in children and adolescents. Exploring why or how mindfulness might work becomes increasingly important as prevalence of mindfulness training in schools grows.

This review therefore, has two main aims; to review the current empirical evidence for teaching mindfulness to children and adolescents, and explore the mechanisms of change facilitated by mindfulness in this population. To achieve these aims, mindfulness is defined, noting the associated issues, along with a description of predominant mindfulness-based programmes. An updated review of current research is provided, focusing on school-based mindfulness interventions delivered to non-clinical populations. A systematic approach is used for this to ensure a reliable and objective exploration of current evidence; inclusion and exclusion criteria are provided in the introduction to this section. Following this is an initial exploration of the possible mechanisms of change facilitated by mindfulness in children and adolescents, set in the context of current models of mindfulness in adults. The review concludes with a number of proposals for future work in this area.

1.2 Description

1.2.1 What is mindfulness?

The origins of mindfulness are ancient, developed originally from early Eastern religions. As a holistic teaching philosophy, mindfulness is often attributed to the Buddha, who more than two thousand years ago, developed it as a practice whose purpose was to increase compassion, relieve suffering and help in the attainment of the peace of enlightenment (Armstrong, 2001). Mindfulness is often taught and practiced through mindfulness meditation exercises which offer "scaffolding" for developing the practice (Kabat-Zinn, 2005). However it is an inherent, natural skill that can be cultivated through daily activities. Mindfulness should not be confused with other forms of meditation. Its aim is not to distance oneself from reality, empty the mind of thought or focus (only) on a specific stimulus (such as a chant). Rather it is to observe and be aware of the ever-changing "stream of internal and external stimuli as they arise" (Baer, 2003; p.125). Mindfulness should also not be misperceived as being the same as relaxation, as although mindfulness training may result in increased relaxation, the aim is not to be more relaxed, but to be aware of, and accept, whatever state the mind and body are in (Dimidjian & Linehan, 2003).

1.2.2 Definition

Definitions of mindfulness are plentiful and vary widely across disciplines. Although consensus has not been reached on an operational definition, a common theme across the extant definitions is that it is a particular way of paying attention. Semple and Lee (2008) state: "at its simplest, mindfulness practices are attention-training practices" (p. 85). Wallace (2008) argues that although paying attention is key, "when mindfulness is equated with bare attention, it can easily lead to the misconception that the cultivation of mindfulness has nothing to do with ethics or the cultivation of wholesome states of mind[1] (p. 61)". Thus it is suggested that there is more to mindfulness than paying attention. A particular state of mind is also cultivated during the practice; *how* one attends, the quality of attention or perspective, is critical. Claxton (1990) defines mindfulness as "simply the knack of noticing without comment whatever is happening in your present experience…seeing moment-to-moment what the mind is up to" (p. 111) and it is the "without comment" aspect of Claxton's definition that hints at a particular attitude. Brown and Ryan (2003) describe mindfulness as "an *enhanced* attention to, and awareness of, current experience" (p. 822), within core characteristics of being receptive, open and non-judgemental. A non-judgemental attitude is also acknowledged in possibly the most widely quoted definition in the clinical world, that of Jon Kabat-Zinn (2003, p.145), who explains that mindfulness is "the awareness that emerges through paying attention on purpose, in the present moment and non-judgementally to the unfolding experience"[2]. As this includes the components that recur among definitions, it is this definition which will be used in the current review.

1.2.3 Psychological underpinnings

Some scepticism has been expressed about the possibility of operationally defining mindfulness, due inter alia, to the complexity of the construct and the experiential and

[1] Wallace (2008) discusses the balance found in Buddhist mindfulness meditation between *samatha* (usually translated as 'calm' meditation), and is what Western definitions regarding the cultivation of attention refer to, and *vipassanā* ('insight' meditation), which is the observation, exploration, investigation of what is happening in the present moment at the deepest level. Buddhist mindfulness always uses both samatha and vipassanā; secular mindfulness also involves both, however it may not draw a distinction between the two.

[2] In contrast to this, Brown and Ryan (2003) describe 'mind*less*ness' as the comparative absence of mindfulness, that is, a constrained consciousness which pulls awareness away from the present moment (for example, through rumination on the past or anxiety about the future), and leads one to live on 'automatic pilot' and engage in behaviour that is compulsive and out of awareness (Kabat-Zinn, 1990).

embodied nature of the experience (Hick, 2009). Grossman (2008) states that "Mindfulness is a difficult concept to define, let alone operationalize" (p. 405) and suggests that definitions used within Western scientific models may alter or trivialise the original meaning of mindfulness from a Buddhist understanding. Issues with definition lead naturally to difficulties with measuring mindfulness and there has been much debate about developing a measure which has acceptable levels of both construct and external validity. An in-depth examination of this particular issue is outside the scope of this paper; see Grossman (2008) and Baer, Smith, Hopkins, Krietemeyer and Toney (2006) for an exploration.

Despite the debate around definition, there have been several attempts to examine the psychological construct of mindfulness. For example, Baer et al (2006) posit five facets of mindfulness: non-reactivity to inner experience, observing internal events, acting with awareness, describing/labelling with words, and non-judging of experience. Through exploratory factor analysis, Baer found that these facets were moderately correlated but internally consistent, suggesting distinct but related constructs. The 5-factor model was confirmed in a further study by Baer et al (2008) and has been used as the basis of subsequent studies (e.g. Cash & Wittingham, 2010).

Bishop et al (2004) suggest two main components of mindfulness: self-regulation of attention and change in orientation or attitude towards experience marked by curiosity, openness, compassion and acceptance. They propose that mindfulness is a process that exists when attention is regulated to bring a quality of awareness and acceptance to one's experience. This two-component definition has received empirical support from subsequent research such as Coffey et al (2010).

Shapiro et al (2006) concur with this, but add a third "axiom" in their model of mindfulness: *intention* (from the intention to practice mindfulness, to the intention needed to switch attention), *attention* (skills of focused and broad attention, and the ability to switch attention) and *attitude* (attitudes of non-judgement, patience and trust), which work together as a process for individuals to develop a de-centered perspective on their experience, allowing them to respond rather than react to their experiences.

Thus a range of models are postulated for the psychological construct of mindfulness, but all share two main facets: attention or observation of present moment experience, involving focused and broad attention to thoughts, feelings and bodily sensations, and a change in attitudes or characteristics, for example being non-judgemental, curious and open.

1.2.4 Technique, process, outcome

There is some discussion in the literature as to whether mindfulness should be considered as a technique, a process or an outcome and this issue warrants mention in a general description of mindfulness. Grossman (2008) raises that mindfulness "is sometimes described as a state of mind, a trait of mind, a particular type of mental process, or the method for cultivating some or all of the preceding categories" (p. 405) and similarly Hayes and Wilson (2003) refer to mindfulness as a set of techniques/methods, a process that can produce outcomes, and an outcome in itself. Bishop et al (2004) indicate mindfulness is a process, a state rather than a trait, as it relies on the regulation of attention within an accepting orientation, and, once attention is no longer brought purposefully in this way, mindfulness will cease. Yet others (e.g. Kabat-Zinn, 2003) argue that mindfulness is an inherent, natural trait (coined 'unfabricated mindfulness'; Goldstein, 2002). In support of this, evidence suggests that individuals in the general population, the majority of whom have no formal experience of mindfulness meditation, differ on the tendency to be mindful, as determined by a dispositional measure (Brown & Ryan, 2003).

Given the range of models described above, it may be that certain elements of mindfulness could be understood as outcomes of mindfulness practice rather than components of the construct of mindfulness, for example non-reactivity, compassion or acceptance (Baer et al, 2006; Bishop et al, 2004; Brown & Ryan, 2004). In this review, acceptance will be considered as a possible process, due to its mention in a range of definitions/models of mindfulness.

1.2.5 Related Constructs

It is worth noting here that there are some similarities between mindfulness as described above, and a number of other related constructs[3], for example Langer's work regarding mindfulness as a creative cognitive process, which involves paying attention to the stimulus properties of primarily external situations while actively constructing new meanings and seeking multiple perspectives. This is qualitatively different from mindfulness as described above (see Langer, 1989). Both constructs involve attentional engagement, however mindfulness as used in this review involves paying attention to primarily internal stimuli such as thoughts, feelings and bodily sensations and the inhibition of such elaborative construction processes. There is also clear overlap between mindfulness and metacognition;

[3] Other constructs that may bear relation to mindfulness as it is held in this review may include *flow* (Csikszentmihalyi, 1997), *absorption* (Tellegen & Atkinson, 1974) and *emotional intelligence* (Salovey, Mayer, Goldman, Turvey and Palfai, 1995). An in-depth exploration of the overlap between mindfulness and similar constructs is outside the scope of this review, but is available in a number of other publications; for example, see Brown & Ryan (2003); Langer & Moldoveanu (2000); Sternberg (2000).

both involve awareness and observation of the separateness of the individual and their thoughts. Siegel (2007) suggests that it is the awareness that is gained through mindfulness, the sense of self-observation (we are aware of our awareness), that facilitates the metacognitive dimension of mindfulness. This will be explored further when metacognition is considered as a mechanism of change facilitated by mindfulness.

1.2.6 Mindfulness training programs

The predominant mindfulness-based approaches which involve regular mindfulness meditation practices are Mindfulness-based Stress Reduction (MBSR), developed by Kabat-Zinn (1990) for the treatment of many disorders including chronic pain, and Mindfulness-based Cognitive Therapy (MBCT) (Segal, Williams & Teasdale, 2002), which combines MBSR with aspects of Cognitive Behavioural Therapy (CBT) and is specifically designed for patients with clinical recurrent depression[4].

MBSR and MBCT are eight-week systematic courses led by experienced practitioners, designed to cultivate mindful awareness through psychoeducation and experiential opportunities. Mindfulness practices derived from Buddhist origins are applied in a secular context in MBSR/MBCT courses; such interventions are universal and are not tied to particular philosophies or religions (Baer, 2003; Kabat-Zinn, 1990). Individuals generally attend eight two and a half hour group sessions, in which they are introduced to a number of core mindfulness practices, for example sitting meditation, the body scan, mindful walking, and mindful yoga. They are also introduced to the idea of 'informal' mindfulness practices, wherein awareness is brought to the moment-by-moment experience of everyday activities such as showering, cooking or eating. The structure of the courses requires home practice assignments each week; typically individuals are encouraged to complete formal mindfulness practices (led by recorded instructions on audio files) of around forty-five minutes, six days per week, and informal mindful awareness of everyday activities.

1.3 Evidence for mindfulness-based interventions with young people

[4] Dialectic Behaviour Therapy (DBT) and Acceptance and Commitment Therapy (ACT) also develop mindfulness skills, however these interventions do not involve core regular meditation practices in the same way (Baer & Krietemeyer, 2006; Linehan, 1993). Exploration of ACT and DBT is outside the remit of this paper, where the focus is on interventions which involve regular mindfulness meditation practices. However, there is a large body of published literature around DBT and ACT, e.g. see Hayes (2004); Hayes, Boyd & Sewell (2011); Murrell & Scherbarth (2006).

Previous research has primarily focused on evaluating the efficacy of mindfulness training with adults and evidence demonstrates benefits of mindfulness in this population; overall medium effect sizes (*d* .50-.59) are reported in a number of reviews (e.g. Grossman, Nieman, Schmidt & Walach, 2004). Research shows that mindfulness is effective in alleviating symptoms of distress in a range of conditions, including anxiety (Carmody, Reed, Kristeller & Merriam, 2008), chronic pain (Morone, Greco & Weiner, 2008), high blood pressure (Carlson, Speca, Faris & Patel, 2007) and eating disorders (Kristeller, Baer & Quillian-Wolever, 2006). Mindfulness training is a recognised treatment of recurrent depression in adults (NICE, 2009) and has a wide range of non-clinical applications such as relationship counselling (Carson, Carson, Gil & Baucom, 2004) and prison interventions (Samuelson, Carmody, Kabat-Zinn & Bratt, 2007). Research with non-clinical adults also demonstrates that mindfulness positively affects well-being (Brown & Ryan, 2003), sleep (Winbush, Gross & Kreizter, 2007) and 'flourishing', a sense that one is living a rich and fulfilling life (Coffey et al, 2010).

Although there is less research regarding mindfulness with children and adolescents, extant research has reached similar conclusions about the effect of mindfulness on distress, behaviour and attention in a range of conditions, such as depression (Biegel, Brown, Shapiro & Schubert 2009), anxiety (Semple, Reid & Miller, 2005), ADHD (Zylowska et al, 2008) and conduct disorder (Bögels, Hoogstad, van Dun, deSchutter & Restifo, 2008). Though initially focusing on the alleviation of negative disorders and emotions, possibly due to the urgency and immediacy of the problems these present (Seligman & Csikszentmihalyi, 2000), research also highlights positive effects of mindfulness training on attention, well-being and behaviour (Lee, Semple, Rosa & Miller, 2008; Napoli, Kreech & Holley, 2005) in children without clinical diagnoses, suggesting it may be an appropriate universal, preventative, school-based intervention to foster protective factors in the face of challenge and change (Graber & Brooks-Gunn, 1996)

Burke's (2010) review concluded that mindfulness with young people is an acceptable, feasible and potentially effective intervention. However she highlighted a number of issues with extant research that must be addressed in future studies if any firm conclusions are to be drawn: 1) methodological weaknesses (small sample sizes, no control group, no randomisation); 2) reliance on self-report measures; 3) use of a range of poorly-reported and adapted interventions containing variable amounts of mindfulness meditation practices; 4) use of reliable, valid measures of mindfulness. Since this review, a number of further studies have been published and this section aims to examine whether these studies address the issues raised by Burke. This section will therefore not include the material originally examined in Burke's paper as the aim is not to reconsider previous conclusions,

rather it is to build on Burke's work and appraise the findings and quality of research carried out with children and adolescents since her review.

Published articles reviewed were collated through a number of searches using several electronic search engines[5]. Search terms included "mindfulness", "children", "adolescents", "school", "MBSR" and "MBCT". Studies were included if they were published before February 2012, written in English and involved children and/or adolescents; dissertations and conference papers were excluded, as were studies involving preschool children and single case studies.

As interest in introducing mindfulness to young people grows, there is a need to consider in what settings they may best be taught this skill. Mindfulness interventions are currently delivered in a variety of settings including in- and out-patient clinics (Bootzin & Stevens, 2005) and community health centres (Bögels et al, 2008). However, the teaching of mindfulness in schools has received increasing attention in recent years (Burnett, 2009). The school is one environment in which most young people spend a good deal of time, in which they are accustomed to being introduced to new experiences and through which they are likely to have the most consistent and regular access to mindfulness; Hooker and Fodor (2009) state that "schools seem to be ideal settings for introducing mindfulness techniques" (p. 90). Consequently, the focus here is mindfulness-based interventions delivered in schools and so studies were also excluded if they were carried out outside the school environment or if they involved training mindfulness to significant adults such as teachers and parents (e.g. Bögels, Lehtonen & Restifo, 2010)[6]. Nine studies were identified that met these criteria.

1.3.1. Research with children

Joyce, Etty-Leal, Zazryn, Hamilton and Hassed (2010) evaluated a mindfulness curriculum with children aged 10-12 years in two Australian primary schools. The ten-session course, which included specific practice skills, was delivered to 175 children. Significant reductions in self-reported behaviour problems and depression were found following the intervention; these were chiefly found in children showing clinically significant scores at pre-test. The study also reports positive qualitative findings regarding the enjoyment, acceptability and

[5] PsycINFO, PsycARTICLES and SpringerLink

[6] This was because the focus in the present paper pertains to teaching mindfulness skills to children and adolescents in schools. However the value of mindfulness-based interventions involving significant adults is not disputed; see Harnett and Dawe (in press) for a review which includes mindful parenting interventions and mindfulness-based interventions for teachers and teaching assistants.

ease of delivery of the mindfulness course in schools. Findings suggested that mindfulness can be delivered in schools and can have positive effects on depression and emotional health, particularly in children who display difficulties in these areas before the intervention. The limitations of the study include the lack of control group, no control of other interventions conducted in the school and reliance on self-report measures. Additionally, the mindfulness course was not based on any recognised curriculum (and details of the structure/practices were not included in the write-up) or standardised across different classrooms – teachers were free to tailor the materials as they wished. Joyce et al (2010) assert that the processes of introducing mindfulness into schools was the primary focus of the study, not the content of the course itself, however this limits replicability of the research and questions the extent to which all children in the study were taught the same mindfulness skills.

With a population of young people from disadvantaged backgrounds, Mendelson et al (2010) examined the effects of an intervention aimed to improve self-regulation (which included mindfulness, yoga and breathing exercises) with children aged 9-11 years. Four American inner-city public schools were randomised to either the experimental condition or a passive, wait-list control condition. Findings suggested that the intervention was feasible and acceptable in these schools. Significant reductions were found on measures of involuntary response to stress in the experimental group versus controls. A trend was also noted for greater trust in friends, however no effects were found on depression or negative or positive affect. Limitations of this study include the reliance on self-report measures; however it provides evidence that mindfulness-based interventions are useful in decreasing stress in disadvantaged youth.

One study has compared mindfulness-based intervention to an alternative program (rather than a no-intervention control group). Liehr and Diaz (2010) carried out a small randomised controlled trial comparing a mindfulness-based intervention (ten fifteen minutes classes focusing on mindful breathing and movement) with a health education intervention. Eighteen minority and disadvantaged children (mean age 9.5 years) were randomly allocated to mindfulness or health-education groups. A significant decrease in self-reported depression was found for the mindfulness group compared to controls, and reductions in anxiety were noted for both groups. The sample size was small and the study was carried out in school during a summer camp, however the intervention was classroom-based and could be replicated in term-time, and the robust design adds credence to the findings of the study.

Since Burke's (2010) review, one study has examined the effect of mindfulness on learning and associated cognitive processes. Flook et al (2010) examined effects of the "InnerKids" mindfulness-skills program which has been taught world-wide. Their evaluation with 96 7-9 year old American elementary school students demonstrated improvements in experimental group participants in parent- and teacher-rated executive function compared to no-intervention controls. Analysis of subscales of the measure of executive function behaviours revealed that improvements in children's abilities to shift, initiate and monitor were reported by teachers and parents, central skills practiced in mindfulness. Flook et al note that children with lower pre-course self-regulation experienced greatest improvements in behavioural regulation, meta-cognition and global executive control. Strengths of this particular study include the use of a standardised course of mindfulness, use of an ecologically-valid teacher and parent report measure (though teachers were not blind to condition and so report bias cannot be ruled out) and the involvement of parents to ascertain whether improvements in behaviour had generalised outside the school setting.

1.3.2 Research with adolescents

Semple, Lee, Rosa and Miller (2010) report a study involving 25 children and early-adolescents (aged 9-12 years) with reading difficulties from minority, low-income families, evaluating their 12-week MBCT for Children (MBCT-C) curriculum. Semple et al's randomised, cross-lagged design provided a wait-list control group, a second trial and a 3-month follow-up for participants in the first trial. Significant improvements were found on a measure of attention compared to controls, which were maintained at follow-up; particularly valid findings in children who have reading difficulties, which is associated with concentration and behaviour problems. The authors postulated that anxiety influences attention, which in turn impacts on academic performance. However, academic achievement was not measured and significant reductions in anxiety and behaviour problems were found only in those with elevated levels at pre-test. Strengths of the study include the randomised controlled trial design and use of a published, standardised course of mindfulness for young people. The small sample size and the fact that the interventions were carried out in small groups (thus allowing for the possibility that a member of the group would influence treatment effects for other members) are limitations of the study.

With a much larger sample (*N*=246), Schonert-Reichl and Lawlor (2010) investigated the effects of a 'Mindfulness Education' (ME) programme with male and female pre- and early-adolescents (aged 11-13 years) in Canadian middle schools. Participants in six ME classes, who completed ten sessions (and short daily mindfulness

practices), improved significantly on a self-report measure of optimism, compared to participants in six no-intervention control classes. A trend towards increase in positive emotions was also found. Teacher-reports also showed an improvement in social and emotional competence and a decrease in oppositional and aggressive behaviour in ME group participants relative to controls. Pre-adolescents in the ME group also showed an increase in self-concept, however, interestingly, early-adolescents showed a decrease, which the authors postulate may be due to the different functions of an increased focus on self-awareness and thoughts and the interaction of this with differences in self-consciousness, in these two age groups. Schonert-Reichl and Lawlor also include teacher-reports of behaviour and a valuable examination of program implementation fidelity, finding high implementation fidelity for the ME course and positive feedback from teachers regarding ease of implementation. Limitations of the study again include the use of self-report measures. Additionally, analyses were conducted at the individual level though the unit of matching was the classroom; this may have biased the tests used in the identification of intervention effects.

In research with older adolescents, Broderick and Metz (2009) evaluated the 'Learning to BREATHE' curriculum, an MBSR-derived mindfulness programme, with a 120 17-19 year old pupils in an American independent girls' school. Participants showed significant decreases in negative affect, and increases in calm, self-acceptance and relaxation following the course, compared to passive controls. Qualitative reports indicate that participants valued and enjoyed the intervention. The fact that the study involved a control group and the intervention was based on the structure and theory of MBSR is positive. Limitations of this study include the gender restriction, the very small, significantly younger control group ($N = 13$; mean age 16.4 years) which may have affected between group comparisons and reliance on self-report measures.

Conversely, targeting male adolescents, Huppert and Johnson (2010) report an evaluation of the Mindfulness in Schools Project (MiSP) pilot program, a four-session mindfulness course based on MBSR, which was delivered to 14-15 year olds in two English boys' independent schools. They found significant effects on mindfulness and well-being in those students who regularly did 10 minutes of home practice a day, compared to controls and those who did not practice. Lack of exposure to mindfulness due to the short length of the course was cited as possible reason for the lack of significant results in those who did not do home practice. Further, Huppert and Johnson report that the mindfulness course was received well and many pupils (43%) felt the course was too short. The inclusion of an age-matched passive control group and relatively large sample size are among the strengths of

this study. However limitations include lack of randomisation to experimental and control conditions, the gender restriction and the use of subjective measures.

1.3.3 Analysis

Taken together, studies reviewed suggest positive findings regarding the effectiveness of school-based mindfulness interventions and add to the positive qualitative findings with regards the acceptability, feasibility and enjoyment of mindfulness-based interventions in schools. There has been an increase in the number of studies carried out in schools with non-clinical populations of young people and the US bias that exists in much of the research is slightly diluted, with a number of studies being carried out elsewhere. A number of studies report positive findings for children in inner-city or deprived-area schools, and in single-sex independent schools. Outcomes in typical secondary schools are less well established and there remains a deficit of research with non-clinical adolescents.

Burke's appeal for research that addresses some of the methodological weaknesses seen in previous studies has been upheld in recent research. For example, with the exception of two studies reviewed here (Liehr & Diaz, 2010; Semple et al, 2010) all have moderate to large sample sizes (N=97 - N=246) and all apart from one (Joyce et al, 2010) compare the effects of mindfulness against a control group, allowing authors to account for maturation effects and improving generalisation of results outside the intervention contexts, which may previous studies into school-based mindfulness did not. Lack of randomisation remains an issue; two RCTs (Liehr & Diaz, 2010; Semple et al, 2010) are offered amongst the recent research however these both involve small samples. The assertion that large-scale randomised controlled trials are needed continues to be valid.

The majority of the studies reviewed by Burke (2010) relied heavily on self-report data and this continues to be an issue, with all but two studies solely using self-report measures. The use of teacher-report data and rating scales (Schonert-Reichl & Lawlor, 2010) and condition-blind parent-reports (Flook et al, 2010) is promising. However future research should continue to gather information from a range of sources including teacher- and parent-reports of behaviour and objective measures of improvement, such as scores on tests of emotion regulation and attention and data on academic achievement.

A number of studies have begun to address Burke's concern regarding the adaptation and evaluation of standardised courses of mindfulness for children (Broderick & Metz, 2009; Flook et al, 2010; Semple et al, 2010), which is positive, ensuring that mindfulness meditation practices are a central feature of what is taught and allowing for future replication studies and expansion of the evidence base. However a number of studies

evaluate interventions that involve 'elements of mindfulness' (Joyce et al, 2010; Mendelson et al, 2010), similar to previous research in which mindfulness was taught alongside skills such as Tai Chi (Wall, 2005), leading to difficulties specifying the unique effects of mindfulness on outcomes. Moreover, Burke (2010) highlighted that all studies in her review had failed to examine the "relative contribution of mindfulness compared with the potential contributions of psycho-education and group support" (p. 142). Only one subsequent study has compared the effect of mindfulness and a similar group intervention (Liehr & Diaz, 2010); although favourable results were found for mindfulness in this study, clearly more research is needed that addresses this issue.

A further limitation of the studies reviewed by Burke (2010) pertains to the specific measurement of mindfulness in young people. Only one study (Huppert & Johnson, 2010) included measurement of mindfulness, and the Cognitive and Affective Mindfulness Scale-Revised (CAMS-R) was used. This was developed for use in adults and may not be suitable for measuring mindfulness in children and adolescents. Future research should aim to include valid measurement of mindfulness in young people and the development of a number of appropriate scales, such as the Child and Adolescent Mindfulness Measure (CAMM; Greco, Baer & Smith, 2011), should make this more achievable. Possibly due to the lack of standardised measures of mindfulness in young people, very few studies reviewed attempt to establish the mechanisms of change facilitated by mindfulness practice in this population, though the findings from a number of these studies contribute to the evidence base surrounding existing models. This is a valuable direction for future research that will be discussed further in the next section of this review (see lemma 1.4).

Thus, there is evidence to suggest that mindfulness-based interventions delivered in schools to children and adolescents can be effective; as Harnett and Dawe (in press) state: "there is reasonable cause for optimism when considering whether to include mindfulness-based approaches within existing school curriculum" (p.6). Studies have noted decreases in internalising symptoms such as depression, anxiety and stress and improvements in behaviour. In line with a move to using mindfulness to build positive emotions, mindfulness impacts positively on optimism, well-being and social and emotional competence, which impacts on children's learning and achievement (Fredrickson, 2001). Moreover, direct improvements have been found following mindfulness-based interventions on learning processes, including executive function and attention. A number of methodological issues remain which it will be important for future research to address.

Hayes and Greco (2008) assert that as research begins to demonstrate positive effects of mindfulness in youth, particularly with regards to its preventative role in building

well-being, the question of how or why mindfulness works in this population must be considered. Injecting some clarity into how mindfulness works in young people is particularly important, given the potential for confusion and anxiety in school staff and/or parents due to misunderstandings or suspicion of the terms 'mindfulness' and 'meditation'[7] (Burnett, 2009; Joyce et al, 2010). What follows is an initial exploration of this.

1.4 Mechanisms of change

Research regarding the mechanisms of mindfulness is still in its initial phase (Dorjee, 2010), however several models of change have been posited to explain the mechanisms by which mindfulness-based interventions beget their effects on physical and psychological outcomes in adults. Little is currently known about the mechanisms of change in children and adolescents (Twohig, Field, Armstrong & Dahl, 2010) and as a starting point, the suitability of adult mindfulness models to explain change in children and adolescents should be explored. What follows is a description of a number of the key models of change and an examination of the evidence for application of these models in young people.

It is noted that mindfulness is a vastly complex construct (Grabovac, Lau & Willett, 2011) and as such, no one exploration can be absolute in its inclusion of every opinion regarding the possible mechanisms involved; moreover, the process of exploring mechanisms in adults is incomplete and on-going, and most of the models are purely suggestions, intended to open further dialogue regarding this interesting construct (Shapiro et al, 2006).

1.4.1 Relaxation

As mentioned previously, mindfulness should not be confused as being the same as relaxation (Dimidjian & Linehan, 2003), however, the relationship between meditation and relaxation is reasonably complex (Baer, 2003). Relaxation has long been part of the general dialogue regarding the effects of meditation (Benson, 1975) and is one of the possible processes that underlies mindfulness (Dunn, Hartigan & Mikulas, 1999). Researchers often note that mindfulness leads to a more relaxed state, which in turn may contribute to the reduction of symptoms needed for effective management of stress-related medical disorders (Kabat-Zinn et al, 1998). Studies with young people have found increased relaxation and

[7] Such potential for anxiety regarding the terminology has led some researchers to introduce mindfulness interventions by another name; for example, Joyce et al (2010) felt that "the term 'meditation' might arouse suspicion among parents that the school was conducting a religious or 'new age program'" (p. 20) and so called it a 'self-awareness and relaxation program'.

calm following mindfulness-based interventions (Broderick & Metz, 2009; Hennelly, 2011) and qualitative reports from young people themselves suggest an increase in relaxation during and after mindfulness training (Huppert & Johnson, 2010). It is possible that increased relaxation may be a process of change underlying some of the outcomes seen following mindfulness interventions as it cultivates contentment (Fredrickson, 2000), a mindful, positive emotion which the broaden-and-build theory of positive emotions (Fredrickson, 2001) suggests could contribute to the happiness, optimism and well-being evident following mindfulness training (Schonert-Reichl & Lawlor, 2010),

However, studies have noted benefits of mindfulness over and above relaxation (Tang et al, 2007) and research suggests that increased relaxation following mindfulness training is not the mechanism that facilitates other outcomes such as decreased psychological distress. Jain et al (2007) compared relaxation and mindfulness and found that although both interventions resulted in decreases in psychological distress and increases in positive mood compared to passive controls, a decrease in rumination was found in the mindfulness group only. The authors posited that the reductions in rumination are unique to mindfulness and are not simply a consequence of relaxation effects, and may be what mediates symptom reduction in mindfulness meditation. Moreover, no studies involving young people have specifically examined the role of relaxation in the relationship between mindfulness and mental health. Thus, although mindfulness training may result in a more relaxed physical state, it is suggested that this is, at most, a favourable side effect of mindfulness practice, rather than an inherent mechanism of change of mindfulness (Baer, 2003).

1.4.2 Attention regulation

Definitions of mindfulness invariably include mention of attention (see lemma 1.2.2); attention that is maintained on immediate experience, allowing for increased awareness of mental events in the present moment. Bishop (2002) highlights that the concepts involved in mindfulness – namely being present in the moment, focusing on the reality and accepting it for what it is – all involve different aspects of attention, which is consistent with the notion that, at a more general level, meditation modifies attention (Valentine & Sweet, 1999; Cahn & Polich, 2006)[8].

[8] The self-regulation of attention through mindfulness encompasses a number of different facets of attentional abilities: moving attention between mental sets or objects as one wishes (switching, Posner, 1980); attending for long periods of time to one stimulus (sustained attention, Parasuraman, 1998); inhibiting elaborative processing of stimuli such as thoughts, sensations (cognitive inhibition, Williams, Mathews & Macleod, 1996).

Carmody (2009) proposes an attentional regulation model of change facilitated by mindfulness. He posits that an automatic mental cycle occurs when attention is not intentionally directed, associating thoughts, feelings and bodily sensations; for example a fearful thought, distressing feelings and elevated arousal levels (as the content of the components of the cycle represent threat). In mindfulness practice, individuals apply effort to increasing their awareness of which component of experience attention is directed towards and to developing some control and choice over whether to keep attention where it is or redirect it to another component. In mindfulness training, individuals are taught to redirect their attention to sensations of the breath. This is because breath sensations are affect-neutral for most individuals, thus when attention is redirected to the breath, arousal levels reduce and the conditioned cycle that maintains distress is interrupted. Carmody (2009) proposes that a "model of mindfulness in which attentional skill is central can be conceptualised as facilitating a process of recognition" (p. 277) – recognition of where attention is focused at any moment; recognition of the habits of attention; recognition that attention can be directed; recognition that the affective quality of objects of attention relate to one's arousal and well-being; and recognition of thoughts, feelings and bodily sensations as aspects of internal experience which come together as felt experience[9].

Research lends support to Carmody's attention regulation model of mindfulness. Evidence in adults reports that mindfulness is associated with improvements in sustained attention (Chambers, Chuen-Yee & Allen, 2008; Valentine & Sweet, 1999), shifting attention and inhibition (Jha, Krompinger & Baime, 2007; Ortner, Kilner & Zelazo, 2007; Wenk-Sormaz, 2005) and that improvements are associated with amount of mindfulness practice (Chan & Woollacott, 2007). Ellenborgen, Schwartzman, Stewart and Walker (2006) found that when participants were trained to deliberately direct their attention to the neutral word in a neutral/negative word pair, they showed less negative affect to a subsequent mental stressor, which parallels the process of redirecting attention in Carmody's model.

There is also evidence to support this model in young people. In populations where attention deficits are a significant problem, research has found improved sustained attention (Bögels et al, 2008) and improved shifting and inhibition (Zylowska et al, 2008) following mindfulness training. Improvements in self-reported attention regulation (Hennelly, 2011) and teacher-reported attention skills (Schonert-Riechl & Lawlor, 2010) have been found following mindfulness training in non-clinical young people, compared to controls. Further,

[9] Linked to "clear seeing" of experience in Buddhist mindfulness, thus relieving 'suffering' (ignorance or delusion).

Napoli et al (2005) found that mindfulness training improved 7-10 year olds' performance on an objective measure of selective attention and also impacted on attention-deficit behaviours.

Research demonstrates the importance of attention regulation skills, for example as a key element in well-being (Baumeister, Heatherton & Tice, 1994). Conversely, attentional problems are characteristic of a number of internalising disorders in adults and children, e.g. attentional bias towards feared stimuli in specific phobias (Teasdale, 2004); self-focussed attention in children with social anxiety (Semple & Lee, 2008); avoidance in children with PTSD (Pine et al, 2005). Additionally, research finds that attention is consistently associated with academic achievement outcomes (Duncan et al, 2007). A number of positive outcomes for learning processes have been noted following mindfulness interventions (Flook et al, 2010) and it is proposed that the improvements in attentional control facilitated by mindfulness have positive effects on learning, decision-making, problem solving and other cognitive processes (Beauchemin, Hutchins & Patterson, 2008). Mindfulness also facilitates improvements in memory through attentional control; children often forget things because they are not actually paying attention and may remember things more successfully if they are aware of them and attend to them (Hooker & Fodor, 2008), improvements which may further affect learning and achievement (Fontana & Slack, 1997).

Carmody posits that the increase in attentional control facilitated by mindfulness leads to outcomes in a number of ways.

1.4.2.1 Perceived control over stressful situations

Individuals value the practice of redirecting attention gained through practising mindfulness and report that it helps them cope with distress/stress, giving them an increased sense of control over, and confidence dealing with, stressful situations (Carmody, Crawford & Churchill, 2006). For example, Kabat-Zinn, Lipworth, Burney and Sellers (1987) found that at a 4-year follow-up of participants who completed an MBSR intervention, 30% described themselves as 'regular meditators', however 78-90% said they still used the practice of redirecting attention to the breath and most said it was particularly useful in stressful situations. This increase in perceived control and confidence in distressing situations may come from the decrease in emotional reactivity – as long as attention is kept on the breath (or another affect neutral object) or redirected back to it, levels of tension associated with neutral sensations follow. The re-direction also prevents the escalation of negative thoughts into ruminative patterns associated with depression and anxiety (see 1.4.2.3) and leads to increases in subjective well-being. A small study by Singh et al (2011) found that the

process of learning to redirect attention through mindfulness training[10], in this case to the affective neutral soles of the feet, was the most valued practice for adolescents with externalising disorders, as it disrupted the cycle of automatic aggressive behaviour.

1.4.2.2 Present moment awareness of experience

Carmody's (2009) model proposes that improvements in attentional control facilitated by mindfulness lead to increased recognition of where attention is focused at any given moment and recognition of the habits of one's attention. This in turn leads to attention being less automatically 'hooked' by particular thoughts, feelings or sensations and is thus available to take in the wider landscape of experience, that would otherwise be missed – increasing awareness of present moment experience, linking with a number of definitions of mindfulness[11]. Research with young people supports this claim. Coholic (2011) found improvements in adolescents' ability to direct attention and self-reported increased awareness of their feelings after a mindfulness-based intervention, though this study did not include a control group. Henelly (2011) found that, compared to passive controls, adolescents reported an increase in present moment awareness following mindfulness training and similarly, Broderick and Metz (2009) found that participants had increased awareness of present moment experience compared to controls, which, they postulated, lead to improvements in emotion regulation and increased positive affect found in the study (however, the meditating effect of attention / awareness on the relationship between mindfulness and affect was not statistically examined). Evidence suggesting mindfulness improves awareness is particularly valid given research that highlights the value of awareness in youth for future outcomes such as pro-social behaviour and well-being (Carriochi, Kashdan, Leeson, Heaven & Jordan, 2011).

This model of the change process in mindfulness is supported by research which asserts that improved attentional control and present moment awareness helps individuals notice that they are thinking, feeling and experiencing different sensations, and having attentional resources available to notice these internal events is the first step in learning to respond to them, rather than reacting on autopilot as attention is 'hooked' by particular cycles of thoughts, feelings etc. Children with externalising disorders in particular find it hard to recognise that their emotions are occurring and are affecting their behaviour; Twohig, Hayes and Berlin (2008) assert that this is why mindfulness-based interventions

[10] "Meditation on the soles of the feet", an 8-week mindfulness course

[11] Although Camody (2009) asserts that the term "present moment" is not necessary, as we can only attend to experience which is in the here and now – even if thoughts' content concerns the past or future, they are the present in our experience and so the term "present moment" is obsolete.

improve behaviour in this population. Forbes (2004) found that mindfulness training improved behaviour, self-regulation and social skills in male adolescents and postulated that increased awareness of bodily sensations, emotions and feelings which in turn encouraged reflectivity when faced with difficult stimuli, mediated this improvement. Similarly, Semple et al (2010) found decreases in attention problems in intervention participants, compared to wait-list controls, following an MBCT-C course. Further, reduction in attention problems accounted for 46% of the variance of changes in behaviour problems, and was suggestive (though not conclusive) of having a mediating effect on behaviour problems. Further research with a larger sample may achieve statistical significance with this analysis.

1.4.2.3 Decreased rumination

Rumination, which is variously defined in the literature (Ramel, Goldin, Carmona & McQuid, 2004), is a mental process of self-focused attention, characterised by a repetitive and passive focus on one's negative emotions (Nolen-Hoeksema, 1991). Mirroring findings in adults, studies with children and adolescents consistently report that rumination is associated with onset and increase of depressive symptomology over time (Abela & Hankin, 2011; Broderick & Korteland, 2004), binge drinking, eating disorders and self-injurious behaviour (Hilt, Cha & Nolen-Hoeksema, 2008; Nolen-Hoeksema, Stice, Wade & Bolton, 2007).

Within the process of 'recognition' and improved attentional control in Carmody's model, mindfulness decreases the escalation of negative thoughts to rumination, as helps an individual to re-direct their thoughts to affect-neutral stimuli and interrupts the automaticity of thought and behaviour. A number of other models also postulate that a decrease in rumination is the mechanism that facilitates outcomes following mindfulness training (Coffey et al, 2010; Deyo, Wilson, Ong & Koopman, 2009). Such models are supported by research which has found that decreases in rumination meditate the relationship between mindfulness and outcomes, including reduced depression and generalised anxiety disorder (Jain et al, 2007; Kumar, Feldman & Hayes, 2008; Roemer & Orsillo, 2003).

A small amount of research has examined the relationship between mindfulness and rumination in young people. Research has found that mindfulness is negatively correlated with rumination in children and adolescents (e.g. de Bruin, Zijlstra, Weijer-Bergsma & Bögels 2011), however causality cannot be inferred from this data. Mendelson et al (2010) found a decrease in rumination following a 12-week mindfulness course with disadvantaged children compared to wait-list controls. Similarly, in a small RCT, Liehr and Diaz (2010) found decreased rumination in children who engaged in a mindfulness intervention compared to a control group who completed health education lessons.

However, other research questions this. Deyo et al (2009) for example, found that the association between increases in mindfulness and decreases in rumination did not reach significance in their adult sample, and they postulated that rumination may not be the sole mechanism of change in mindfulness. Similarly Coffey and Hartman (2008) suggest that rumination is just one of a number of mechanisms of change, and does not directly mediate the relationship between mindfulness and improved outcomes, highlighting instead the importance of non-attachment. Broderick and Metz (2009) found no decrease in rumination following mindfulness training compared to controls in adolescents, though it is possible that the content of the mindfulness course or the methodological weaknesses in the study impacted on this finding.

Moreover, mindfulness training does not only alleviate negative symptomology, it facilitates positive outcomes such as increased well-being (Broderick & Metz, 2009; Schonert-Reichl & Lawlor, 2010), and though research demonstrates that decreasing rumination positively affects mood (Jain et al, 2007), there is little research that specifically examines the relationship between mindfulness, rumination and positive outcomes and so there is little evidence of rumination as a mechanism of positive change in mindfulness. Additionally, no current research with young people statistically examines whether decreased rumination mediate the relationship between mindfulness and outcomes, as equivalent research does in adults (e.g. Jain et al, 2007).

Thus, evidence that mindfulness-based interventions decrease rumination in youth populations is currently inconclusive, conceivably due in part to the current small number of studies from which to draw evidence regarding this specific mechanism. Recent evidence also questions the consistent improvement of attention through mindfulness-based programmes. Jensen, Vangkidle, Frokjaer and Hasselbalch (2012) found that increasing attentional effort via an incentive had a larger effect on performance on several attentional skills (such as shifting, orienting attention) than did MBSR, highlighting the importance of effort and intention. Anderson, Lau, Segal and Bishop (2007), found no improvements in the same attention skills following an MBSR course, although they did report an increase in present moment awareness and suggested that it is the quality of awareness of present moment (with acceptance) that is associated with mindfulness, as opposed to basic attentional control (see lemma 1.4.5). That said, these studies were carried out with adults and it may be that improvements in attention skills following mindfulness training are more consistent in children and adolescents; extant research with young people measuring mindfulness and attention skills, although limited, notes only positive effects. More research is needed to fully explore this.

Thus the importance of attention regulation as mechanism of action in mindfulness is recognised, however research is not consistent. It is possible that enhanced attentional control leads to a number of other processes and this is why evidence present mixed findings; indeed Baer (2003) suggests that mindfulness may be a multi-process construct, but some other processes, such as decentering and acceptance, depend at least initially on the development of attentional control.

1.4.3 A shift in perspective

In his model, Carmody (2009) notes that a product of training attention through mindfulness is a broadening of attentional focus through which individuals increase their recognition that internal experience is comprised of discrete components acting in association and these can be attended to as events arising in the mind – which leads to the development of decentering/metacognitive awareness. A number of other models posit that mindfulness changes an individuals' relationship to their thoughts and this is the mechanism, or 'meta-mechanism' (Shapiro et al, 2006) of change that influences outcomes. Fresco, Segal, Buis and Kennedy (2007) for example posit that mindfulness increases decentering ("the ability to observe one's thoughts and feelings as temporary, objective events in the mind" p. 447), which decreases depressive relapse and other negative symptomology. Similarly, Teasdale et al (2002) propose that mindfulness works through increasing what they term 'metacognitive awareness', a similar shift in perspective, leading to an altered relationship with one's thoughts, through the process of "experiencing negative thoughts/feelings within a decentered perspective" (p. 276). Likewise, Shaprio et al (2006) suggest that mindfulness creates a "significant shift in perspective" (p. 377), 'reperceiving', which they posit is similar to the Western psychological concepts of decentering (Safran & Segal, 1990) and deautomatisation (Deikman, 1982, in Shapiro et al, 2006). Through reperceiving, individuals are able to stand back and witness their thoughts, feelings and bodily sensations (including negative ones) as separate from themselves – what was 'subject' becomes 'object'. This key shift in perspective naturally occurs in the developmental process (Kegan, 1982) but is continued through by mindfulness practice. The authors posit that mindfulness, through the facilitation of reperceiving, as a meta-mechanism, affects change through mechanisms such as increased self-regulatory control (see lemma 1.4.4)[12].

[12] The shift in perspective variously named in these models is akin to Hayes, Stosahl and Wilson's (1999) cognitive defusion, which again focuses on changing the relationship to thought, i.e. thoughts, feelings and bodily sensations as 'passing events' or "just thoughts" and may or may not be accurate reflections of reality (Fletcher and Hayes, 2005).

It should be noted that reperceiving or decentering is not the same as detachment (Shapiro et al, 2006). Reperceiving does facilitate greater distance from one's experience in terms of clarity, as it facilitates the shift from contents of awareness to awareness itself, however this "does not translate as disconnection or dissociation" (p. 379), instead it enables a more intimate connection with what *is* in one's present-moment experience, rather than a commentary about what is.

Research demonstrates support for a shift in perspective through mindfulness training. For example, Carmody et al (2009) found that reperceiving increased following an MBSR intervention and Frewen et al (2008) found that mindfulness was predictive of decreased frequency of automatic thoughts and a higher ability to let go of negative thoughts. Similarly, Rimes and Wingrove (2011) found increased metacognitive awareness following an MBCT course with graduate students. However these studies did not include a control group, leading the authors to question the specific effect of mindfulness on outcomes. Addressing this, Erisman and Roemer (2010) found that mindfulness meditation exercises increased decentering in participants compared to a control group who completed mental puzzles. Similarly, an RCT with depressed adults found that MBCT increased decentering (Bieling et al, 2012) and likewise, Feldman, Greeson and Senville (2010) found that a short mindfulness-based intervention increased decentering, measured by a standard subscale of the Toronto Mindfulness Scale and a novel strategy, "unlinking" of frequency and reaction to negative thoughts, in novice meditators, compared to two other stress-management intervention conditions, Progressive Muscle Relaxation and Loving Kindness Meditation. Further, Lau et al (2006) found that improvements in outcomes, stress and distress, following an MBSR course were attributable to increased decentering in their participants.

Thus evidence in adults lends some support to a model that postulates a shift in perspective facilitated by mindfulness influences outcomes directly, or through other mechanisms. However, there is little research examining this in children and adolescents. Semple and Lee (2011) base MBCT-C on literature regarding the increase in decentering following MBCT interventions in adults and emphasize that this may be one of the mechanisms through which MBCT-C affects change. Similarly, Greco, Barnett, Blomquist and Gevers (2008) cite defusion as the mechanism to which outcomes following their mindfulness-based intervention for adolescent girls with body image and/or eating disorders can be attributed, as this facilitates the learning point that thoughts are not necessarily accurate reflections of reality and Forbes (2004) highlights the value of mindfulness in increasing decentering for male adolescents struggling with image, masculinity and peer pressure. Although such research lends some tentative theoretical support for these models,

clearly more research is needed with children and adolescents to more thoroughly examine whether the shift in perspective posited by a number of models is a mechanism of change in mindfulness in young people.

1.4.3.1 Metacognition

Although Teasdale et al (2000) do not discuss the similarities and differences between the shift in perspective in mindfulness which they term 'metacognitive awareness', and metacognition i.e. cognition about cognition, consciousness about one's own thinking processes, as understood by Flavell and Ross (1981), there are clear links to be made[13]. Both involve awareness and observation of one's thoughts, thoughts that are separate from the individual and can be changed. Mindfulness requires *control* of cognitive processes (attention, self-regulation) and *monitoring* one's moment-by-moment experience which are two related processes posited to be involved in metacognition (Nelson, Stuart, Howard & Crowley, 1998).

Metacognitive skills are associated with a number of outcomes that can be seen following mindfulness training, such as superior affect regulation, problem-solving skills, effective learning and long-term well-being (Efklides, 2006; Larkin, 2010; Swanson, 1990). Poor metacognitive skills are conversely associated with disorders of attention (Poissant, 2004) and underachievement (Borkowski & Thorpe, 1994). Forbes (2004) suggests that insight meditation (vipassanā), can promote the practice of metacognition and further, Bishop et al (2004) suggest that mindfulness, as they define it, can be considered to *be* a metacognitive skill. Indeed Cassin and Rector (2011) taught mindfulness as a metacognitive strategy to individuals with social phobia.

It is also worth acknowledging here the association between metacognition and executive function (Fernandez-Duque, Baird & Posner, 2000). Metacognitive strategies increase an individual's awareness of their thought processes and actions while completing tasks, and in this sense, they could be conceptualised as the behavioural output of executive function (Jansiewicz, 2008). Indeed, one of the two broad indices of the Behaviour Rating Inventory of Executive Function (BRIEF; Gioia, Isquith, Guy & Kenworthy, 2000) which assess executive function in children and adolescents is a 'metacognition index', which was found to improve following a mindfulness training in Flook et al's (2010) study.

[13]And in fact, the general literature does not clearly articulate the similarities and differences between the two.

Perhaps due to the importance of metacognitive skills and executive function for meaningful and effective learning (van der Stel & Veenman, 2010), research exploring these processes in relation to mindfulness in young people is slightly more prevalent than that which specifically terms the process 'metacognitive awareness'/'decentering'. Research lends some support to the notion that mindfulness improves metacognitive skills and this improvement is instrumental in outcomes such as improved learning, symptom reduction and behaviour change in adults (e.g. Smalley et al, 2009; Stange et al, 2011) and children and adolescents. In the study by Flook et al (2010) for example, improvements in metacognition were noted for those who had completed the InnerKids mindfulness course compared to controls, particularly in those who had low levels of metacognition at pre-test. Improvements in executive function following mindfulness training have been demonstrated in other research with young people (Diamond & Lee, 2011). For example in Hennelly's (2011) study, adolescents showed increased ability to make choices, improved ability to parse overwhelming problems into do-able tasks, and improvements in working memory (mirroring findings from studies with adults, e.g. Jha et al, 2007), suggesting improvements in at least some components of executive function, as defined by Bewick, Raymond, Malia and Bennett (1995). However, no research could be found to date that specifically explores the extent to which changes following mindfulness practice in children and young people are attributable to improvements in metacognition or executive function; this is a valuable area for future research.

Metacognition is implicated in self-regulation, as to successfully self-regulate, one must first be aware of and monitor one's thoughts, feelings etc., before one can act (Efklides, 2008).

1.4.4 Self-regulation

It is suggested that mindfulness improves self-regulation, both of emotions and behaviour, and it is this improvement which leads to outcomes. Shapiro et al (2006) for example posit that reperceiving leads to improved self-regulation as individuals can step back from their internal experience, e.g. thoughts, feelings, and thus are less controlled by them; rather than automatically reacting, individuals can choose more adaptive responses to situations. Further, they specify that this ability to respond rather than react decreases automatic emotional and behavioural reactivity. Gratz and Tull (2010) also discuss emotion regulation as a mechanism of change in mindfulness; Coffey et al (2010) specify that it is the ability to manage negative emotions which is one of the mechanisms of action in mindfulness. Research in adults supports the improvement of emotion-regulation (Goldin & Gross, 2010) and behaviour-regulation (Robins et al, 2011) following mindfulness training. Moreover,

Coffey and Hartman (2008) found that emotion regulation significantly meditated the relationship between increased mindfulness and decreased psychological distress. Similarly, Coffey et al (2010) found that ability to manage negative emotions mediated the relationship between mindfulness and mental health (both flourishing and psychological distress).

A growing research base asserts the association between self-regulation[14] and a wide-range of outcomes in young people, including social and emotional development and well-being, peer relationships and performance in school (Bierman et al, 2008; Blair & Razza, 2007; Ryan & Deci, 2000; Trentacosta & Shaw, 2009), outcomes evident in children following mindfulness training.

Research with young people suggests that a model based on improved self-regulation may be applicable in youth mindfulness training (Zelazo & Lyons, 2011). Mindfulness improves self-regulation of behaviour and emotions in children with externalising disorders (Maedgen & Carlson, 2000), leading to outcomes such as improved behaviour and peer relationships (Bögels et al, 2008) and improves emotion regulation in children with internalising disorders (who show poor skills) (Suveg, Hoffman, Zeman, Thomassin, 2009) leading to decreased anxiety. Coholic (2011) reported that vulnerable adolescents showed improved emotion regulation after an arts-based mindfulness course (though this did not follow an MBSR/MBCT format). Broderick and Metz (2009) found increased emotional regulation in adolescent girls who received mindfulness training, compared to passive controls. Similarly, Flook et al (2010) noted improvements in behavioural regulation in those with lower pre-course self-regulation and Hennelly (2011) found that, compared to passive controls, those who completed mindfulness training reported greater self-regulation, which included self-regulation of behaviour, thoughts and decreased emotional reactivity, as noted in other research (e.g. Thompson & Gauntlett-Gilbert, 2008).

Research involving young people that includes analyses of the mediating effect of improved self-regulation on outcomes after mindfulness interventions is much less prevalent. In the studies by Coholic (2011) and Hennelly (2011), authors postulated that improved resilience, behaviour and well-being were attributable to superior self-regulation skills following mindfulness training. These tentative conclusions regarding the role of self-

[14] Buddhist psychology suggests that mindfulness facilitates insight into one's emotional life, allowing one to be liberated from negative mental states (Ekman, Davidson, Ricard & Wallace, 2005) which is similar to the Western psychological concept of emotional regulation, in that an individual is better equipped to deal effectively with negative emotions and influence how they express and experience their emotions.

regulation in mindfulness need to be tested and replicated in future research so as to further our understanding of the complex relationship between mindfulness and self-regulation in children and adolescents[15].

1.4.5 Acceptance

Acceptance involves "experiencing events fully and without defense, as they are" (Hayes, 1994; p. 30), being "experientially open to the reality of the present moment rather than…judging what is fair or unfair" (Roemer & Orsillo, 2002, p.60). It is not the learned helplessness and passivity ascribed by Peterson and Seligman (1984) which contributes to depression and is amotivational to learning (Stipek, 1988). Rather it is a willingness to accept present-moment experience as it truly is (Kabat-Zinn, 1990), which enables individuals to recognise and accept their (unpleasant) cognitive, emotional and physical reactions to events without extending their negative affect through self-recrimination or rumination (Allen, Bromley, Kuyken & Sonnenberg, 2009). Baer et al (2006) posit that the attitudes of non-judging and non-reactivity included in a number of definitions of mindfulness may be ways of operationalizing acceptance, "that is, to accept an experience, such as feeling anxious, might include refraining from judgements or self-criticism about having this experience (nonjudging) and refraining from impulsive reactions to the experience (nonreactivity)" (p. 42).

Acceptance can be contrasted with experiential avoidance, a process involving an unwillingness to experience thoughts, feelings or sensations and deliberate attempts to control or escape from them (Hayes et al, 1999). Research demonstrates that high levels of experiential avoidance are associated with high levels of stress and social functioning problems (Solomon & Mikulincer, 2007) as well increased depression, anxiety and general psychopathy and a lower quality of life (Hayes et al, 2004).

Acceptance, which Kabat-Zinn (1990) describes as one of several foundations of mindfulness, is proposed by a number of authors to be one of several mechanisms to which outcomes following mindfulness-based interventions can be attributed (Baer, 2003; Feldman and Kuyken, 2011). In experiential terms, accepting one's internal experience produces a

[15] There is a link here with the construct of psychological flexibility, which a number of researchers assert overlaps with self-regulation (Carver & Scheier, 1998; Muraven & Baumeister, 2000). Psychological flexibility, defined as "the ability to change or persist in behaviour when doing so serves valued ends" (Hayes et al 2006, p. 9) has primarily been studied in the context of ACT and so will not be considered further here, though it is acknowledged that research suggests that psychological flexibility mediates or partially mediates changes in symptoms such as anxiety (Forman et al, 2007) following mindfulness-based interventions.

sense of calm (Kabat-Zinn, 1994) which may explain increased feelings of relaxation following mindfulness training. Through increased acceptance, connection to present moment experience increases (Roemer & Orsillo, 2003), as does tolerance to difficult thoughts and feelings, leading to increased exposure to thoughts, feelings and sensations, which results in desensitization of conditioned responses and reductions in avoidance (see above) (Baer, 2003)[16].

Research in adults supports the view that change following mindfulness training is attributable to increases in acceptance, for example, finding that acceptance leads to reductions in panic-related symptoms and negative symptomology in adults with panic disorders and generalised anxiety (Eifert & Heffner, 2003; Roemer & Orsillo, 2002). Gifford et al (2004) found that increased acceptance mediated outcomes (stopping smoking) when mindfulness was compared to nicotine-replacement therapy and Coffey et al (2010) found that non-judgemental acceptance of one's experience was even more important for mental health outcomes than simply attending to it, highlighting the importance of acceptance for change in mindfulness.

Research with clinical samples suggests that a model based on increased acceptance may be appropriate in mindfulness training with children and adolescents. Semple and Lee (2008) found that increased acceptance in anxious children following MBCT-C disrupted the maintenance cycle of anxiety, leading to decreased distress and increased positive affect. McCracken, Gauntlett-Gilbert and Eccleston (2010) found that higher levels of acceptance were associated with lower levels of distress and disability in adolescents with chronic pain, which is particularly important as evidence suggests that acceptance of pain leads to enhanced physical and emotional functioning, whereas attempts to control pain may paradoxically lead to increased pain and disability (e.g. Wicksell, Melin, Lekander & Olsson, 2009). Increased acceptance following mindfulness-based interventions also leads to improved behaviour in young people with externalising disorders (Twohig et al, 2008) and decreased distress in adolescents with body image problems/eating disorders (Greco et al, 2008).

However, research exploring acceptance as a mechanism in mindfulness in non-clinical children and adolescents is less extensive. Forbes (2004) found that mindfulness increased acceptance of negative emotions and vulnerability which he postulated was significant in the improvements in negative affect found in adolescent boys, although

[16] Acceptance is considered here as an element of mindfulness (as in Bishop et al's 2004) definition and a mechanism of action, but it is also noted that acceptance has been thought of as being an outcome of mindfulness practice in itself (Brown & Ryan, 2004).

methodological weaknesses limit the generalisation of these findings. Hennelly (2011) found increased qualitative reports of acceptance of immediate experience (e.g. thoughts) in adolescents and a decreased avoidance of negative content; Broderick and Metz (2009) found an increase in self-acceptance following a mindfulness course in adolescent girls, though this was not examined in relation to the other outcomes in the study, such as decreased negative affect.

Thus, mindfulness may increase acceptance in young people, however extant evidence exploring the relationship between acceptance, mindfulness and outcomes in young people suffers a number of methodological weaknesses, and lacks studies which include statistical analyses of the mediational role of increased acceptance. This may be due in part to the lack of developmentally appropriate measures of acceptance; the recent development of the Avoidance and Fusion Questionnaire for Youth (Greco, Lambert & Baer, 2008) may be useful for subsequent research into the role of acceptance in mindfulness in youth, which is a valid future direction, particularly given the findings of studies with adults.

1.4.7 Conclusion

Research suggests that mindfulness-based interventions can have a positive effect on psychological and physical functioning in children and adolescents and this section of this review served to provide an initial examination of some of the possible explanations as to how mindfulness training affects change in young people. The models and evidence described clearly reflect the complexity of the construct and processes of mindfulness.

Research suggests that mindfulness improves attention regulation and regulation of emotions and behaviour, facilitates cognitive change, and also increases acceptance in young people. However the evidence for the change in improved functioning following mindfulness-based interventions that can be attributed to each of these changes is, at present, very limited. In research with adults, some authors postulate that different outcomes following mindfulness training are attributable to a number of different processes, whereas others suggest that all outcomes share the same underlying mechanisms (e.g. Coffey et al, 2010), videlicet, the same process of change is responsible for alleviating negative symptomology and enhancing positive emotions and 'flourishing'. Research also highlights the difficultly elucidating how each process leads to specific outcomes (Coffey et al, 2010). In children and adolescents this picture is equally complex. Evidence supports the notion that improvements in behaviour following mindfulness practice are attributable to improved attention regulation. Additionally, studies support the role of decreased rumination in the improvement of internalising disorders following mindfulness-based interventions. Other research tentatively suggests the value of reduced rumination and increased decentering in

internalising disorders, a role for self-regulation in improved behaviour, learning and well-being and the implication of metacognitive skills in learning and well-being. However, the present research base is limited and future research will be significant in further illuminating the processes involved in youth mindfulness.

It is unlikely that outcomes following mindfulness-based interventions are attributable to one mechanism; certainly in a number of models of mindfulness in adults, researchers postulate the interaction a number of processes (Coffey et al, 2010; Shapiro et al, 2006). This is particularly key, given the range of outcomes that mindfulness has an impact on in young people. Further, evidence highlights the complex interplay between processes in mindfulness, particularly in children and adolescents, whose development is not yet complete. In a paper by Greco, Baer and Smith (2011) discussing the development of the CAMM for example, the authors suggest that although in adults it is noted that there seem to be several distinct but intercorrelated elements in mindfulness as a construct, they found a single factor model in assessing mindfulness with the CAMM. This suggests that it is possible that these skills are less distinct in children and adolescents than in adults, and may overlap in the process of change in mindfulness. This synergy may be true in the mechanisms explored in this paper. Acceptance leads to increased present moment awareness (Hayes et al, 2006) for example. Additionally, attentional-regulation skills are likely to impact on rumination; attentional-control can be thought of as an aspect of self-regulation (Baumeister et al, 2005); self-regulation can in turn be thought of as a dynamic element of metacognition (Efklides, 2008). And executive function and emotion regulation are closely related in development, possibly because they are all dependent on the same underlying processes, as postulated by evidence examining neural circuits in the prefrontal cortex (Bunge & Zelazo, 2006). Further, mindfulness may be a metacognitive skill that facilities other mechanisms (Bishop et al, 2004). Thus, it is difficult to draw out the individual contributions of each in the process of mindfulness.

This exploration provides a preliminary examination of the effects of particular processes in mindfulness in young people, about which very little is known (Twohig et al, 2010), and additionally, clarifies a number of directions for future research. Future studies with a greater focus on examining the mechanisms of action in mindfulness-based interventions are needed to move this work forward.

1.5 Limitations

This review is limited by the literature it has had to exclude as well as by the methodological weaknesses inherent in some of the studies it used as evidence for the conclusions drawn.

In a nascent and expanding field such as mindfulness, certain subtopics or issues had to be omitted or curtailed. For example, due to the focus in this review on mindfulness in schools, the effects of mindfulness training with preschool children was not considered, nor was mindfulness with families, or family involvement in school-based training. However, the degree to which a child benefits from mindfulness training is associated with the amount of parental involvement (Semple et al, 2006); thus it may be valuable to consider the effects that family involvement and mindfulness training in preschool have on subsequent mindfulness teaching in schools.

It was not possible to thoroughly explore models of mindfulness that emanate from the Buddhist tradition (e.g. Dorjee, 2010), although these may offer a rich source of information to edify conclusions drawn regarding the complex overlap of mechanisms of change in mindfulness. Such models were not included because mindfulness is taught as a secular discipline in schools (Burnett, 2009), intentionally separated from its spiritual origin; additionally, definitions of mindfulness within a Buddhist tradition differ even further on the (varied) definitions given of mindfulness in the current review (Kang & Whittingham, 2010).

An in-depth exploration of some of the recent neurological evidence for mindfulness was also not included, although this also informs our understanding of mindfulness and may contribute to the exploration of the mechanisms of change in mindfulness[17]. For example, studies have found mindfulness practice activates brain areas associated with awareness (Lazar et al, 2005), attentional processing (Dickenson, Berkman, Arch, & Lieberman, 2012) and emotion-regulation (Modinos, Ormel & Aleman, 2010).

In general, many studies in the mindfulness literature have been carried out in the USA; it is important to be aware of this when extrapolating the conclusions of this review to children and schools in the UK, for example with regards to the acceptability and feasibility of mindfulness in schools. A more extensive review could more thoroughly explore cross-cultural differences in response to interventions. This review also uses adult literature to explore, for example, several of the mechanisms in mindfulness, and caution must be exercised when drawing comparisons to young people, as has been highlighted.

[17] For an exploration of the possible neural correlates of mindfulness see Hölzel et al (2011).

In this review it was not possible to explore some of the practical issues that must be considered before introducing mindfulness into schools, for example where mindfulness fits within the curriculum (Thompson & Gauntlett-Gilbert, 2008), using conscript or volunteer classes (Semple et al, 2006) and the importance of the teacher's personal practice (Crane, 2009). Although evidence for the effects of teaching mindfulness to young people is positive and schools appear to be apposite environments in which to do so (Hooker & Fodor, 2008), it is important to be aware of such issues. There would be value in future reviews exploring these alongside an examination of evidence for mindfulness in schools.

1.6 Implications and future research

Literature reviewed suggests that it is feasible to teach mindfulness in schools, there are a number of benefits to doing so and that mindfulness training is enjoyed and accepted by young people. In line with positive psychology, the review suggests that mindfulness may be valuable if used preventatively to support the development of social and emotional competence and resilience in young people, rather than focusing solely on pathology (Schonert-Reichl & Lawlor, 2010).

The review of recent studies demonstrates progress in this growing literature since the preliminary review (Burke, 2010). However, a number of limitations remain, possibly as research with mindfulness in young people is still in a relatively early stage, wherein exploration of feasibility and acceptability takes precedence over rigorous experimental design (Bowling, 2007). Future research should aim to address these, for example randomising participants to conditions, demonstrating the effects of mindfulness above alternative interventions, gathering data from a range of sources including objective measures and condition-blind teacher/parent-reports, and measuring mindfulness using developmentally appropriate measures. This review also highlights the lack of research with children and adolescents which includes a long-term follow-up. Studies with adults indicate that the effects of mindfulness training are maintained over time e.g. in the prevention of depressive relapse (Teasdale et al, 2002), however there are not yet studies available which examine this in young people. Thus there may be value in future research assessing the longer-term effects of teaching mindfulness in schools, particularly given other interventions which recognise the effect of time on outcomes such as learning (Cartledge et al, 2011). Additionally, outcomes are less well established for certain groups, e.g. non-clinical adolescents attending typical secondary schools, so studies should aim to examine the effects of mindfulness training in this population.

Future research should also systematically replicate and extend previous studies in order to build the evidence base for mindfulness with young people; for example, at least two studies demonstrating that mindfulness is more effective than an alternative intervention (or wait-list control) are needed for it to be thought of as "probably efficacious" (Baer, 2003; p. 139). This is currently difficult, as studies reviewed demonstrate that a wide range of interventions continue to be used with young people, courses that include varying amounts of mindfulness meditation practices and sometimes teach mindfulness alongside other skills. To this end, standardised courses of mindfulness should be used in future studies, allowing meta-analyses to validly combine results from individual, smaller-scale studies.

The initial examination of the potential mechanisms of change facilitated by mindfulness highlights the complexity of this construct and is valuable in clarifying possible processes as well as absence of research in a number of areas. Possibly due to paucity of developmentally appropriate measures of variables such as mindfulness, rumination and avoidance, very few studies reviewed attempt to establish the mechanisms of change facilitated by mindfulness training in this population. This is a valuable direction for future research, for example studies could explore whether changes to well-being (both decreased negative symptoms and increased positive affect) following mindfulness training are attributable to decentering. An examination of the role of attention skills (using objective measures) and outcomes in mindfulness practice is warranted; similarly is clarification of the role that acceptance plays in mindfulness, due to its implication in a range of outcomes. This further emphasises the need to develop and validate standardised measures of mindfulness (Weare, 2012)[18] and associated processes (e.g. decentering/metacognitive awareness), that are appropriate for youth.

1.7 Conclusion

This review has considered two significant issues in the emerging field of mindfulness with children and adolescents. It examined the evidence for teaching mindfulness in schools provided by recent studies, discussing whether methodological issues raised in a preliminary review have been addressed, and provided an initial exploration of how mindfulness training may beget outcomes in young people.

[18] Such research is now happening in the UK. Personal communication (March 2012) with Katherine Weare, Universities of Exeter and Southampton

Although still in its relative infancy, evidence reviewed indicates promising effects of mindfulness in a range of outcomes including psychological health and learning in young people, and highlights some progress that has been made with regards to the quality of the available literature, though a number of methodological issues remain. Evidence goes some way to support the increasing popularity of teaching mindfulness skills to young people, evidenced by the rapid escalation in quantity of studies in recent years (see Hartnett & Dawe, in press). It also lends support to the perception that, despite having its origins in Eastern religions, when using mindfulness as a universal, preventative intervention, it is possible and appropriate to teach mindfulness in a school environment.

Teaching staff and professionals such as Educational Psychologists are in a prime position to support children's emotional and social development, as well as ensuring high-quality academic instruction. As such, interventions which can support the education of the 'whole child' may be valuable and research demonstrates that mindfulness may have a role to play in well-being, in line with increasing interest in the enhancement and underpinnings of well-being in recent years (Seligman & Csikzentmihalyi, 2000). It is hoped that this review offers an introduction to mindfulness and increases professionals' familiarity and understanding of this increasingly widespread intervention.

Roemer and Orsillo (2003) entitle their paper "Mindfulness: A promising intervention strategy in need of further study"; though they refer to the adult literature, this is potentially an apt reflection of where the field of mindfulness with children and adolescents currently lies.

Chapter 2: Empirical Study

An evaluation of the effects of the '.b' mindfulness course on early adolescents' well-being and academic functioning

The *Educational Psychology* journal has been used as a guide in determining the preparation of this paper.

2.1 Introduction

Recent years have seen increasing recognition that schools should not only provide children and young people with a traditional education, with a focus on academic proficiency, but should also afford them the opportunities and tools they need to become confident, happy and resilient individuals (Lumby, 2011). The low rates of objective and subjective well-being among children and young people in economically advantaged counties such as the UK (UNICEF, 2007) highlight this as an important issue. Moreover, a growing proportion of school-aged children experience a wide range of emotional, social and behavioural problems that interfere with their relationships, academic achievement and ability to become skilled and helpful individuals in the future (Greenberg, Domitrovich & Bumbarger, 2001). Stress due to, inter alia, school transition (Pellegrini & Long, 2002), examinations (Putwain, 2009), bullying (DfES 2007) and pressure from peer groups and parents (Murgatroyd, 1982) is a particular concern for many young people; the experience of stress adversely affects mental health and well-being in this population (Byrne & Mazanov, 2001), is associated with compromising lifestyles and behaviours (Allison, Adlaf, Ialomiteanu & Rehm, 1999; Byrne & Mazanov, 2003) and inhibits 'flow', which is a desired state for effective learning (Csikszentmihalyi, 1997). Additionally, the experience of stress in youth consistently relates to incidence of clinically significant psychiatric symptomology such as depression (Deardorff, Gonzales & Sandler, 2003; Grant, Compas, Thurm, McMahon & Gipson, 2004). Reported prevalence rates of disorders in young people indicate a rise in the predominance of anxiety and depression in this population (e.g. Collishaw, Maughan, Goodman, Pickles, 2004), with between one in five and one in ten experiencing difficulties significant enough to warrant access to additional services (Esbjørn et al, 2010; NICE, 2005; US Public Health Service, 2000). However, those who need help do not commonly access appropriate services (Kataoka et al, 2003; National Advisory Mental Health Council, 1990) and those that do, do so in school (Farmer, Burns, Phillips, Angold & Costello, 2003), highlighting the important role that schools play in meeting the social and emotional needs of young people.

Mental health difficulties in childhood and adolescence are significant because of their role in concurrent issues, such as school dropout and peer relationship difficulties (Coie & Dodge, 1998) and future outcomes, e.g. relationship success and employment (Colman et al, 2009).

2.1.1 Well-being and social and emotional skills

Thus, there is a clear need for preventative, effective, school- and classroom-based intervention programs aimed at fostering protective factors among all children and adolescents (Institute of Medicine, 2009). An understanding of the factors that serve to

protect young people from mental health and behaviour problems can be gained from a number of models; current literature supports a perspective of increasing emotional and social competence (Greenberg et al, 2003). Research such as Masten and Motti-Stefanidi (2009) demonstrates that children with positive social and emotional skills display resilience, defined as "the ability to bounce back from negative emotional experiences" and "flexible adaptation to the changing demands of stressful experience" (Tugade & Fredrickson, 2004, p.320), which reliably correlates with later psychological health (Greenberg et al, 2001)[19]. Research demonstrates that there is a role also for positive social and emotional skills in academic achievement (Payton et al, 2008).

Current approaches to addressing issues faced by young people vary in content and effectiveness. For example, specific interventions for decreasing stress (Compas, Connor-Smith, Saltzman, Harding & Wadsworth, 2001), bullying and associated anxiety (Vreeman & Carroll, 2007) or negative behaviour (Infantino & Little, 2005) in young people are not universally supported by research. Moreover, many interventions lack scientific theory and research in their content and implementation (Bond & Hauf, 2004) and are almost solely reactive, focusing on the alleviation of symptoms and problem behaviours, rather than focusing proactively on increasing young people's well-being, which can be defined as both feeling good and functioning well, i.e. displaying resilience in the face of challenges (Huppert, 2009; Keyes, 2002). Thus, there is a need for interventions that "understand and build those factors that allow individuals, communities, and societies to flourish" (Seligman & Csikszentmihalyi, 2000, p. 13), in line with positive psychology.

2.1.2 Well-being and mindfulness

Training in mindfulness has been identified as a promising way to enhance well-being. Mindfulness is a particular way of paying attention, described by Kabat-Zinn (2003, p.145) as "the awareness that emerges through paying attention on purpose, in the present moment and non-judgementally to the unfolding experience". It is the process of paying constant attention to one's present experience, as opposed to moving through daily experiences on 'automatic pilot'.

There have been a number of attempts to examine mindfulness as a psychological construct and establish the mechanisms of change in the process of mindfulness.

[19] The introduction into schools of curricula aimed at developing social and emotional competence, for instance SEAL (Social and Emotional Aspects of Learning) in the UK, affirms the promotion of such skills as an integral component of education. Additionally, research suggests that social and emotional skills can be taught via school-based interventions (for a review see Durlak , Weissberg, Dymnicki, Taylor & Schellinger, 2011).

Mindfulness improves conscious attentional control which increases individuals' ability to respond reflectively to stimuli rather than react automatically. This reduces emotional reactivity and negative interpersonal behaviours, including anger and aggression (Semple et al, 2010; Thompson & Gauntlett-Gilbert, 2008) as well as decreasing inattentiveness. Improved attentional control may also positively affect learning, problem solving and other cognitive processes (Flook et al, 2010), which may in turn be beneficial to academic achievement (Beauchemin, Hutchins & Patterson, 2008). Increased awareness of present moment positive experience disrupts the negative bias evident in internalising disorders and increases positive emotions. Experientially, acceptance of both negative and positive experience facilitated by mindfulness produces a sense of calm (Kabat-Zinn, 1994), and can increase exposure to negative stimuli which lessens physiological arousal and disrupts the maintenance cycle of anxiety (Semple & Lee, 2008). Thus mindfulness may affect well-being in a number of ways.

Mindfulness for adults is usually delivered in the format of an eight-session Mindfulness-Based Stress Reduction (MBSR; Kabat-Zinn, Lipworth & Burney, 1985) or Mindfulness-Based Cognitive Therapy course (MBCT; Segal, Williams & Teasdale, 2002). Such courses encourage regular home practice and research has demonstrated the importance of practice in studies with both adults (Beddoe & Murphy, 2004) and children (Huppert & Johnson, 2010).

Previous research has primarily focused on evaluating the efficacy of mindfulness courses with adults and evidence supports the benefits of mindfulness in this population (see Greeson, 2009, for a review). Research involving clinical populations has demonstrated mindfulness is effective in alleviating symptoms of clinical distress in a range of conditions such as depression (Segal et al, 2002) and chronic pain (Morone, Greco & Weiner, 2008). Mindfulness also improves stress and anxiety in non-clinical adults (Williams, Kolar, Roger & Pearson, 2001) and enhances psychological well-being, positive mood, self-esteem and optimism (Bowen et al, 2006; Howell, Digden & Buro, 2010; Shapiro, Oman & Thoresen, 2008). Cognitive skills, for example working memory and the ability to orientate and sustain attention are also improved following mindfulness-based interventions (Chambers, Chuen-Yee & Allen, 2008; Jha et al, 2007; Jha, Stanley & Baime, 2010).

2.1.3 Mindfulness-based interventions with children and adolescents

The efficacy of mindfulness-based interventions with children and adolescents is less established, however, in non-school programmes, mindfulness has been found to be effective in the treatment of distress in a range of disorders including depression and anxiety (Hayes, Bond & Sewell, 2011; Semple et al, 2005). Research involving children with

externalising disorders such as ADHD has demonstrated positive effects of mindfulness training on attention, behaviour and anxiety (Bögels et al, 2008; Zylowska et al, 2008).

School-based mindfulness programmes yield promising findings for the application of mindfulness to enhance well-being. Studies have found that mindfulness decreases stress (Mendelson et al, 2010) and depression (Liehr & Diaz, 2010) in disadvantaged children and impacts on behaviour and emotional health (Joyce et al, 2010). School-based mindfulness courses impact on learning and associated cognitive processes. Napoli et al (2005) for example found improvements in selective attention following a mindfulness course. Similarly Schonert-Reichl and Lawlor (2010), found improvements in attention and self-regulation strategies following the "MindUp" programme and Flook et al (2010) found that the "InnerKids" course improved teacher-rated executive function[20].

Studies derived more directly from standardised MBSR/MBCT approaches are most useful when understanding the generalizable effects of school-based mindfulness programs, though these are currently limited in number. Semple et al (2010) found improvements in attention in participants from disadvantaged families who completed a MBCT-C course, compared to controls, which were maintained at three-month follow-up. Broderick and Metz (2009) trialled a six-week MBSR-derived mindfulness course (Learning to BREATHE) in an independent school and found decreased negative affect and increased self-acceptance, awareness and emotion-regulation in experimental group participants (girls aged 17-19 years) compared to controls. They concluded that mindfulness was a useful intervention for enhancing adolescents' mental health and well-being. Huppert and Johnson (2010) similarly examined outcomes of the Mindfulness in Schools Project's (MiSP) pilot mindfulness program (a four-week course based on MBSR) which was delivered to 14-15 year-old male pupils at two independent boys' schools. No significant differences were found between groups on measures of mindfulness, resilience or psychological well-being. However for experimental group participants, increases in mindfulness and well-being were associated with amount of home practice. Recognising the need for a formalised curriculum for the teaching of mindfulness in schools (Burnett, 2009), MiSP developed an eight-session programme, based on MBSR, to train adolescents in mindfulness skills, resulting in the '**.**b' (Stop-Breathe-Be) course (Burnett, Cullen & O'Neill, 2011).

2.1.4 Well-being in early adolescence

[20] Executive functions assessed in the measure used in Flook et al's (2010) study included behavioural regulation, meta-cognition and global executive control

Supporting the development of young people's well-being and social and emotional competence is particularly important during the transition from childhood to adolescence (Graber & Brooks-Gun, 1996) (noted as including the ages of pre- (9-10 years) and early-adolescence (11-12 years)), a period of significant change in almost every sphere of life including social, emotional and cognitive changes, and physical changes due to puberty. It is a period when children become more self-aware and less ego-centric, develop a higher level of social and moral understanding, must master academic skills, maintain friendships in the face of changing peer groups and differing levels of maturity, manage an increase in problem behaviours and deal with the task of increasing autonomy (Eccles, 1999; Galambos & Costigan, 2003; Sen, 2006). Schonert-Reichl and Lawlor (2010) argue that interventions aimed at young people between the ages of 9-12 years are particularly warranted as behaviours, personalities and competences establish and endure into adolescence (Eccles & Roeser, 2009) and adulthood (Hoyt, Chase-Lansdale, McDade & Adam, 2012). Graber and Brooks-Gunn (1996) highlight that such times of transition which are traditionally thought of as risk-inducing, could also be conceptualised as potential 'windows of opportunity' to promote positive psychological growth and resilience. Research supports the notion that interventions developing well-being in this age group can help children deal with stressful situations (NICE, 2008), such as the transition from primary to secondary school (Weare & Grey, 2003), however little previous research evaluates mindfulness as such an intervention. For a number of reasons therefore, the present study focused on early adolescents aged 11-12 years.

Decisions regarding study design also came from critique of current research exploring mindfulness with children and adolescents. Analysis of extant literature highlights a need for studies that include assessment of mindfulness using age-appropriate measures and address methodological weaknesses, such as lack of control group or use of standardised adapted mindfulness courses for young people. Additionally, although mindfulness has been shown to be associated with benefits for young people in a range of settings, including single-sex independent schools and deprived-area schools, outcomes for adolescents attending typical secondary schools are not well established, and no previous studies examine whether the benefits of mindfulness on attention generalise to improvements in behaviour and academic achievement in mainstream secondary settings. The current study aimed to address these limitations.

2.1.5 Aims and Hypotheses

The primary aims of the current study were to investigate the effects of teaching the '**.**b' mindfulness curriculum on early-adolescents' mindfulness, resilience and stress, and to

examine whether benefits generalised to improvements in behaviour and academic achievement. A secondary aim of the study was to assess the acceptability and feasibility of teaching mindfulness as part of a mixed-sex state secondary school's curriculum.

2.1.5.1 Primary hypotheses

1. Mindfulness in participants receiving the '**.**b' intervention will increase relative to a no-intervention control group.
2. Resilience will increase intervention group participants, relative to control group participants.
3. Participants in the intervention group will show a decrease in stress relative to the control group and an increased belief in their ability to cope with stress.

2.1.5.2 Secondary hypotheses

1. Teacher-rated behaviours (inattentiveness and externalising behaviours) will improve in intervention group participants, relative to controls
2. Participants in the intervention group will show an improvement in academic achievement, relative to control group participants.

2.2 Method

2.2.1 Design

A control design, with between-subjects (experimental condition–intervention vs. control) and within-subjects (pre-test (T1) and post-test (T2) scores) elements, was employed to assess the effects of the eight-week '**.**b' mindfulness course. The independent variable was the experimental condition. The dependent variables were mindfulness, resilience, stress, observable behaviours (inattentiveness and externalising behaviour) and academic achievement, using appropriate measures.

2.2.2 Participants

Seventy-two (43 male) Year 7 pupils (M_{age} = 11 years, 6 months, *SD* = 3.39 months, range = 11 years, 1 month-12 years, 1 month) were recruited to be part of the intervention group from three randomly selected classes from one local state, mixed secondary school, following Head Teacher agreement to take part in the study (see Appendix A). Informed parental consent was obtained using an information letter and opt-in consent slip (see

Appendix B)[21]. Forty-eight (30 male) Year 7 pupils (M_{age} = 11 years, 7 months, *SD* = 3.17 months, range =11 years, 2 months-12 years) were recruited to be part of the control group from the remaining two Year 7 classes. With Head Teacher permission, informed parental consent was obtained using an information letter and opt-out consent slip (Appendices C, D)[22]. Participants also included four form tutors and the school's Special Educational Needs Coordinator (SENCo) who provided their informed consent to complete the observable behaviours questionnaire (see Appendix E).

2.2.3 Measures

2.2.3.1 Primary Outcome Measures

The Child and Adolescent Mindfulness Measure (CAMM; Greco, Baer & Smith, 2011): mindfulness. The CAMM is a self-report measure of mindfulness, consisting of ten items (for example 'I think about things that happened in the past instead of thinking about things that are happening right now' and 'At school, I walk from class to class without noticing what I'm doing') which are responded to on a 5-point Likert scale from 0 (never true) to 4 (always true). All items are reverse scored and higher scores indicate higher levels of mindfulness. Adequate levels of reliability (α=.80) as well as incremental and construct validity (Greco et al, 2011) have been demonstrated for the CAMM with a good sample size (*N*=334). Participants in the intervention condition also answered a qualitative question exploring their understanding of mindfulness (T2 only).

The Ego-Resiliency Scale (ERS; Block & Kremen, 1996): psychological resilience. The ERS is a self-report measure which consists of 14 items which individuals responded to on a 4-point Likert-scale from 1 (does not apply at all) to 4 (applies very strongly). Item examples include 'I get over my anger at someone reasonably quickly', 'I like to do new and challenging things'. Higher scores on the ERS denote higher resilience. The ERS has been shown to have good reliability (α=.76) and validity with a moderately-sized (*N*=104) sample (Bock & Kremen, 1996).

The Adolescent Stress Questionnaire (ASQ; Byrne, Davenport & Mazanov, 2007): stress. A revised version of the ASQ was used to measure stress. The ASQ is a 16-item self-report measure on a 5-point Likert scale (from 'not at all', 1, to 'very stressful', 5). The ASQ measures eight areas of stress including school performance and peer pressure. Higher scores indicate higher levels of stress. Byrne et al (2007) found that the subscales of the

[21] Eleven parents did not give consent

[22] Three parents declined their consent

ASQ had 'good' to 'high' internal reliabilities (α= .62-.92) and good test-retest reliability (.68-.88). The ASQ was also found to have acceptable concurrent criterion validity.

Rating scales: stress experience. The ASQ is not a measure of symptomatic distress and so to ascertain a general stress level, participants were also asked to rate (on a scale from 1 (never) to 10 (always)) how stressed they normally feel at home and at school. Higher scores indicate higher perceived stress. Participants also rated the extent to which they feel able to cope with stress (from 1 (very difficult to cope) to 10 (very easy)). A final open question asked participants what they do to help them deal with stress.

2.2.3.2 Secondary Outcome Measures

The Teacher Report Form (TRF; Edelbrock & Achenbach, 1984): observable behaviours. An adapted version of the Teacher Report Form was used to measure observable behaviour in two subscales: inattentiveness/concentration and externalising behaviours. The inattentiveness subscale of the TRF includes 16 items (for example 'can't concentrate', 'fails to finish things') and the externalising behaviours subscale (16 items) assesses behaviour problems such as aggressiveness (e.g. 'explosive or unpredictable behaviour', 'temper tantrums'). All items are responded to on a 3-point Likert scale from 1 (not true) to 3 (very/often true). Higher scores on both subscales denote higher prevalence of difficult behaviours. Good test-retest reliability (.74-.96) and stability (testing after 2 months, .63-.88) have been found for the scales of the TRF, as well as support for discriminative validity (Edelbrock & Achenbach, 1984).

National Curriculum data: academic achievement. Academic achievement was assessed using National Curriculum levels in English and Maths gathered from assessments completed in September 2011 and in March 2012.

2.2.3.3 Additional data

Qualitative feedback: acceptability and feasibility of the '.b' mindfulness course. Participants in the intervention group answered a number of questions regarding their enjoyment and views of the course. School staff completed a short questionnaire aimed at gaining an understanding of the acceptability and feasibility of the '.b' course within the school.

2.2.4 Intervention

The '.b' (Stop-Breathe-Be) mindfulness meditation curriculum created by MiSP[23] was used with the intervention group. The programme is based on the MBSR curriculum, with developmentally appropriate language and materials (see Appendix F for overview). Each session lasted approximately 50-55 minutes and was led by the researcher, with a member of staff present. The current version of the '.b' curriculum has been piloted with secondary school pupils (Hennelly, 2011) with positive results found on measures of mindfulness, resilience and well-being.

2.2.5 Procedure

Ethical approval was received from the University of Southampton, School of Psychology Ethics Committee and insurance was obtained from the Research Governance Office (see Appendices G and H).

Participants for whom parental consent had been received to be part of the intervention group were briefed as a class (Appendix I). Informed assent was received from all participants[24] (see Appendix J) prior to completing the pre-measures (CAMM, ERS, ASQ) online over a period of a number of days. At this point school staff completed the TRF and academic achievement data was gathered from the Head of Year 7.

Thereafter, intervention group participants completed the eight-session '.b' course lead by the researcher. Participants were given home practice after each session which lasted between two and fifteen minutes and asked to complete it as many times as possible during the week. During the final mindfulness session, participants were thanked for taking part in the course. Participants in the control group were not involved in any intervention and completed normal lessons during the eight-week period.

Following this, all participants completed the post-measures and were debriefed (see Appendix K) and thanked for their involvement. Three weeks following this, teaching staff completed another TRF, and were asked to consider behaviour in the weeks since the mindfulness course had finished. Administration of the measures for all participants took place in school and totalled approximately 15 minutes at each time point.

2.3 Results

[23] See www.mindfulnessinschools.org

[24] One child declined their assent at this point; two children in the intervention group dropped-out during the eight-week course

2.3.1 Preliminary Analyses

All data were downloaded and computed in SPSS version 19. Data from intervention group participants were removed if they had attended less than six out of eight sessions of the '**.**b' course[25]. Parametric assumptions of the data were assessed according to the recommendations in Field (2009). Apart from coping with stress, data for the primary outcome measures fulfilled parametric assumptions, thus a series of mixed (within-subjects and between-subjects) analyses of variance (ANOVAs) were used to analyse these variables. Kolmogorov-Smirnov statistics indicated that data for coping with stress and all secondary outcome measures were significantly skewed from a normal distribution. Thus non-parametric tests were used for these analyses. Effect sizes were calculated, where .3 and .5 are medium and large effect sizes respectively (Cohen, 1992). Reliabilities were calculated and Cronbach's α indicated good to high reliabilities for all questionnaire measures (α= .74.-.94).

Using Pillai's trace, a multivariate analyses of variance (MANOVA) indicated that there were no significant differences between male and females participants (V= .051,F(5, 113)=1.212, p>.05) on any normally distributed outcomes at T1; independent-samples Mann-Whitney U tests indicated no significant gender differences for non-normal outcomes[26]. Thus, all data were collapsed across gender. A further MANOVA to check for pre-intervention differences between the intervention and control groups on normally distributed primary outcomes was not significant (V = 0.082,F(5, 113)= 2.027, p>.05), indicating that there were no significant differences between the groups at T1.

2.3.2 Main Analyses

2.3.2.1 Primary Outcomes

Mindfulness. A mixed ANOVA was used to determine the effect of the '**.**b' course on participants' mindfulness. There was no significant main effect of time (F(1, 118) = 1.744, p>.05, r=.12), main effect of group (F(1, 118) = 2.861, p>.05, r=.15), or group × time interaction effect (F(1, 118) = 2.172, p>.05, r=.13).

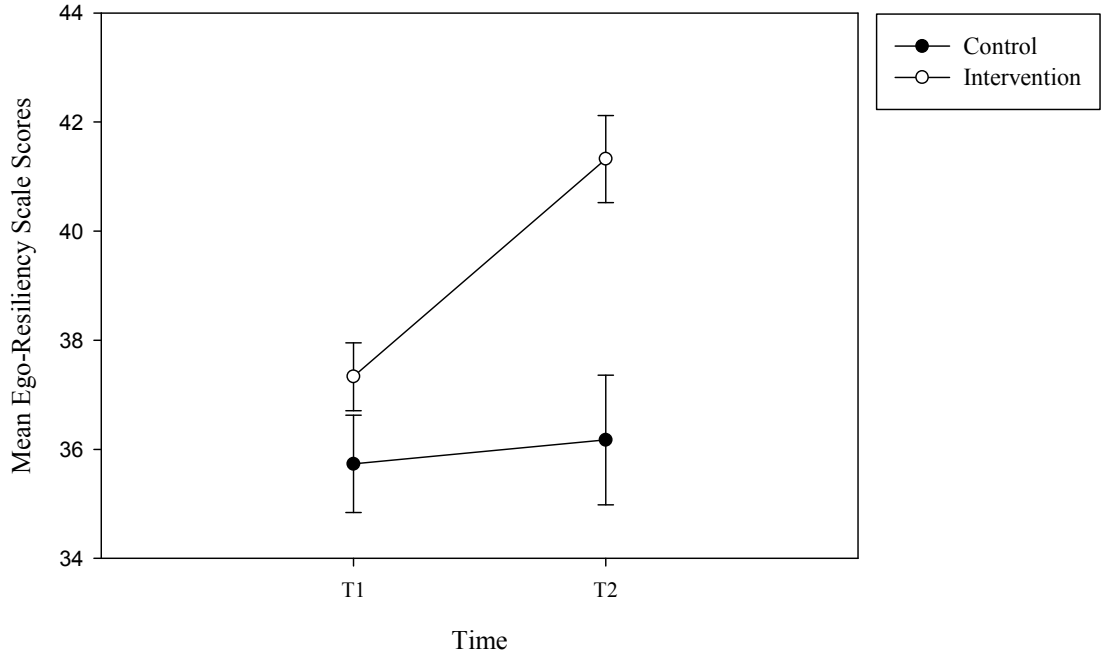
[25] No participants attended less than six out of eight sessions and thus no participants were removed according to this criterion. Overall course attendance was 94.8%

[26] Coping with stress *(*U=1,795.500, z= .567, p>.05); Inattentiveness (U=135.000, z= -1.772, p>.05); Externalising behaviour (U=166.000, z= -.983, p>.05); Academic achievement (U=1,570.500, z=1.020, p>.05)

Resilience. A mixed ANOVA demonstrated that there was a significant main effect of time ($F(1, 118) = 9.901$, $p < .05$, $r = .28$) and a significant main effect of group ($F(1, 118) = 11.218$, $p < .05$, $r = .29$). A significant group × time interaction effect was also found ($F(1, 118) = 6.371$, $p < .05$, $r = .23$), illustrated in Figure 1. *Post-hoc* t-tests indicated that control participants' resilience did not significantly change from T1 to T2 ($t(47) = -.358$, $p > .05$), however resilience intervention group participants increased significantly from T1 to T2 ($t(71) = -4.925$, $p < .05$) and was significantly higher than control participants' resilience at T2 ($t(118) = 3.726$, $p < .05$) (see Table 1). A bivariate correlation demonstrated that there was a significant relationship between the change in resilience in intervention group participants' and their resilience at T1 ($r = -.39$, $p > .05$). Additional exploratory analysis using a stepwise multiple regression model indicated that future uncertainty change was a significant predictor of the increase in resilience found in intervention group participants ($B = -1.931$, $SE\ B = .848$, $\beta = -.395$, $p < .05$).

Figure 1.

Mean Ego-Resiliency Scale scores by group at Time 1 and Time 2

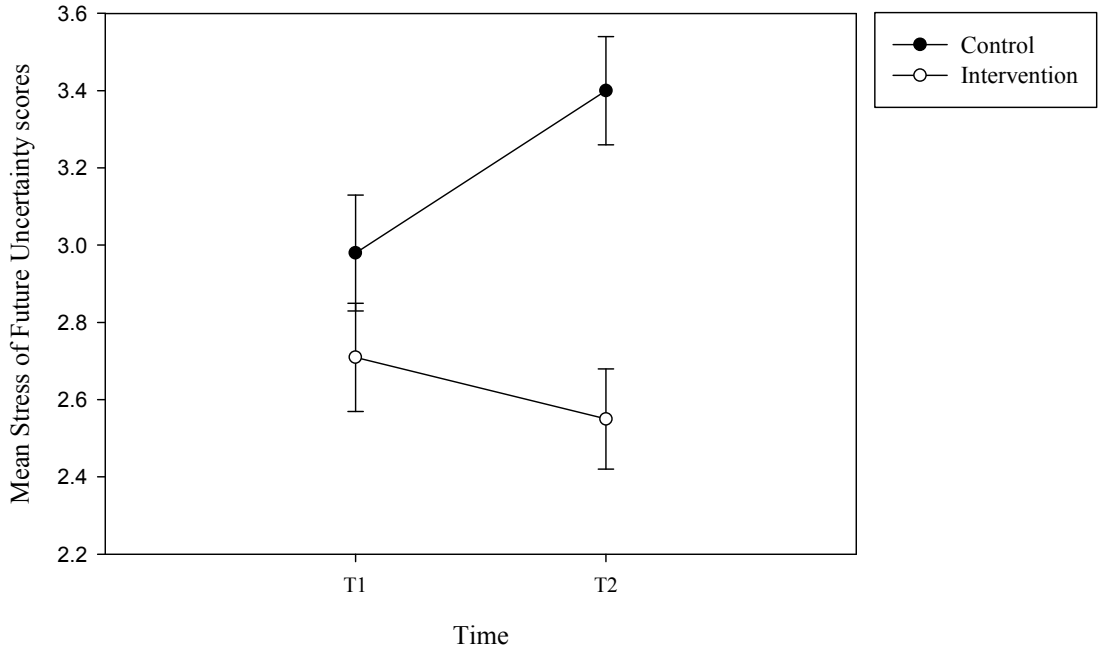


Stress. To examine the effects of the '.b' course on participants' stress as measured by the ASQ, a mixed ANOVA was completed. There was no significant main effect of time ($F(1, 118) = 0.454$, $p > .05$, $r = .06$) or group × time interaction effect ($F(1, 118) = 1.465$, $p > .05$, $r = .11$). The main effect of group for ASQ scores approached significance ($F(1, 118)$

= 3.452, p = .066, r=.17). Further analyses of the eight ASQ subscales (see Table 2) revealed a significant main effect of group for stress of school performance (F(1, 118) = 4.175, p<.05, r=.60) and a significant interaction effect for stress of future uncertainty (F(1, 118) = 7.506, p<.05, r=.24) (see Figure 2). *Post hoc* t-tests demonstrated that stress of future uncertainty increased over time in controls (t(47)=-2.928, p<.05) and was significantly higher than in intervention group participants at T2 (t(118)=-4.378, p<.05). Stress in this areas did not change in intervention participants (t(71)=1.099, p>.05). In intervention group participants, a bivariate correlation showed that there was a significant relationship between change in stress of future uncertainty and stress in this area at T1 (r = -.58, p<.05). A significant main effect of time was found for stress of romantic relationships (F(1, 118) = 5.029, p<.05, r=.20); stress in this area increased significantly in all participants from T1 to T2.

Figure 2.

Mean Stress of Future Uncertainty scores (ASQ subscale) by group at Time 1 and Time 2

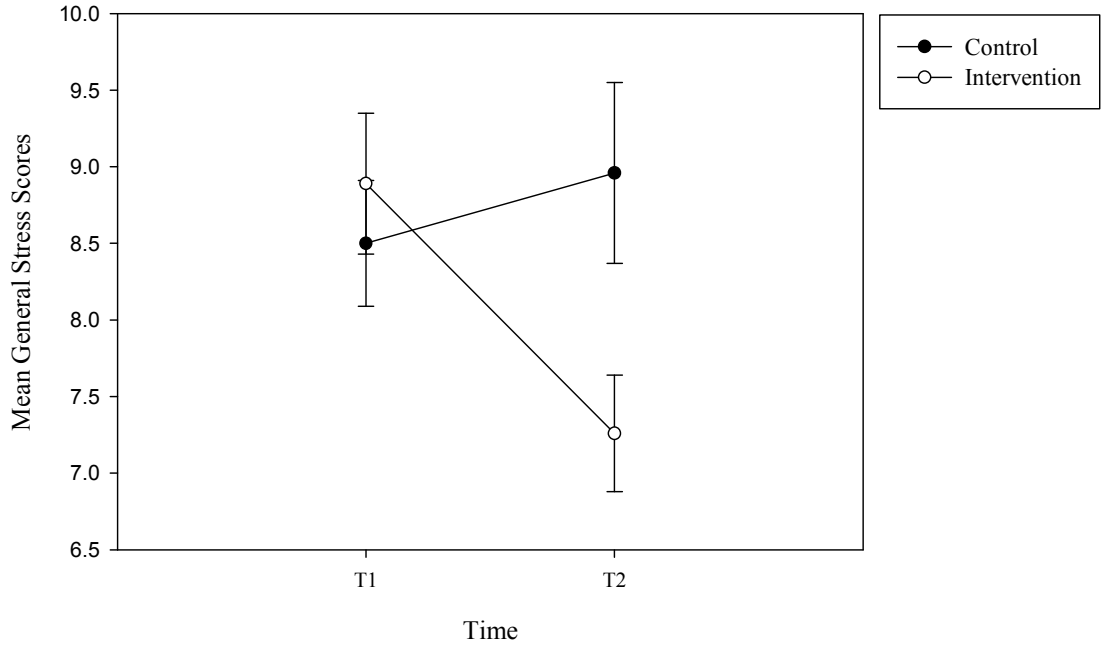


For scores on the general stress rating scale, a mixed ANOVA demonstrated that the main effects of group (F(1, 118) =1.354, p>.05, r=.11) and time (F(1, 118) = 2.694, p>.05, r=.15) were not significant. However, a significant group × time interaction effect was found (F(1, 118) = 8.592, p< .05, r=.26) (see Figure 3). *Post-hoc* t-tests indicated that general stress in intervention group participants decreased significantly from T1 to T2

($t(71)=3.511$, $p<.05$) and was significantly lower than controls at T2 ($t(118)=-2.525$, $p<.05$) (see Table 1), whereas general stress in control participants' did not significantly change from T1 to T2 ($t(47)=-.873$, $p>.05$). Additionally, a significant correlation was found between the change in general stress in intervention group participants' and the amount of stress they reported at T1 ($r = .66$, $p>.05$).

Figure 3.

Mean general stress scores by group at Time 1 and Time 2



An independent-samples Mann-Whitney U test examined the effects of the '**.**b' course on participants' perceived ability to cope with stress and anxiety. Coping in control group participants (*Mdn*=5.00) did not differ significantly from coping in intervention group participants (*Mdn*=5.00) at T1 (U=1,987.000, z= 1.617, $p>.05$, r= .15), however at T2, coping in intervention group participants (*Mdn*=7.00) was significantly higher than in controls (*Mdn*=5.00) (U=2,304.500, z= 1.116, $p<.05$, r= .28). A Wilcoxon signed-rank test demonstrated a significant increase in coping in intervention group participants from T1 to T2 (W_s=840.500, z= 2.950, $p<.05$, r= .35). Coping in control group participants did not significantly change from T1 to T2 (W_s=348.000, z= .878, $p>.05$, r= .13) (see Table 1).

Further, change in coping with stress was significantly related to reported coping at T1 in intervention group participants (τ = -.48, p<.05).

2.3.2.2 Secondary Outcomes

Inattentiveness. An independent-samples Mann-Whitney U test was used to determine the effects of the '**.**b' course on participants' inattentiveness. Inattentiveness did not differ significantly between groups at T1 (U=120.000, z= -.969, p>.05, r= .16) or at T2 (U=103.500, z= -1.130, p>.05, r= .18). A Wilcoxon signed-rank test demonstrated that there was no significant difference between inattentiveness in control group participants at T1 and T2 (W_s=8.000, z= .135, p>.05, r= .05). However a significant decrease in inattentiveness from T1 to T2 was found for intervention group participants (W_s=28.000, z= -2.077, p<.05, r= .38) (see Table 3). Additionally, inattentiveness at T1 was significantly related to change in inattentiveness over time (τ = .63, p<.05).

Externalising behaviour. An independent-samples Mann-Whitney U test was also used to examine the effects of the '**.**b' course on participants' externalising behaviour. Aggressive behaviour in the intervention and control group participants did not differ significantly at T1 (U=133.500, z= -.582, p>.05, r= .01) or at T2 (U=158.500, z= -.291, p>.05, r= .05). A Wilcoxon signed-rank test showed that externalising behaviour at T1 was not significantly different from externalising behaviour at T2 in intervention group (W_s=27.500, z= -.492, p>.05, r= .09) or control group (W_s=4.500, z= -.184, p>05, r= .06) participants (see Table 3).

Academic achievement. An independent-samples Mann-Whitney U test determined that academic achievement was not significantly different between groups at T1 (U=1,390.000, z= .192, p>.05, r= .08) or T2 (U=1,422.500, z= .399, p>.05, r= .04). A Wilcoxon signed-rank test demonstrated that achievement increased significantly from T1 to T2 in both intervention (W_s=1,488.000, z= 6.077, p<.05, r= .74) and control (W_s=569.000, z= 4.703, p<.05, r= .74) participants (see Table 3).

Table 1.

T1 and T2 means and standard deviations according to group for all primary outcome measures

		Descriptive Statistics					
		T1			T2		
Dependent Variable	Condition	*M*	*SD*	Range	*M*	*SD*	Range
CAMM mindfulness	Control	27.83	6.31	14.00, 40.00	27.73	5.33	13.00, 37.00
	Intervention	28.19	6.01	15.00, 40.00	30.06	4.65	20.00, 40.00
ERS resilience	Control	35.73	6.23	22.00, 48.00	36.17	8.25	14.00, 56.00
	Intervention	37.33	5.24	24.00, 51.00	41.32	6.82	27.00, 56.00
AQS stress	Control	43.06	13.25	16.00, 69.00	45.65	12.68	23.00, 71.00
	Intervention	40.99	13.05	17.00, 76.00	40.25	13.12	16.00, 62.00
General stress / anxiety	Control	8.50	2.81	3.00, 14.00	8.96	4.09	2.00, 18.00
	Intervention	8.89	3.92	2.00, 20.00	7.26	3.24	2.00, 14.00
Coping with stress / anxiety	Control	5.38	2.56	1.00, 10.00	5.77	2.40	2.00, 10.00
	Intervention	6.14	2.53	1.00, 10.00	7.18	2.22	3.00, 10.00

Table 2.

T1 and T2 means and standard deviations according to group for the Adolescent Stress Questionnaire subscales

		Descriptive Statistics			
		T1		T2	
Subscale of the ASQ		*M*	*SD*	*M*	*SD*
Stress of home life	Control	2.99	1.33	2.87	1.24
	Intervention	2.81	1.20	2.75	1.22
Stress of school performance	Control	3.00	1.09	3.12	1.07
	Intervention	2.77	1.16	2.68	1.14
Stress of school attendance	Control	2.70	1.38	2.76	1.39
	Intervention	2.50	1.18	2.55	1.15
Stress of romantic relationships	Control	1.83	0.88	2.12	0.99
	Intervention	1.84	1.01	2.06	0.93
Stress of pressure from peers	Control	2.61	1.06	2.93	1.15
	Intervention	2.66	1.08	2.57	1.18
Stress of teacher interactions	Control	2.53	1.13	2.60	1.15
	Intervention	2.33	1.18	2.40	1.05

Table 2.

T1 and T2 means and standard deviations according to group for the Adolescent Stress Questionnaire subscales (continued).

		Descriptive Statistics			
		T1		T2	
Subscale of the ASQ		*M*	*SD*	*M*	*SD*
Stress of future uncertainty	Control	2.98	1.07	3.40	0.99
	Intervention	2.71	1.15	2.55	1.09
Stress of school/leisure time conflict	Control	2.93	0.96	3.17	1.18
	Intervention	2.87	1.17	2.78	1.17

Table 3.

T1 and T2 means and standard deviations according to group for secondary outcome measures

		Descriptive Statistics							
		T1				T2			
Dependent Variable	Condition	*M*	*SD*	Range	*Mdn*	*M*	*SD*	Range	*Mdn*
TRF inattentiveness / concentration	Control	20.60	4.30	15.00, 26.00	19.00	19.56	3.58	15.00, 24.00	21.00
	Intervention	20.10	7.95	15.00, 47.00	16.50	18.33	4.64	15.00, 28.00	15.00
TRF aggressive / externalising	Control	16.80	2.90	15.00, 22.00	16.00	16.70	2.45	15.00, 22.00	15.00
	Intervention	18.47	6.10	15.00, 37.00	15.00	18.20	4.63	15.00, 30.00	15.00
NC levels academic achievement	Control	10.85	3.73	2.00, 18.00	11.00	12.33	4.41	2.00, 20.00	13.00
	Intervention	10.88	3.87	2.00, 17.00	11.00	12.59	4.41	2.00, 19.00	13.00

Table 4a. *Means and standard deviations for usefulness of all .b course practices*

	Counting breaths	FOFBOC	Beditation	.b	7/11	Cloud spotting	Mindful mouthful	Mindful walking
M	3.34	2.92	3.00	3.29	3.69	2.51	2.78	2.50
SD	1.23	1.21	1.25	1.18	1.27	1.26	1.35	1.32

Table 4b. *Means and standard deviations for usefulness of mindfulness in areas of participants' lives*

	Exams	Anger	Sleep	Stress	Worry	Depression	Relationships
M	7.73	5.40	6.50	7.23	6.43	5.05	5.12
SD	0.53	0.29	0.71	0.80	0.55	0.82	0.34

2.3.3 Acceptability and Feasibility

2.3.3.1 Feedback from intervention group participants

Participants in the intervention group answered a number of questions aimed at exploring their views of the **.**b course.

Participants were asked if they enjoyed the mindfulness course. 80.3% answered 'yes', 4.2% answered 'no' and 15.5% answered 'maybe'.

Participants stated how often they completed the home practices set after each session. The highest proportion of children, 39.4%, practiced once a week. 28.2% practiced a few times a week and 26.8% did not practice at all. A small number of children, 5.6%, reported practicing nearly every night.

Participants rated how useful they found each of the mindfulness practices they had learnt during the course (0=not useful at all, 5=very useful). Participants reported that the 7/11 and counting breaths practices were the most useful (see Table 4a). Participants also rated how useful they felt mindfulness would be in different areas of their lives in the future (0=not useful at all, 10= extremely useful). Mean scores for all participants indicated that they felt that mindfulness would be most useful when dealing with exams and stress (see Table 4b).

At T1 and T2 participants reported a variety of methods for dealing with stress and anxiety. Playing on the computer (and/or Xbox, PS3, Wii etc.), watching TV and playing sport were reported as the three most common ways of dealing with stress and anxiety at T1 and T2. At T2, 21.7% of the intervention group reported that they use a number of mindfulness practices to cope with stress and anxiety.

Participants in the intervention group also answered a question regarding their understanding of 'mindfulness'[27]. Responses fell into five main categories. Two categories pertained to what mindfulness is; participants felt that mindfulness is best described as present moment awareness or training one's attention.

"Mindfulness is living in the moment"

"You do things mindfully instead of automatically"

[27] "Imagine you are talking to someone who had never heard of mindfulness. How would you describe to them what mindfulness is?"

"It is where you control your puppy-like mind. So instead of your mind concentrating on you bad thoughts you just let them flow by"

One category related to what participants may use mindfulness for, for example to decease difficult emotions such as anxiety or stress:

"It is a way of coping with anger and de-stressing"

"Mindfulness is a course that helps you deal with stress and other problems"

The remaining two categories pertained to the effects of mindfulness; participants either reported a feeling of relaxation/calm, or a more significant change following mindfulness practice:

"Its [sic] *relaxing and calms you"*

"It is something that makes you understand more about yourself"

"It is a course of peace"

2.3.3.2 Feedback from school staff

The school's SENCo, in consultation with the form tutors who had taken part in the course, completed a questionnaire aimed at assessing the feasibility and acceptability of the '**.**b' course within this mainstream secondary school curriculum.

General feedback indicated that the course was felt to be worthwhile by the teaching staff and appreciated by the participants:

"*I think the mindfulness course was extremely worthwhile. Watching all pupils achieve an ability to take time out and calm down individually and as a class*" (Line 2).

"*We have had a high demand for the 7-11 to be taught to all pupils*" (Line 10).

"*All pupils were motivated to come each week and took the time to find out what had happened on the course earlier in the day*" (Line 4).

The feedback suggested that the '**.**b' course had been assimilated easily into the curriculum and was embraced by the teachers:

"*The 7-11 was used by the staff teaching the pupils who were taking part in the course at the beginning of their lessons, in particular to settle the class and by some to re-engage pupils during the lesson if they became noisy and uncooperative*" (Line 15).

"*Teaching staff were very enthusiastic about trying this activity* [mindful movement]*…At lunch time pupils were walking mindfully, eating mindfully and teaching staff were experimenting with listening to music mindfully, looking at a picture, a piece of equipment or the outside mindfully*" (Line 26).

School staff noticed an effect on a number of pupils, noticeably in those children who had significant issues before the course:

"*A number of children benefitted a great deal from the course. One boy stood out as benefitting most; he had serious anxiety issues. Over the eight weeks his parents went from despair and serious worry about him waiting to access the CAMHS anxiety group, to feeling that if he didn't access the anxiety group it wouldn't matter too much. The boy himself practiced the techniques several times a day and the video clip of Kung Foo Panda was extremely helpful to him*" (Line 41).

"*Several really anxious pupils who have autism, also benefitted as they were able to use the strategies to calm themselves when they were anxious*" (Line 50)

"*Another boy whose aggressive behaviour was a significant concern, the change has been incredible. He is using the practices every day, and using the CD. His parents are reinforcing the practices at home, as is his LSA*" (Line 53).

There were other reports that participants had discussed the mindfulness course with their parents:

"*A lot of pupils involved their parents and families at home. Pupils involved with CAMHS were talking to them about the course and we had very positive feedback bordering on excitement that we were taking part in the project*" (Line 6).

"*Beditation- Pupils reported using this at home with the CD and often whole families took it on board*" (Line 32).

2.4 Discussion

Participants who completed the mindfulness course, compared to passive controls, showed increased resilience and an increased belief in their ability to cope with stress. Other measures of stress yielded conflicting findings and no significant differences were found between groups on the measure of mindfulness. Thus, findings partially supported the primary hypotheses. The effects of the intervention extended to improved inattentive behaviour in intervention group participants. No significant differences were found between groups on the other secondary outcomes; hence the secondary hypotheses were also partially supported. The study also found that '**.**b' was accepted and enjoyed by adolescents, valued by teaching staff and assimilated into the existing timetable with reasonable ease.

2.4.1 Primary outcomes

2.4.1.1 Resilience

As hypothesised, early adolescents exposed to the mindfulness course, compared to controls, evidenced significant increases in psychological resilience, adding to previous research exploring mindfulness and well-being in adolescents (Huppert & Johnson, 2010; Miners, 2008; Schonert-Reichl & Lawlor, 2010). This also replicates Hennelly's (2011) recent study in finding increased resilience in adolescents following '**.**b' and is in line with research which suggests that cultivating mindfulness is associated with increased resilience (Kuyken et al, 2010). Further, results suggest that early adolescents who reported lower resilience before completing the '**.**b' course demonstrated the greatest increase in resilience, extending previous literature that has found similar results for self-reported anxiety and depression (e.g. Semple et al, 2010) and suggesting that training in mindfulness may be particularly valuable for these vulnerable young people.

Analysis suggested that the increase in resilience evident in intervention group participants may reflect their improved ability to remain composed and temperate regarding uncertainties in the future (see below), as opposed to becoming increasingly stressed about such ambiguity. This may link with the construct of optimism, which has long been associated with resilience (Tugade & Fredrickson, 2004) and which previous research has found increases following mindfulness training (Kiken & Shook, 2011). It is also possible that the significant increase in resilience following the '**.**b' course reflects the increase in perceived coping with stress that was found in participants in the present study (see below), as resilience is often defined as the ability to cope with, or bounce-back from, stressful situations (Block & Kremen, 1996). Additionally, the ERS includes items such as 'I get over my anger at someone

reasonably quickly' and it is possible that the focus during the course on acceptance of difficult content may have contributed to the significant increase on this measure. Tugade and Fredrickson (2004) define resilience, as measured by the ERS, as "the capacity to modify response to changing situational demands, especially frustrating or stressful encounters" (p. 322); the '**.**b' course also focuses on developing individuals' ability to step back and respond to situations, rather than react, and increases in participants' resilience could reflect this, as well as their improved ability to "Stop-Breathe-Be".

2.4.1.2 Stress

A more complex picture emerged for the effects of '**.**b' on stress. Against expectations, participants who completed the mindfulness course did not evidence a decrease in ASQ scores compared to controls. However, different areas of adolescents' lives cause them varying amounts of stress at different times (Byrne et al, 2007) and so any expected effects of '**.**b' on total ASQ scores may have been cancelled out. For example, in this sample, stress of romantic relationships increased for all participants over time, which may reflect the increasing importance, and associated stress, of romantic relationships as individuals move through adolescence (Brengden et al, 2002; Connolly, Craig, Goldberg & Pepler, 2004). Stress of future uncertainty increased in control participants over time whilst remaining stable in intervention group participants. This suggests that participation in the mindfulness course helped stress in this particular area to remain steady in the face of other challenges that may have led to the increase in control participants, for example, increased importance of test/exam performance and growing concerns about the future (Byrne et al, 2007; Jessor, 1993).

Contrary to total ASQ scores, participants who received mindfulness training evidenced a significant decrease in their subjective experience of general stress, as hypothesised, compared to control participants, whose general stress remained constant over time. Additionally, participants who reported higher levels of general stress before starting the '**.**b' course evidenced greater decrease in stress, which again extends previous studies which note similar findings for other aspects of emotional health including depression (Joyce et al, 2010) and anxiety (Semple et al, 2010). The decrease in general stress may reflect the focus during the mindfulness training on acceptance of difficult content (thoughts, situations) rather than avoidance, which previous research has shown is associated with negative outcomes including stress in adolescents (Gomez, 1998). Additionally, it may result from an increase in intervention group participants' ability to step-back from negative events, in line with the association between making too-quick interpretations and distress (Williams & Swales, 2000).

Moreover, as hypothesised, early adolescents who completed the '.b' course, compared to controls, evidenced significant improvements in perceived coping with stress, in line with previous research in adults (Palmer & Rodger, 2009). Additionally, findings suggest that 'coping' increased most in those participants who felt least able to deal with stress and anxiety before starting the course. This increase in coping may reflect participants' beliefs regarding their most common future uses of mindfulness (coping with exams and stress). The effect of mindfulness on coping is potentially more important to consider than its effect on overall stress level; perceiving oneself unable to cope or helpless in the face of challenge leads to increased distress, even if actual level of stress remains constant (Mahmoud, Staten, Hall & Lennie, 2012) and coping strategies are more closely related to outcomes in adolescents than amount of stress (Seiffge-Krenke, 2000). Indeed, at least one transactional definition of stress suggests that stress itself only occurs "when demands (actual or perceived) are greater than coping capacities (actual or perceived)" (Trumbell & Appley, 1986).

2.4.1.3 Mindfulness

No significant increase in measured mindfulness was evident in those who completed the mindfulness course. Although contrary to hypotheses, extant studies that have included a measurement of mindfulness in youth populations are limited, and those which did include such a measure yielded conflicting findings. Studies report both no change in mindfulness (Huppert & Johnson, 2010) and increased mindfulness (Hennelly, 2011; Reid & Miller, 2009) following training. The latter studies both used measures of mindfulness developed and validated for adult samples[28] and it is possible that these were not appropriate for use with young people, which may have affected the results.

A possible explanation for the non-significant CAMM result in the present study pertains to everyday mindfulness skills. Research suggests that when an individual first begins to learn about mindfulness, an important early realisation is that they are not very mindful (Melbourne Academic Mindfulness Interest Group, 2006); thus self-reported ratings of mindfulness may demonstrate an initial decrease, until practice is sufficient to result in an improvement in day-to-day mindfulness (Huppert & Johnson, 2010). Alternatively, self-reported mindfulness increases with the amount of home practice that participants report doing (Carmody & Baer, 2008) and most participants in the current study practiced only once a week, thus limiting their exposure to mindfulness[29]. It is also possible that the non-significant result

[28] Hennelly measured mindfulness using the CAMS-R; Reid and Miller used the MAAS.

[29] This raises the general issue of exposure in mindfulness courses for children, where exposure may reach a maximum of 13 hours, compared to courses for adults where an average of 31 hours contact time

was due to limitations inherent in the '**.**b' course itself. Only one (unpublished) study evaluating the current version of '**.**b' is available (Hennelly, 2011); more evidence is clearly needed before it is possible to rule out this explanation for this result.

2.4.2 Secondary outcomes

2.4.2.1 Teacher-reported behaviours

As hypothesised, participants who completed the mindfulness course, compared to passive controls, evidenced a significant decrease in inattentiveness and within the intervention group those who showed higher levels of inattentiveness prior to starting the course, demonstrated greater change, mirroring findings from previous research (e.g. Zylowska et al, 2008). Research demonstrates that mindfulness improves attention in young people (Napoli et al, 2005; Schonert-Reichl & Lawlor, 2010) and as inattentiveness reflects difficulties with attention, it is possible that learning to train attention during '**.**b' resulted in improved inattentive behaviour (as in Semple et al, 2010). Alternatively, it may be that decreased inattentive behaviour was due to participants' learning to step back before responding rather than reacting to situations (Shapiro et al, 2006). Improved teacher-reported inattentiveness parallels adolescents' own reports of mindfulness being an attention-training skill and qualitative reports from teachers who found improved focus and calmness following mindfulness training.

Contrary to hypotheses, decreases in externalising/aggressive behaviour were not evident following the '**.**b' course in this sample. Previous studies have found that mindfulness training decreases externalising behaviour in young people whose behaviour or anxiety is clinically significant (Bögels et al, 2008; Semple et al, 2005); erstwhile research has not examined the effects of mindfulness on non-clinical adolescents compared to controls, and it is possible that mindfulness has an effect on such behaviours only when they are significant. This possibility is corroborated by reports from school staff who report particularly significant effects for the few participants in the intervention group whose behaviour was a concern before starting the mindfulness course, mirroring findings of previous research (Mendleson et al, 2010). Moreover, many participants in the present study had very few issues with externalising behaviour prior to the '**.**b' course, resulting in relatively low scores on the TRF at T1 and limiting the possibility of a significant decrease over time. More research is needed given the

---

with the teacher and further home practice, means the individual may experience at least 60-80 hours of mindfulness in one course (Burnett, 2009).

range of behaviours evident in non-clinical adolescents to replicate or oppose the findings of the present study.

2.4.2.2 Academic achievement

Contrary to the hypothesis, the effects of '**.**b' did not generalise to academic achievement in this study, rather, achievement increased over time in both groups. No previous studies examine the effect of MBST/MBCT- derived mindfulness on achievement in non-clinical adolescents; Shoval (2011) found improved maths following an arts-based intervention and Beauchemin et al (2008) report improved academic performance in young people with learning difficulties following mindfulness training. In the present study, pupils did not have general difficulties with learning or achievement, and it is possible that mindfulness may have an effect only when achievement is a significant issue; more research is needed to increase clarity regarding the effect of mindfulness on achievement. Further, it is possible that the effects of '**.**b' on academic achievement could not be seen in such a short time, as the strategies and thinking skills learnt during the course may not have had an immediate effect, because their value was not recognised by the child, or they need practice and time to apply them to their learning. This is a common phenomenon in studies of metacognition (e.g. Souvignier & Mokhlesgerami, 2006). This study was not able to test for such delayed effects, however this highlights the benefit of a follow-up in future studies.

2.4.3 Acceptability and feasibility

The study found that most children who completed the '**.**b' course enjoyed it, mirroring qualitative findings from previous studies exploring school-based mindfulness training (Huppert & Johnson, 2010; Joyce et al, 2010; Reid & Miller, 2009). Course attendance was excellent, attrition rate low, and teaching staff reported that pupils enthusiastically discussed '**.**b' with peers, teachers and parents outside of the course and were excited about what the sessions would include. Many participants practiced the skills at home and felt that the skills they learnt during the course would be useful in the future. Data gathered indicates which mindfulness practices were regarded by participants as most useful, and for what, providing useful data when considering future versions of '**.**b'.

Qualitative data demonstrated that participants had a reasonable understanding of what mindfulness means, for example being aware of present moment experience, training one's attention and stepping back from thoughts. This is one assessment (although crude) of

intervention integrity and also suggests that the materials and activities presented during the course were understood and appropriate for this group.

Feedback from the staff suggested that the course was valued by teachers and accepted as part of the curriculum, as noted in previous studies (e.g. Joyce et al, 2010; Schonert-Reichl & Lawlor, 2010). Many teachers embraced mindfulness more than expected, which is positive for the continued teaching of mindfulness in this particular school; the SENCo noted that teachers led participants in the '**.**b' practices at the start of many lessons, finding that pupils were calmer and more ready to learn as a result.

2.4.4 Limitations

Although it offers encouraging findings with regards to the continued evaluation of mindfulness in schools, there are a number of issues with the present study that merit attention. For example, although randomisation occurred at the level of the class, participants were not randomised to control/intervention conditions and therefore it was not possible to control for confounding variables and this may affect the validity of the results. For example classes in both conditions had different form tutors and teachers, so the observed benefits may be, in part, related to differences between teachers (Masten & Motti-Stefanidi, 2009). Additionally, previous research has found that the degree to which a child benefits from mindfulness training is associated with the amount of parental involvement (Semple et al, 2006) and it is possible that participants' home environments, which were not controlled for, may have affected the results[30]. Moreover, there may have been a potential bias in the sample towards highly-motivated children (or engaged parents) as they provided signed consent forms in a timely manner and were thus included in the study. This may limit the extent to which the findings can be generalised to those who did not volunteer for the study.

Additionally, participants in the control group did not engage in any intervention and so it is not possible to rule out that the effects evident following '**.**b', such as increased resilience, may be due to the opportunity to take time out of their usual timetable; feel a sense of belonging to a group; be chosen to be part of something special (e.g. Osterman, 2000).

[30] Semple et al (2006) propose that parental involvement/ home environment may affect outcomes in a number of ways: encouraging young people to do home practice; parents modelling what it looks like to be mindful, encouraging day-to-day use of mindfulness exercises i.e. "in the moment" of a disagreement with a sibling for example.

Furthermore, caveats can be raised with regards to the measures. The self-report measures may be influenced by biases including social desirability, which may influence the reliability of the results. Moreover, many reference significant reservations regarding the measurement of mindfulness (Grossman, 2008) and the non-significant finding of the present study may reflect weightier issues with the measurement of mindfulness in general. The ASQ is not a measure of symptomatic distress and so may not have been the most appropriate way to measure amount of stress in this study. Rating scales were useful, however it is possible that asking participants to rate how stressed they feel may result in answers that actually reflect their sense of coping, as stress becomes more significant when an individual believes they cannot cope with a particular event. In this way, the extent to which an individual feels stress may be thought of as being synonymous with perceived coping, possibly rendering the general stress scale obsolete.

2.4.5 Implications

This study found that mindfulness training improved psychological resilience, experience of stress and inattentiveness in this sample of early adolescents. As such, it lends some support to the possibility that '**.**b' is a suitable intervention for promoting adolescents' well-being. This is valuable, given the significance of stress for adolescents (Arnett, 1999), the impact it has on outcomes (Allison et al, 1999; Byrne & Mazanov, 2001; Czikszentmihalyi, 1997) and the potential for individuals to rely on maladaptive coping strategies during this time (Byrne & Mazanov, 2003). Findings were also useful as previous research has not examined whether mindfulness training affects the subjective experience of stress (including coping), or whether benefits generalise to behaviour in non-clinical adolescents.

Well-being in young people, both feeling good and coping with challenges, is associated with physical health, behaviour, academic progress and later psychological health (Greenberg et al, 2001; Hansen & Austin, 2003), thus evidence that mindfulness training can improve well-being is useful. It is particularly encouraging that participation in the '**.**b' course was associated with positive change though most participants reported practising only once a week; in previous studies, improved well-being has related to amount of practice undertaken outside the course (Huppert & Johnson, 2010).

This study offers a number of implications for the teaching of mindfulness in schools. It demonstrates that social and emotional skills can be taught to early adolescents in schools and that they enjoy the opportunity to do so. It suggests that, despite concerns regarding fitting

mindfulness into a busy secondary school curriculum, it is plausible and practical to teach mindfulness within an existing timetable. Further, it demonstrates that eight sessions of mindfulness training can affect well-being; a previous study evaluating a four-session pilot found no such effects (Huppert & Johnson, 2010), suggesting that children, like adults, may need at least eight sessions to gain the benefits from mindfulness training.

This study offers a number of implications for the continued study of mindfulness in youth. Campbell et al (2000) assert that "exploratory trials" (p. 695), such as the present study, are a necessary stage in an expanding literature, however future research with adolescents should use an RCT design and ideally include a placebo control, an intervention of a different type that includes similar activities and home practice, such as relaxation[31], so that observed findings can be specifically attributed to mindfulness training. Future research may benefit from the inclusion of objective measures of variables such as attention (e.g. Tests of Everyday Attention for Children; Manly et al, 2001) and stress (e.g. salivary cortisol; Harkness, Stewart & Wynne-Edwards, 2011) to reduce potential bias; a more appropriate assessment of mindfulness in future studies may come from detailed qualitative information regarding participants' understanding and subjective experience of mindfulness. Audio or video recordings of sessions could ensure intervention fidelity and integrity in future studies.

This study relates directly to EP practice where there is increasing focus on preventative, evidence-based approaches to developing young people's social and emotional skills, particularly in those who are vulnerable (Norwich & Andrew, 2010) and supporting schools and children navigate stressful events such as transition (Brewin & Statham, 2011). More generally, EPs are in a good position to disseminate information regarding the evidence for mindfulness-based approaches in schools, as discussed in this paper, given their commitment to evidence-based practice. EPs recognise the importance of educating the whole child, are committed to promoting inclusive and innovative practice and acknowledge the effect that social and emotional competence has on learning; links between mindfulness and these aspects of EP practice are becoming recognised (Davis, 2012), opening up interesting possibilities for the role for EPs in establishing mindfulness in schools.

2.4.6 Conclusion

[31] Previous research with adults has compared mindfulness with relaxation (e.g. Tang et al, 2007) and demonstrated significant benefits of mindfulness over those of relaxation.

In conclusion, the present study found that participation in mindfulness training was associated with improved resilience, experience of stress and inattentiveness. Results indicate that early adolescents who had significant difficulties upon starting the course benefited a great deal, however findings also support the notion that accessing mindfulness training in schools may be an appropriate universal intervention to improve early adolescents' emotional well-being (Schonert-Reichl & Lawlor, 2010). The study would benefit from being replicated using an RCT design with a placebo control group and consideration given to the measures.

This study offers promising evidence for the introduction of the '**.**b' curriculum in a mainstream secondary school and suggests that, fundamentally, the teaching of mindfulness in schools to young people remains worthwhile.

Appendix A

Letter to Head Teacher Requesting Participation

Dear Head Teacher,

Re: Research Study – Request for Participation

I am in my final year of the Doctorate in Educational Psychology training course. As part of my course I am conducting a research study (thesis) evaluating the effects of a mindfulness meditation course in young people in secondary schools.

My project will give an opportunity for children in Year 7 to take part in a mindfulness course that has been specifically designed for young people. Previous research has indicated that mindfulness improves metacognition, thinking skills and attention, and there are associated benefits of this, including improved emotional literacy skills, self-awareness and managing relationships.

After the mindfulness course, I would specifically expect to see increases in the young peoples' resilience, happiness and attention skills and decreases in their stress and negative behaviour. There may also be some positive effects on their academic achievement. Above all, the children will be learning a skill which can help them manage their emotions and deal more effectively with difficult or challenging situations. I will be able to provide you with a summary of my findings for your records once the data has been analysed. (All data will be anonymised and stored securely.)

I am writing to ask whether you would be interested in your school being part of this study. I am on placement with the Wokingham Educational Psychology Service this year so naturally I am keen to work with local schools.

What follows is a summary of what the study will entail for your pupils and staff:

- Parent consent letters (that I have drafted) will need to be sent out for Year 7 pupils in September-October.
- Pupils selected to be involved will take part in an 8-session mindfulness course, involving activities, exercises, discussions and games. Each session is approximately 50 minutes long. No members of school staff will be needed for the course.
- Before and after the 8-session course, I will meet the children who are selected, to explain what is involved, ensure that they are happy to take part and follow-up after
- Class teachers/ form tutors will need to fill in a brief tick-box questionnaire about the children who have been selected to take part.

Please do not hesitate to contact me for further details or if you have any questions. I will follow up this letter with a telephone call next week to discuss your decision regarding participation and clarify any issues that are unclear.

Many thanks in advance for your time, and I look forward to speaking with you.

Kindest Regards,

Verity Holland

Trainee Educational Psychologist (University of Southampton)

Research Rationale

Title of Study: Mindfulness Meditation with Secondary School Pupils

Ethics Reference Number: 722

Research Supervisor: Dr. Nick Maguire

Previous research has found that young people experience increased stress and anxiety during secondary school, due to various things including school transition (particularly those in Year 7), exams and pressure from peer groups and parents. Issues such as bullying and associated concerns such as low self-esteem and confidence, and the high prevalence of disruptive classroom behaviour have also been found to represent a challenge for young people at secondary schools.

Training children and young people in mindfulness has been shown as a potential method by which to do help young people during this time. Mindfulness improves young people's metacognition and thinking skills, which facilitates improved emotional literacy and self-awareness. In terms of emotional development, mindfulness has been shown to increase happiness, resilience and positive behaviour. Mindfulness has also been shown to decrease negative affect (including depression and anxiety) and negative behaviour, including aggression.

Mindfulness fits neatly into Government initiatives such as Social and Emotional Aspects of Learning (SEAL) (where there is a focus on developing self-awareness and managing feelings such as anxiety, which is what mindfulness encourages) and the Every Child Matters agenda, which encourages all children to 'Be Healthy' and teaches skills that reduce "specific mental and emotional health problems such as depression and anxiety". Mindfulness can also fit into the Religious Education curriculum, as it addresses 'key attitudes' taught in the National Framework for R.E.: open-mindedness, appreciation and wonder, self-awareness and respect for all.

I am going to evaluate the effectiveness of a mindfulness meditation course with young people. In line with previous research, I am expecting to demonstrate that the mindfulness course increases resilience, well-being and happiness, and decreases stress and negative behaviour. Due to a decrease in stress and an increase in children's ability to manage their emotions, it is possible that we will also see increases in academic achievement after the mindfulness course.

Appendix B

Parent/carer Information Letter and Opt-In Consent Form

Dear Parent/Carer/Guardian,

Research Study Participation

I am writing to tell you about a piece of research that I hope to undertake with Year 7 pupils in * School over the Autumn/Spring Term, and to ask your permission for your child to take part.

What is the study about?

I am a Trainee Educational Psychologist at the University of Southampton. For my thesis research study, I am looking at interventions that are designed to target secondary school pupils' thinking skills, and help them to deal with stressful or difficult situations (such as examinations). Thinking about ways to help children's resilience (a child's ability to deal with difficult situations) is particularly important for young people in secondary schools as they are often going through some difficult changes and experience stress, anxiety and peer pressure. Mindfulness, which develops attention and awareness, has been found to be a useful way of helping young people in these situations – it has been shown to increase resilience and happiness and decrease stress in young people. It has also been shown to improve behaviour (including decreasing negative behaviour). Taking part in this course may also positively affect children's school work, through the decrease in stress and improvements in their thinking skills. I will be running a mindfulness courses in * School over the next term and your child has the opportunity to take part in this group.

What will it involve?

The research would give your child an opportunity to take part in an 8-session course of mindfulness run in school by me, which has been developed by the Mindfulness in Schools Project (MiSP) (www.mindfulnessinschools.org). The sessions will take place on a Monday or Friday, starting [date], during a lesson which will be rotated each week. The sessions will include discussions, activities and games, all designed to help young people think about the way they approach easy and difficult tasks/situations. The children will do some relaxation exercises and learn techniques for dealing with stress and anxiety. The children (and their teachers) will complete some short questionnaires before and after the course, so that I can evaluate the effectiveness of the course.

Will my child's information be kept safe?

Any scores or data that I collect will be confidential and will be stored securely in locked filing cabinets or password protected computer files in line with the Data Protection Act. I will be the only person who has access to them, and your child's name or details will not appear in any reports. This means that you won't be able to see your child's individual scores, however I can tell you about the overall findings of the study if requested.

Does my child have to take part?

Your child does not have to take part but it is hoped that as many as possible will have the opportunity to be involved. If you are happy for them to be involved in this course, please complete and return the attached slip to your child's class teacher by **[date]**.

If you agree to your child taking part, I will then get their permission to be involved. The course that the children will complete is designed to be fun and enjoyable, but if any child decides they don't want to continue with it, they are allowed to stop at any time.

What if I have any questions?

If you have any further questions about the study, please feel free to contact me by leaving a message at the School Office/Reception or by emailing me at vhh1g09@soton.ac.uk

Yours faithfully,

Verity Holland

Trainee Educational Psychologist, University of Southampton

[signed - name]

Headteacher, * School

Please return this slip to your child's tutor if you WOULD LIKE your child to participate (by [*date*]). Thank you.

Name of Pupil:……

Class/Class Teacher:……

☐ I would like my child to participate in the mindfulness course.

Parent/Guardian Signature:……..

Date:…….

Appendix C

Head Teacher Opt-Out Approval Letter

School headed paper
and/or address

Chair of the Ethics Committee
Department of Psychology
University of Southampton
Southampton
SO17 1BJ

Date

To the Chair of the University of Southampton School of Psychology Ethics Committee

I am happy to agree to using parental opt-out (where parental consent is assumed unless the parent actively states otherwise when given the opportunity to do so) for the control group for Verity Holland's research study (No. 722) on 'Mindfulness Meditation in Secondary School Pupils' and to accept responsibility for any parental objections that may arise from the opt-out procedure.

Yours faithfully

Name/signature
Headteacher

Appendix D

Parent/carer Information Letter and Opt-Out Consent Form

SCHOOL ADDRESS

Date

Dear Parent / Guardian / Carer,

I am a trainee Educational Psychologist (EP) from the University of Southampton, and I am completing my final placement in Wokingham this year. Part of this role is working in * School as the link EP. As part of my final year thesis, I am carrying out a research project investigating the effectiveness of mindfulness with some Year 7 pupils. Mindfulness is an intervention designed to target secondary school pupils' thinking skills and their emotional and social development, and help them to deal with raised levels of stress and anxiety.

Due to time constraints, pupils in your child's Year 7 class will not be able to take part in the mindfulness course this term, however with the permission of the school I am asking pupils in your child's class to complete two short questionnaires online during their ICT lessons; one this half term and one next half term. This will be very useful as it will assist in the evaluation of the mindfulness course in Year 7 pupils and help to decide whether or not it is effective with children of this age. All of the data I collect will be kept confidential.

I hope that the pupils will enjoy completing the questionnaires and that you will be happy for your child to take part. However if you do not want your child to complete the questionnaires, then please complete and return the slip to the School Office on or before [date]. If you or your child decide at a later time that they do not want to complete the questionnaires then please contact Mrs * at any time. If your child chooses not to participate there will be no consequence to their treatment at school.

For any further information or questions, please feel free to contact me through the school office. This project has received favourable ethical approval from the School of Psychology, University of Southampton. If you have any questions you may contact the Chair of the Ethics Committee, School of Psychology, University of Southampton, Southampton, SO17 1BJ. (023) 8059 5578.

Yours faithfully,

Verity Holland
Trainee Educational Psychologist
University of Southampton

PARENT OPT-OUT

Please return this slip to your child's tutor if you WOULD NOT your child to participate (by [*date*]). Thank you.

Name of Pupil:……

Class/Class Teacher:……

☐ I would NOT like my child to take part in this research project about mindfulness in secondary school pupils at * School

Parent/Guardian Signature:……..

Date:……

Appendix E

Class Teacher Information Letter and Consent Form

Study title: Mindfulness Meditation in Secondary School Pupils

Researcher name: Verity Holland

Ethics reference: 722

Dear Class Teacher,

My name is Verity Holland and I am a Trainee Educational Psychologist from the University of Southampton. As part of the final year of my course I am conducting a research study (thesis) evaluating the effects of a mindfulness course in young people in secondary schools. I am writing to request your participation in this study.

My project will give an opportunity for children in Year 7 to take part in an 8-session mindfulness course that have been specifically designed for young people. After this course, I would expect to see increases in the young peoples' resilience, happiness and thinking skills, and decreases in their stress and negative behaviour. Because of improved thinking skills and decreased stress, there may also be some positive effects on their academic achievement.

In order to evaluate the effects of the mindfulness course on behaviour, you will be asked to complete a brief tick-box questionnaire on each child that is selected to take part in the study before they start the mindfulness course. You will be asked to repeat this questionnaire approximately 2 weeks after the intervention.

Personal information will not be released to or viewed by anyone other than researchers involved in this project. Results of this study will not include your or your pupils' names or any other identifying characteristics.

Your participation is entirely voluntary (although much appreciated) and you may withdraw your participation at any time. If you have any questions please let me know.

Many thanks in advance for your time, and I look forward to speaking with you.

Kindest Regards,

Verity Holland

Trainee Educational Psychologist

University of Southampton

If you are happy to participate, please initial the box(es) if you agree with the statement(s):

I have read and understood the information sheet (this letter) and have had the opportunity to ask questions about the study ☐

I agree to take part in this research project and agree for the data I provide about pupils to be used for the purpose of this study ☐

I understand my participation is voluntary and I may withdraw at any time without my legal rights being affected ☐

Name of participant (print name)……

Signature of participant……..

Date……

If you have questions about your rights as a participant in this research, or if you feel that you have been placed at risk, you may contact the Chair of the Ethics Committee, Department of Psychology, University of Southampton, Southampton, SO17 1BJ.

Phone: (023) 8059 5578.

Appendix F

Overview of 8-session .b Mindfulness course

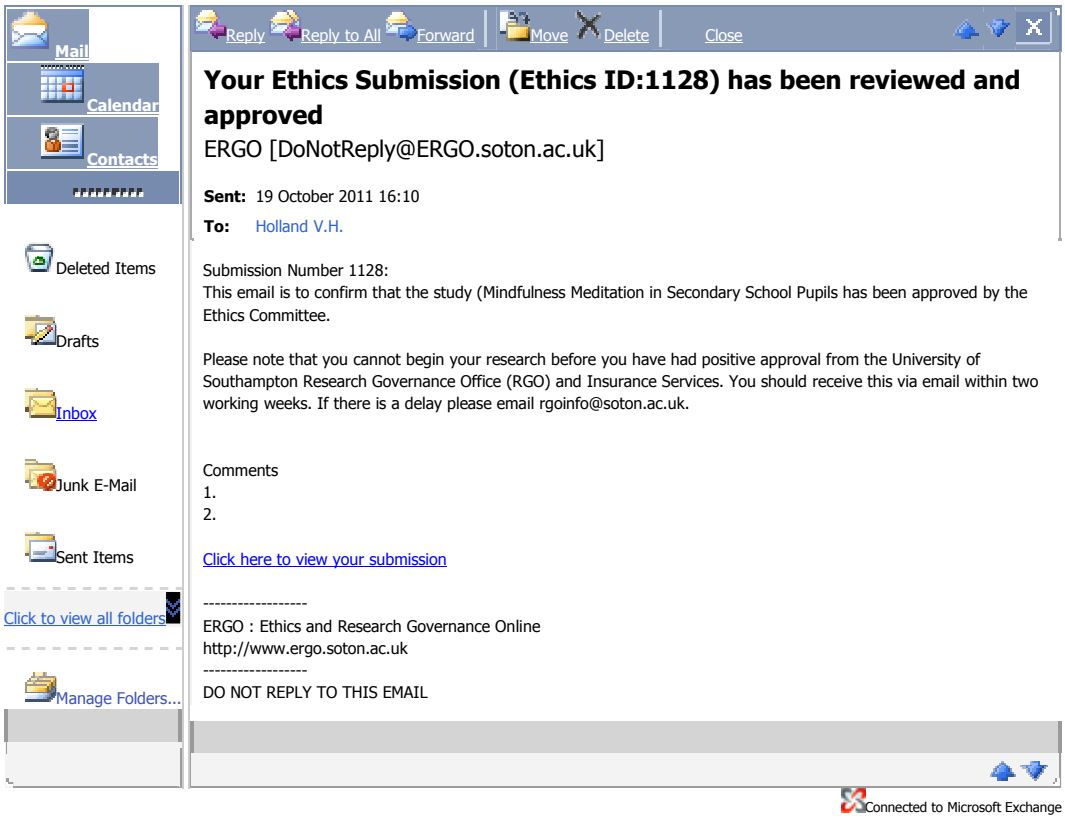
Session	Skills taught	Core practices
1. Introduction to Mindfulness and Puppy Training	✓ Directing attention ✓ Exploring and investigating sensations of the body and breathing ✓ Training the mind to 'aim and sustain' through firm, patient, kind repetition	• Simple directing of attention • Aiming and sustaining attention for 2 minutes • Counting breaths
2. Turning Towards Calm	✓ Cultivating calm ✓ Accepting our experience ✓ Anchoring the body/FOFBOC	• Relaxing and breathing with our experience • FOFBOC
3. Recognising Worry	✓ Recognising that the mind plays tricks on us: ✓ Interpreting and story-telling ✓ Ruminating ✓ Catastrophising ✓ Coming home to the body/anchoring	• Interpretation experiment • 7/11 • Beditation (lying down body-scan)
4. Being Here Now	✓ Stepping out of autopilot ✓ Savouring experience ✓ Returning to the present moment	• Savouring experience • Malteser, chilli/onion, raisin • Playing with the 5 senses • .b
5. Moving Mindfully	✓ Slowing down to take you out of autopilot ✓ Moving mindfully ✓ Aspiring to 'flow' or 'be in the zone' ✓ Bringing mindfulness into everyday activities	• Standing up slowly • Standing mindfully • Walking mindfully • Mindful acitivity
6. Stepping Back	✓ Listening to sounds ✓ Listening to thoughts as sounds ✓ Identifying frequent thought pattersn (Top Tunes) ✓ Recognising intensity and quality of thought-stream in the moment ✓ Stepping-back / de-personalising thought	• Listening to sounds and to thoughts as sounds (tuning in to radio head) • Identifying the Top 10 tunes • Cloud spotting • Observing the thought-stream

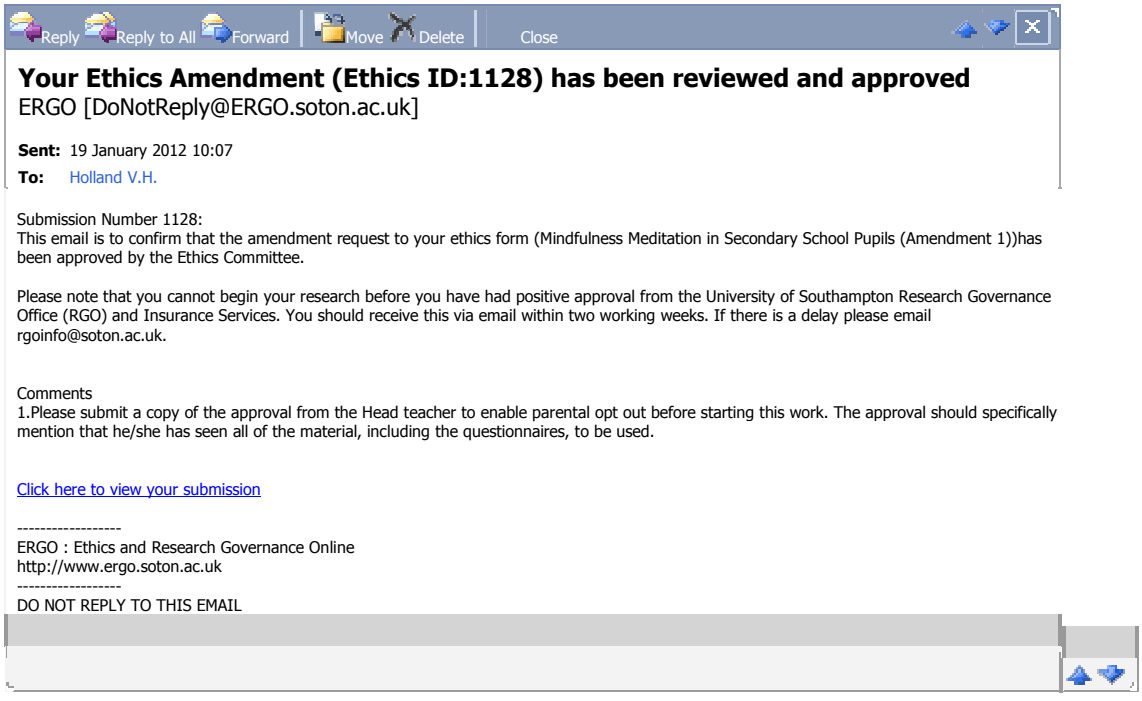
7. Befriending the Difficult	✓ Understanding stress and how it affects us ✓ Learning to accept and 'be with' difficult emotions ✓ Responding rather than reacting	• Identifying stress signature • Stress induction exercise • Allowing and breathing with difficult emotions
8. Pulling it all Together	✓ No specific mindfulness skills taught here. The emphasis is on considering which of the skills taught previously would be helpful in the future	• Contemplation of how what they have learned may apply in different areas of life • Contemplation of what they have appreciated most about the course • Writing advice to self • FOFBOC final • Mindful celebratory eating of chocolate

Appendix G

Evidence of Approval from Ethics Committee

Ethics approval and RG approval





Appendix H

Evidence of Sponsorship and Insurance from Research Governance

---

Appendix I

Class Briefing Script

Briefing script (verbal) – whole class

Hi, I am Verity, a Trainee Educational Psychologist at the University of Southampton, and I'm doing a research project about a course that is designed to help pupils at secondary school improve their ability to deal with difficult situations and improve their thinking skills. Improving your thinking skills also helps to reduce stress, which I know is an issue for some young people because of moving up to a new school, and exams and things. I'll tell you a bit about what the study involves and you can decide if you would like to take part in the study *[or project – check understanding]*. You don't have to tell me right now if you want to take part.

This study/project will involve doing a course of different activities, exercises and discussions, about how to manage stress and help people be better at dealing with difficult/challenging situations e.g. difficult exams, problems with family or friends etc. You will be out of lessons for 8 sessions to do the course with me. Where important, your teachers and I will organise it so that you don't miss the same lesson all the time. Each group will do slightly different things and have slightly different discussions, but the sessions will last the same amount of time. The things we do in the group are supposed to be enjoyable! And most people who have done it did enjoy it and thought it was worth doing because you learn quite a lot from it.

If you choose to take part in the study the answers you give and things we do in the group will not be shared with anyone else. I will use the information I get altogether without using anyone's names.

This study is for Year 7 pupils only. You don't have to take part if you don't want to, and even if you do decide to take part, you can change your mind and stop at any time during the activities. If you choose not to participate or stop halfway through, there will not be any consequences/you won't get into trouble with anyone.

Does anybody have any questions? You can ask questions later if you like. *[discussion if appropriate]*

Appendix J

Child Assent Form

Study title: Mindfulness Meditation in Secondary School Pupils

Researcher name: Verity Holland

Ethics reference: 722

Please initial the box(es) if you agree with the statement(s):

I have been told, and I understand, what is going to happen in the group and have had the chance to ask questions about the group ☐

I agree to take part in the group and agree for some of the things we do and say to be written about in the evaluation ☐

I understand that I can leave the group anytime I want, and this won't affect anything I do at school ☐

Name of participant (print name)……

Signature of participant……..

Date……

Appendix K

Debrief Statement - verbal

Debriefing Statement (Version no: 1; Date [])

(This will be read out to the children after the end of the last group session. They will also be given a copy to take home)

Thank you for taking part in our group this term. I hope you have enjoyed the things that we have done in the group.

The aim of this project was to evaluate the mindfulness course that we have been doing over the last term. Your contributions to our group will help me understand more about how effective this mindfulness course is with children and young people in secondary schools and will tell me more about running such groups in the future. I am going to write up the things we did in this group and some of the things we talked about, but no-one will be able to identify who did and said what.

Thank you for participating in the group.

Signature: _____ Date: _____

Name:_____

If you have questions about your rights as a participant in this research, or if you feel that you have been placed at risk, you may contact the Chair of the Ethics Committee, School of Psychology, University of Southampton, Southampton, SO17 1BJ.

Phone: (023) 8059 5578.

References

Abela, J. R. Z. & Hankin, B. L. (2011). Rumination as a vulnerability factor to depression during the transition from early to middle adolescence: a multi-wave longitudinal study. *Journal of Abnormal Psychology, 120*, 259-271. doi: 10.1037/a0022796.

Allen, M., Bromley, A., Kuyken, W. & Sonnenberg, S. J. (2009). Participants' experiences of mindfulness-based cognitive therapy: "It changed me in just about every way possible". *Behavioural and Cognitive Psychotherapy, 37,* 413-430. doi: 10.1017/S135246580999004X.

Allison, K. R., Adlaf, E. M., Ialomiteanu, A. & Rehm, J. (1999). Predictors of health risk behaviours among young adults: Analysis of the National Population Health Survey. *Canadian Journal of Public Health, 90,* 85-89.

Anderson, N. D., Lau, M. A., Segal, Z. V. & Bishop, S. R. (2007). Mindfulness-based stress reduction and attentional control. *Clinical Psychology & Psychotherapy, 14*, 449-463.doi: doi: 10.1002/cpp.544.

Armstrong, K. (2001). *Buddha*. London, UK: Penguin.

Arnett, J.J. (1999). Adolescent storm and stress, reconsidered. *American Psychologist, 54,* 317-326.

Baer, R. A. (2003). Mindfulness training as a clinical intervention: A conceptual and empirical review. *Clinical psychology: Science and Practice, 10,* 125-143. doi: 10.1093/clipsy/bpg015.

Baer, R. A. & Krietemeyer, J. (2006). Overview of mindfulness- and acceptance-based treatment approaches. In R. A. Baer (Ed.), *Mindfulness-based treatment approaches: Clinician's guide to evidence base and applications* (pp. 3-29). Burlington, MA: Academic Press.

Baer, R. A., Smith, G. T., Hopkins, J., Krietemeyer, J., & Toney, L. (2006). Using self-report assessment methods to explore facets of mindfulness. *Assessment, 13*, 27–45. doi: 10.1177/107391105283504.

Baer, R. A., Smith, G., Lykins, E. L. B., Button, D., Krietemeyer, J., Sauer, S.,... Williams, J. M. G. (2008). Construct validity of the five facet mindfulness questionnaire in meditating and non-meditating samples. *Assessment, 15*, 329–342. doi: 10.1177/1073191107313003.

Baumeister, R. F., DeWall, C. N., Ciarocco, N. J. & Twenge, J. M. (2005) Social exclusion impairs self-regulation. *Journal of Personality and Social Psychology, 88,* 589-604. doi: 10.1037/0022-3514.88.4.589.

Baumeister, R. F., Heatherson, T. F. & Tice, D. M. (1994). *Losing control: How and why people fail at self-regulation.* San Diego, CA: Academic Press.

Beauchemin, J., Hutchins, T. L. & Patterson, F. (2008). Mindfulness meditation may lessen anxiety, promote social skills and improve academic performance amongst adolescents with learning difficulties. *Journal of Evidence-based Complementary & Alternative Medicine, 13*, 34-45. doi: 10.1177/1533210107311624.

Beddoe, A. E. & Murphy, S. O. (2004). Does mindfulness decrease stress and foster empathy among nursing students? *Journal of Nursing Education, 43,* 305-312.

Benson, H. (1975). *The relaxation response*. New York: Morrow.

Bewick, K. C., Raymond, M. J., Malia, K. B. & Bennett, T. L. (1995). Metacognition as the ultimate executive: Techniques and tasks to facilitate executive functions. *NeuroRehabilitation, 5,* 367-375.

Biegel, G. M., Brown, K. W., Shapiro, S. L. & Schubert, C. M. (2009). Mindfulness-based stress reduction for the treatment of adolescent psychiatric outpatients: A randomised clinical trial. *Journal of Consulting and Clinical Psychology, 77*, 855-866. doi: 10.1037/a0016241.

Bieling, P. J., Hawley, L. L., Bloch, R. T., Corcoran, K. M., Levitan, R. D., Young, T., MacQueen, G. M. & Segal, Z. V. (2012). Treatment-specific changes in decentering following mindfulness-based cognitive therapy versus antidepressant medication or placebo for prevention of depressive relapse. *Journal of Consulting and Clinical Psychology, Online first March 12th 2012.* doi: 10.1037/a0027483.

Bierman, K. L., Domitrovich, C. E., Nix, R. L., Gest, S. D., Welsh, J. A., Greenberg, M. T. & Gill, S. (2008). Promoting academic and social-emotional school readiness: The head start REDI program. *Child Development, 79*, 1802-1817. doi: 10.1111/j.1467-8624.2008.01227.x

Bishop, S. R. (2002). What do we really know about mindfulness-based stress reduction? *Psychosomatic Medicine, 64*, 71-84.

Bishop, S. R., Lau, M., Shapiro, C., Carlson, L. Anderson, N. D., Carmody, J.,... Devins, G. (2004). Mindfulness: a proposed operational definition. *Clinical Psychology: Science and Practice, 11,* 230-241. doi: 10.1093/clipsy.bph077.

Blair, C. & Razza, R. P. (2007). Relating effortful control, executive function, and false belief understanding to emerging math and literacy ability in Kindergarten. *Child Development, 78,* 647-663. doi: 10.1111/j.1467-8624.2007.01019.x.

Block, J. H. & Kremen, A M. (1996). IQ and ego-resiliency: conceptual and empirical connections and separateness. *Journal of Personality and Social Psychology, 70, 349-*361.

Bögels, S. M., Hoogstad, B., van Dun, L., de Schutter, S. & Restifo, K. (2008). Mindfulness training for adolescents with externalising disorders and their parents. *Behavioural and Cognitive Psychotherapy, 36*, 193-209. doi:10.1017/S1352465808004190.

Bögels, S. M., Lehtonen, A. & Restifo, K. (2010). Mindful parenting in Mental Health Care. *Mindfulness, 1,* 107-120. doi: 10.1007/s12671-010-0014-5.

Bond, L. A. & Hauf, A.M. C. (2004). Taking stock and putting stock in primary prevention: characteristics of effective programs. *The Journal of Primary Prevention, 24,* 199-221. doi: 10.1023/B:JOPP.0000018051.90165.65.

Bootzin, R. R. & Stevens, S. J. (2005). Adolescents, substance abuse and the treatment of insomnia and daytime sleepiness. *Clinical Psychology Review, 25,* 629-644. doi: 10.1016/j.cpr.2005.04.007.

Borkowski, J. G. & Thorpe, P. K. (1994). Self-regulation and motivation: A life-span perspective on underachievement. In D. H. Schunk and B. J. Zimmerman (Eds.), *Self-regulation of learning and performance: Issues and education applications* (pp. 45-71). Hillsdale, NJ: Erlbaum.

Bowen, S., Witkiewitz, K., Dillworth, T. M., Chawla, N., Simpson, T. L., Ostafin, B. D. ... Marlatt, G. A. (2006). Mindfulness meditation and substance use in an incarcerated population. *Psychology of addictive behaviours, 20,* 343-347. doi: 10.1037/0893-164X.3.343.

Bowling, A. (2007). *Research methods in health: Investigating health and health services*. Maidenhead, UK: Open University Press.

Brengden, M., Vitaro, F., Doyle, A. B., Martiewicz, D. & Bukowski, W. (2002). Same-sex peer relationships and romantic relationships during early adolescence: Interactive links to emotional, behavioural and academic adjustment. *Merrill-Palmer Quarterly, 48,* 77-103. doi: 10.1353/mpq.2002.0001.

Brewin, M. & Statham, J. (2011). Supporting the transition from primary school to secondary school for children who are Looked After. *Educational Psychology in Practice, 27*, 365-381. doi: 10.1080/02667363.2011.624301.

Broderick, P. C. & Korteland, C. (2004). A prospective study of rumination and depression in early adolescence. *Clinical Child Psychology and Psychiatry, 9,* 383-394. doi: 10.1177/1359104504043920.

Broderick, P. C. & Metz, S. (2009). Learning to BREATHE: A pilot trial of a mindfulness curriculum for adolescents. *Advances in School Mental Health Promotion, 2,* 35-45.

Brown, P. L. (2007). In the classroom, a new focus on quieting the mind. *The New York Times*. Available from: http://www.nytimes.com/2007/06/16/us/16mindful.html

Brown, K. W. & Ryan, R. M. (2003). The benefits of being present: Mindfulness and its role in psychological well-being. *Journal of Personality and Social Psychology, 84,* 822-848. doi: 10.1037/0022-3514.84.4.822.

Brown, W. & Ryan, R. (2004). Perils and promise in defining and measuring mindfulness: Observations from experience. *Clinical Psychology: Science and Practice, 11,* 242-248. doi: 10.1093/clipsy.bph078.

Bunge, S. A. & Zelazo, P. D. (2006). A brain-based account of the development of rule use in childhood. *Current Directions in Psychological Science, 15,* 118-121. doi: 10.1111/j.0963-7214.2006.00419.x.

Burke, C. A. (2010). Mindfulness-based approaches with children and adolescents: A preliminary review of current research in an emerging field. *Journal Child Family Studies, 19,* 133-144. doi: 10.1007/s10826-009-9282-x.

Burnett, R. (2009). Mindfulness in Schools: Learning lessons from the adults – secular and Buddhist. (Unpublished master's thesis). Cambridge, UK: University of Cambridge.

Burnett, R., Cullen, C. & O'Neill, C. (2011). *.b teaching materials,* Mindfulness in Schools Project**.** Retrieved from: http://mindfulnessinschools.org/what-is-dotb

Byrne, D. G., Davenport, S. C. & Mazanov, J. (2007). Profiles of adolescent stress: The development of the adolescent stress questionnaire (ASQ). *Journal of Adolescence, 30,* 393-416. doi: 10.1016/j.adolescence.2006.04.004.

Byrne, D. G. & Mazanov, J. (2001). Self-esteem, stress and cigarette smoking in adolescents. *Stress and Health, 17,* 105-110. doi: 10.1002/smi.885.

Byrne, D. G. & Mazanov, J. (2003). Adolescent stress and future smoking behaviour: A prospective examination. *Journal of Psychosomatic Research, 54,* 185-192. doi: 10.1016/S0022-3999(02)00411-7.

Cahn, B. & Polich, J. (2006). Meditation states and traits: EEG, ERP, and neuroimaging studies. *Psychological Bulletin, 132*, 180-211. doi: 10.1037/0033-2909.132.2.180.

Campbell, M., Fitzpatrick, R., Haines, A., Kinmonth, A. L., Sandercock, P., Spiegelhalter, D. & Tyrer, P. (2000). Framework for design and evaluation of complex interventions to improve health. *British Medical Journal*, *321,* 694-696. doi: 10.1136/bmj.321.7262.694.

Carlson, L. E., Speca, M., Faris, P. & Patel, K. D. (2007). One year pre-post intervention follow-up of psychological, immune, endocrine and blood pressure outcomes of mindfulness-based stress reduction (MBSR) in breast and prostate cancer outpatients. *Brain, Behavior and Immunity, 21,* 1038-1049. doi: 10.1016/j.bbi.2007.04.002.

Carmody, J. (2009). Evolving conceptions of mindfulness in clinical settings. *Journal of Cognitive Psychotherapy: An International Quarterly, 23*, 270-280. doi: 10.1891/0889-8391.23.3.270.

Carmody, J. & Baer, R. (2008). Relationships between mindfulness practice and levels of mindfulness, medical and psychological symptoms and well-being in a mindfulness-based stress reduction program. *Journal of Behavioural Medicine, 31*, 23-33. doi: 10.1007/s10865-007-9130-7.

Carmody, J., Baer, R., Lykins, E. L. B. & Olendzki, N. (2009). An empirical study of the mechanisms of mindfulness in a mindfulness-based stress reduction program. *Journal of Clinical Psychology, 65*, 613-636. doi: 10.1002/jclp.20579.

Carmody, J., Crawford, S. & Churchill, L. (2006). A pilot study of mindfulness-based stress reduction for hot flashes. *Menopause, 13,* 760-769. doi:10.1097/01gme.0000227402.98933.d0.

Carmody, J., Reed, G., Kristeller, J. & Merriam, P. (2008). Mindfulness, spirituality and health-related symptoms. *Journal of Psychosomatic Research, 64*, 393-403. doi: 10.1016/j.jpsychores.2007.11.015.

Carriochi, J., Kashdan, T. B., Leeson, P., Heaven, P. & Jordan, C. (2011). On being aware and accepting: A one-year longitudinal study into adolescent well-being. *Journal of Adolescence, 34*, 695-703. doi: 10.1016/j.adolescence.2010.09.003.

Cartledge, G., Yurick, A., Harjani Singh, A., Keyes, S. E. & Kourea, L. (2011). Follow-up study of the effects of a supplemental early reading intervention on the reading/disability risk of urban primary learners. *Exceptionality: A Special Education Journal, 19*, 140-159. doi: 10.1080/09362835.2011.562095.

Carson, J. W., Carson, K. M., Gil, K. M. & Baucom, D. H. (2004). Mindfulness-based relationship enhancement. *Behavior Therapy, 35,* 471-494. doi: 10.1016/S005-7894(04)80028-5.

Carver, C. C. & Scheier, M. F. (1998). *On the self-regulation of behaviour.* New York, NY: Cambridge University Press.

Cash, M. & Wittingham, K. (2010). What facets of mindfulness contribute to psychological well-being and depressive, anxious and stress-related symptomatology? *Mindfulness, 1,* 177-182. doi: 10.1007/s12671-010-0023-4

Cassin, S. E. & Rector, N. A. (2011). Mindfulness and the attenuation of post-event processing in social phobia: An experimental investigation. *Cognitive Behaviour Therapy, 40*, 267-278. doi: 10.1080/16506073.2011.614275.

Chambers, R., Chuen-Yee, B. & Allen, N. B. (2008). The impact of intensive mindfulness training on attentional control, cognitive style and affect. *Cognitive Therapy and Research, 32*, 303-322. doi: 10.1007/s10608-007-9119-0.

Chan, D. & Woollacott, M. (2007). Effects of level of meditation experience on attentional focus: Is the efficiency of executive or orientation networks improved? *Journal of Alternative and Complementary Medicine, 13,* 651-658. doi: 10.1089/acm.2007.7022.

Claxton, G. (1990). *The Heart of Buddhism: Practical wisdom for an agitated world*. London, UK: Crucible.

Coffey, K. A. & Hartman, M. (2008). Mechanisms of action in the inverse relationship between mindfulness and psychological distress. *Complementary Health Practice Review, 13,* 79-91. doi: 10.1177/1533210108316307.

Coffey, K., Hartman, M. & Fredrickson, B. L. (2010). Deconstructing mindfulness and constructing mental health: Understanding mindfulness and its mechanisms of action. *Mindfulness, 1,* 235-253. doi: 10.1007/s.12671-010-0033-2.

Cohen, J. (1992). A power primer. *Psychological Bulletin, 112*, 155-159.

Coholic, D. A. (2011). Exploring the feasibility and benefits of arts-based mindfulness-based practices with young people in need: Aiming to improve aspects of self-awareness and resilience. *Child Youth Care Forum, 40*, 303-317. doi: 10.1007/s10566-010-9139.

Coie, J. D. & Dodge, K. A. (1998). Aggression and antisocial behaviour. In W. Damon & N. Eisenberg (Eds.), *Handbook of child psychology, volume 3: social, emotional and personality development* (5th ed., pp.779-862). New York, NY: Wiley.

Collishaw, S., Maughan, B., Goodman, R. & Pickles, A. (2004). Time trends in adolescent mental health. *Journal of Child Psychology and Psychiatry, 45,* 1350-1362. doi: 10.1111/j.1469-7610.2004.00335.x.

Colman, I., Murrary, J., Abbott, R., Maughan, B., Kuh, D., Croudace, T. & Jones, P. (2009). Outcomes of conduct problems in adolescence: forty-year follow-up of a national cohort. *British Medical Journal, 338,* a2981. doi: 10.1136/bmj.a2981.

Compas, B. E., Connor-Smith, J. K., Saltzman, H., Harding Thomsen, A. & Wadsworth, M. E. (2001). Coping with stress during childhood and adolescence : Problems, progress, and potential in theory and research. *Psychological Bulletin, 127,* 87-127. doi : 10.1037//0033-2909.127.1.87.

Connolly, J., Craig, W., Goldberg, A. & Pepler, D. (2004). Mixed-gender groups, dating and romantic relationships in early adolescence. *Journal of Research on Adolescence, 14*, 185-207. doi: 10.1111/j.1532-7795.2004.01402003.x.

Crane,R. (2009). *Mindfulness-based Cognitive Therapy: Distinctive features*. London: Routledge.

Csikszentmihalyi, M. (1997). *Finding flow: The psychology of engagement with everyday life*. New York, NY: Basic Books.

Davis, T. S. (2012). Mindfulness-based approaches and their potential for educational psychology practice. *Educational Psychology in Practice, 28*, 31-46. doi: 10.1080/02667363.2011.639348.

De Bruin, E. I., Zijlstra, B. J. H., van de Weijer-Bergsma & Bögels, S. M. (2011). The Mindful Attention Awareness Scale for adolescents (MASS-A): Psychometric properties in a Dutch sample. *Mindfulness, 2,* 201-211. doi: 10.1007/s12671-011-00061-6.

Deardorff, J., Gonzales, N. A. & Sandler, I. N. (2003). Control beliefs as a mediator of the relation between stress and depressive symptoms among inner-city adolescents. *Journal of Abnormal Child Psychology, 31*, 205-217. doi: 10.1023/A:1022582410183.

Department for Education and Skills (DfES) (2007). *Bullying: Third Report of Session 2006-2007.* Retrieved from: http://www.publications.parliament.uk/pa/cm200607/cmselect/cmeduski/85/85.pdf

Deyo, M., Wilson, K. A., Ong, J. & Koopman,C. (2009). Mindfulness and rumination: Does mindfulness training lead to reductions in the ruminative thinking associated with depression? *Explore, 5*, 265-271. doi: 10.1016/j.explore.2009.06.005.

Diamond, A. & Lee, K. (2011). Interventions shown to aid executive function development in children 4 to 12 years old. *Science, 333*, 959-964. doi: 10.1126/science.1204529.

Dickenson, J., Berkman, E. T., Arch, J. & Lieberman, M. D. (2012). Neural correlates of focused attention during a brief mindfulness induction. *Social*, *Cognitive and Affective Neuroscience, online first, March 28th 2012*.

Dimidjian, S. & Linehan, M. M. (2003). Defining an agenda for future research on the clinical application of mindfulness practice. *Clinical Psychology: Science and Practice, 10*, 166-178. doi: 10.1093/clipsy/bpg019.

Dorjee, D. (2010). Kinds and Dimensions of mindfulness: why it is important to distinguish them. *Mindfulness, 1,* 152-160. doi: 10.1007/s12671-010-0016-3.

Duncan, G. J., Dowsett, C. J., Claessens, A., Magnuson, K., Huston, A. C., Klebanov, P. … Japel, C. (2007). School readiness and later achievement. *Developmental Psychology, 43,* 1428-1446. doi: 10.1037/0012-1649.43.6.1428.

Dunn, B. R., Hartigan, J. A. & Mikulas, W. L. (1999). Concentration and mindfulness meditations: Unique forms of consciousness? *Applied Psychophysiology and Biofeedback, 24*, 47-165. doi: 10.1023/A:1023498629385.

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*, 405-432. doi: 10.1111/j.1467-8624.2010.01564.x

Eccles, J. S. (1999). The development of children aged 6-14. *The Future of Children, 9*, 30-44.

Eccles, J. S. & Roeser, R. W., (2009). Schools, academic motivation and stage-environment fit. In R. M. Lerner & L. Steinberg (Eds.), *Handbook of adolescent psychology* (3rd ed., pp. 404-434). Hoboken, NJ: Wiley.

Edelbrock, C. & Achenbach, T. M. (1984).The teacher version of the Child Behaviour Profile: 1. Boys Aged 6-11. *Journal of Consulting and Clinical Psychology, 52*, 207-217.

Efklides, A. (2006). Metacognition and affect: What can metacognitive experiences tell us about the learning process. *Educational Research Review, 1,* 3-14. doi: 10.1016/j.edurev.2005.11.001

Efklides, A. (2008). Metacognition: Defining its facets and levels of functioning in relation to self-regulation and co-regulation. *European Psychologist, 13*, 277-287. doi: 10.1027/1016-9040.13.4.277.

Eifert, G. H. & Heffner, M. (2003). The effects of acceptance versus control contexts on avoidance of panic-related symptoms. *Journal of Behaviour Therapy and Experimental Psychiatry, 34,* 293-312. doi: 10.1016/j.jbtep.2003.11.001.

Ekman, P., Davidson, R. J., Ricard, M. & Wallace, B. A. (2005). Buddhist and psychological perspectives on emotions and well-being. *Current Directions in Psychological Science, 14*, 59-63. doi: 10.1111/j.0963-7214.2005.00335.x.

Ellenbogen, M. A., Schwartzman, A E., Stewart, J. & Walker, C. D. (2006). Automatic and effortful emotional information processing regulates different aspects of the stress response. *Psychoneuroendocrinology, 31*, 373-387. doi: 10.1016/j.psyneuen.2005.09.001.

Erisman, S. M. & Roemer, L. (2010). A preliminary investigation of the effects of experimentally-induced mindfulness on emotional responding to film clips. *Emotion, 10,* 72-82. doi: 10.1037/a0017162.

Esbjørn, B. H., Hoeyer, M., Dyrborg, J., Leth, I. & Kendall, P. C. (2010). Prevalence and co-morbidity among anxiety disorders in a national cohort of psychiatrically referred children and adolescents. *Journal of Anxiety Disorders, 24*, 866-872. doi: 10.1016/j.janxis.2010.06.009.

Falkenström, F. (2010). Studying mindfulness in experienced meditators: A quasi-experimental approach. *Personality and Individual Differences, 48*, 305-310. doi:10.1016/j.paid.2009.10.022.

Fang, C. Y., Reibel, D. K., Longacre, M. L., Rosenzweig, M. D., Campbell, D. E. & Douglas, S. D. (2010). Enhanced psychosocial well-being following participation in a mindfulness-based stress reduction program is associated with increased natural killer-cell activity. *The Journal of Alternative and Complementary Medicine, 16,* 531-538. doi: 10.1089/acm.2009.0018.

Farmer, E. M., Burns, B. J., Phillips, S. D., Angold, A. & Costello,E. J. (2003). Pathways into and through mental health services for children and adolescents. *Psychiatric Services, 54*, 60-66. doi: 10.1176/appi.ps.54.1.60.

Feldman, G., Greeson, J. & Senville, J. (2010). Differential effects of mindful breathing, progressive muscle relaxation, and loving-kindness meditation on decentering and negative reactions to repetitive thoughts. *Behaviour Research and Therapy, 48*, 1002-1011. doi: 10.1016/j.brat.2010.06.006

Feldman, C. & Kuyken, W. (2011). Compassion in the landscape of suffering. *Contemporary Buddhism, 12,* 143-155. doi: 10.1080/14639947.2011.564831.

Fernandez-Duque, D., Baird, J. A. & Posner, M. I. (2000). Executive attention and metacognitive regulation. *Consciousness and Cognition, 9,* 288-307. doi: 10.1006/ccog.2000.0447.

Field, A. (2009). *Discovering Statistics Using SPSS.* London, UK: Sage Publishers.

Flavell, J. H. & Ross, L. (1981). *Social and cognitive development*. New York, NY: Cambridge University Press.

Fletcher, L. & Hayes, S. C. (2005). Relational frame theory, acceptance and commitment therapy, and a functional analytic definition of mindfulness. *Journal of Rational-Emotive & Cognitive-Behaviour Therapy, 23,* 315-336. doi: 10.1007/s10942-005-0017-7.

Fletcher, L. B., Schoendorff, B. & Hayes, S. C. (2010). Searching for mindfulness in the brain: A process-oriented approach to examining the neural correlates of mindfulness. *Mindfulness, 1,* 41-63. doi: 10.1007/s12671-010-0006-5.

Flook, L., Smalley, S. L., Kitil, M. J., Galla, B. M., Kaiser-Greenland, S., Locke, J. … Kasari, C. (2010). Effects of mindful awareness practices on executive functions in elementary school children. *Journal of Applied School Psychology, 26*, 70-95. doi: 10.1080/15377900903379125.

Forbes, D. (2004). *Boyz 2 Buddhas*. New York, NY: Peter Lang Publishing.

Forman, E. M., Herbert, J. D., Moitra, E., Yeomans, P. D. & Geller, P. A. (2007). A randomized controlled effectiveness trial of Acceptance and Commitment Therapy and Cognitive Therapy for anxiety and depression. *Behaviour Modification, 31*, 772-799. doi: 10.1177/0145445507302202.

Fontana, D. & Slack, I. (1997). *Teaching meditation to children*. Shaftesbury, UK: Element Books.

Fredrickson, B. L. (2000). Cultivating positive emotions to optimize health and well-being. *Prevention and Treatment, 3*. Retrieved from: https://journals.apa.org.prevention

Fredrickson, B. L. (2001). The role of positive emotions in positive psychology: The broaden-and-build theory of positive emotions. *American Psychologist, 56,* 218-226. doi: 10.1098/rstb.2004.1512/

Fredrickson, B. L., Cohn, M. A., Coffey, K. A., Pek, J. … Finkel, S. M. (2008). Open hearts build lives: positive emotions, induced through loving-kindness meditation, build consequential personal resources. *Journal of Personality and Social Psychology, 95,* 1045-1062. doi: 10.1037/a0013262.

Fresco, D., Segal, Z. V., Buis, T. & Kennedy, S. (2007). Relationship of posttreatment decentering and cognitive reactivity to relapse in major depression. *Journal of Consulting and Clinical Psychology, 75*, 447-455. doi: 10.1037/002-006X.75.3.447.

Frewen, P., Evans, E., Maraj, N., Dozois, D. & Partridge, K. (2008). Letting go: mindfulness and negative automatic thinking. *Cognitive Therapy and Research, 32,* 758-774. doi: 10.1007/s10608-007-9142-1.

Galambos, N. & Costigan, C. L. (2003). Emotional and personality development in adolescence. In I. B. Weiner (Series Ed.) & R. M. Lerner, M. A. Easterbrooks, & J. Mistry (Vol Eds.), *Handbook of psychology: Vol. 6. Developmental psychology* (pp. 211-240). New York: Wiley.

Garrison Institute Report. (2005). *Contemplation and education: A survey of programs using contemplative techniques in K-12 educational settings: A mapping report*. New York: The Garrison Institute. Retrieved from: http://www.robertroeser.com/docs/research/Garrison%20Institute%20Contemplative%20Ed.pdf

Gifford, E. V., Kohlenberg, B. S., Hayes, S. C., Antonuccio, D. O., Piasecki, M. M., Rasmussen-Hall, M. L. & Palm, K. M. (2004). Acceptance-based treatment for smoking cessation. *Behaviour Therapy, 35,* 639-704. doi: 10.1016/S0005-7894(04)80015-7.

Gioia, G. A., Isquith, P. K., Guy, S. C. & Kenworthy, L. (2000). *Behavior Rating Inventory of Executive Function: Professional Manual*. Lutz, FL: Psychological Assessment. Retrieved from: http://www.psych.acer.edu.au/index.php?option=com_rubberdoc&view=doc&id=99&format=raw

Goldin, P. R. & Gross, J. J. (2010). Effects of mindfulness-based stress reduction (MBSR) on emotion regulation in social anxiety disorder. *Emotion, 10*, 83-91. doi: 10.1037/a0018441.

Goldstein, J. (2002). *One dharma: The emerging western Buddhism*. San Francisco, CA: Harper Collins.

Gomez, R. (1998). Impatience-aggression, competitiveness and avoidant coping: direct and moderating effects on maladjustment among adolescents. *Personality and Individual Differences, 25*, 649-661. doi: 10.1016/S0191-8869(98)00083-X.

Graber, J. A. & Brooks-Gunn, J. (1996). Transitions and turning points: Navigating the passage from childhood through adolescence. *Developmental Psychology, 32,* 768-776. doi: 10.1037/0012-1649-32-4-768.

Grabovac, A. D., Lau, M. A. & Willett, B. R. (2011). Mechanisms of mindfulness: A Buddhist psychological model. *Mindfulness, 2,* 154-166. doi: 10.1007/s12671-011-0054-5.

Grant, K. E., Compas, B. E., Thurm, A. E., McMahon, S. D. & Gipson, P. Y. (2004). Stressors and child and adolescent psychopathology: Measurement issues and prospective effects. *Journal of Clinical Child and Adolescent Psychology, 33*, 412-425. doi:10.1207/s15374424jccp3302_23

Gratz, K. L. & Tull, M. T. (2010). Emotion regulation as a mechanism of chance in acceptance- and mindfulness-based treatments. In R. A. Baer (Ed.), *Assessing mindfulness and acceptance processes in clients: Illuminating the theory and practice of change* (pp.107-133). Oakland, CA: Context Press/New Harbinger Publications.

Greco, L. A., Baer, R. A. & Smith, G. T. (2011). Assessing mindfulness in children and adolescents: Development and validation of the Child and Adolescent Mindfulness Measure (CAMM). *Psychological Assessment, 23*, 606-614. doi: 10.1037/a0022819.

Greco, L. A., Barnett, E. R., Blomquist, K. K. & Gevers, A. (2008). Acceptance, body image and health in adolescence. In L. A. Greco and S. C. Hayes (Eds.), *Acceptance and Mindfulness Treatments for Children and Adolescents*, pp. 187-214. Oakland, CA: New Harbinger and Context Press.

Greco, L. A., Lambert, W. & Baer, R. A. (2008). Psychological inflexibility in childhood and adolescence: Development and evaluation of the Avoidance and Fusion Questionnaire for Youth. *Psychological Assessment, 20*, 93-102. doi: 10.1037/1040-3590.20.2.93.

Greenberg, M. T., Weissberg, R. P., Utne O'Brien, M., Zins, J. E., Fredricks, L., Resnik, H., …et al (2003). Enhancing school-based prevention and youth development through coordinated social, emotional and academic learning. *American Psychologist, 58*, 466-474. doi: 10.1037/0003-066X.58.6-7.466.

Greenberg, M. T., Domitrovich, C. & Bumbarger, B. (2001). The prevention of mental disorders in school-aged children: current state of the field. *Prevention & Treatment, 4,* 1-62. doi: 10.1037/1522-3736.4.1.41a.

Greeson, J. M. (2009). Mindfulness research update: 2008. *Complementary Health Research Practice Review, 14,* 10-18. doi: 10.1177/153321018329862.

Grossman, P. (2008). On measuring mindfulness in psychosomatic and psychological research. *Journal of Psychosomatic Research, 64*, 405-408. doi: 10.1016/j.jpsychores.2008.02.001.

Grossman, P., Niemann, L., Schmidt, S. & Walach, H. (2004). Mindfulness-based stress reduction and health benefits: A meta-analysis. *Journal of Psychosomatic Research, 57,* 35-43.doi: 10.1016/S0022-3999(03)00573-5.

Hansen, T. L. & Austin, G. (2003). *Student health risks, resilience and academic performance in Calfornia: Year 2 report, Longitudinal analyses*. Los Alamitos, CA: WestEd. Retrieved from: http://chks.wested.org/resources/APIreportY2.pdf

Harkness, K. L., Stewart, J. G. & Wynne-Edwards, K. E. (2011). Cortisol reactivity to social stress in adolescents: Role of depression severity and child maltreatment. *Psychoneuroendocrinology, 36,* 173-181. doi: 10.1016/j.psyneuen.2010.07.006.

Harnett, P. H. & Dawe, S. (in press). Review: The contribution of mindfulness-based therapies for children and families and proposed conceptual integration. *Child and Adolescent Mental Health, in press*. doi: 10.1111/j.1475-3588.2011.00643.x.

Hayes, S. C. (1994). Content, context, and types of psychological acceptance. In S. C. Hayes, N. S. Jacobson, V. M. Follette, & M. J. Dougher (Eds.), *Acceptance and change: Content and context in psychotherapy*, pp. 13-32. Reno, NV: Context Press.

Hayes, L., Boyd, C. P. & Sewell, J. (2011). Acceptance and commitment therapy for the treatment of adolescent depression: A pilot study in a psychiatric outpatient setting. *Mindfulness, 2,* 86-94. doi: 10.1007/s12671-011-0046-5.

Hayes, S. C. & Greco, L. A. (2008). Acceptance and mindfulness for youth: It's time. In L. A. Greco and S. C. Hayes (Eds.), *Acceptance and Mindfulness Treatments for Children and Adolescents*, pp. 3-13. Oakland, CA: New Harbinger and Context Press.

Hayes, S. C., Luoma, J. B., Bond, F. W., Masuda, A. & Lillis, J. (2006). Acceptance and Commitment Therapy: Model processes and outcomes. *Behaviour Research and Therapy, 44*, 1-25. doi: 10.1016/j.brat.2005.06.006.

Hayes, S. C., Strosahl, K. & Wilson, K. G. (1999). *Acceptance and commitment therapy: an experiential approach to behaviour chance*. New York, NY: Guilford.

Hayes, S. C. & Wilson, K. W. (2003). Mindfulness: method and process. *Clinical Psychology: Science and Practice, 10,* 161-165. doi: 10.1093/clipsy/bpg018.

Hennelly, S. (2011). *The immediate and sustained effects of the .b mindfulness programme on adolescents' social and emotional well-being and academic functioning.* (Unpublished master's thesis). Cambridge, UK: University of Cambridge.

Hick, S. (Ed.) (2009). *Mindfulness and social work.* Chicago, IL: Lyceum Books Inc.

Hilt, L. M., Cha, C. B. & Nolen-Hoeksema, S. (2008). Non-suicidal self-injury in young adolescent girls: Moderators of the distress-function relationship. *Journal of Consulting and Clinical Psychology, 76*, 63-71. doi: 10.1037/0022-006X.76.1.63.

Hölzel, B. K., Ott, U., Gard, T., Hempel, H., Weygandt, M., Margan, K., & Vaital, D. (2008). Investigation of mindfulness meditation practitioners with voxel-based-morphometry. *Social Cognitive and Affective Neuroscience, 3,* 55-61. doi: 10.1093/scan/nsm038.

Hölzel, B. K., Lazar, S. W., Gard, T., Schuman-Oliver, Z., Vago, D. R. & Ott, U. (2011). How does mindfulness meditation work? Proposing mechanisms of action from a conceptual and neural perspective. *Perspectives on Psychological Science, 6*, 537-559. doi: 10.1177/1745691611419671.

Hooker, K. E. & Fodor, I. E. (2008). Teaching mindfulness to children. *Gestalt Review, 12,* 75-91.

Howell, A. J., Digden, N. L. & Buro, K. (2010). Mindfulness predicts sleep-regulation and well-being. *Personality and Individual Differences, 48,* 419-424. doi: 10.1016/j.paid.2009.11.009.

Hoyt, L. T., Chase-Lansdale, P. L., McDade, T. W. & Adam, E. K. (2012). Positive youth, health adults: Does positive well-being in adolescence predict better perceived health and fewer risky health behaviours in young adulthood? *Journal of Adolescent Health, 50*, 66-73. doi: 10.1016/j.jadohealth.2011.05.002.

Huppert, F. A. (2009). Psychological well-being: Evidence regarding its causes and consequences. *Applied Psychology*: *Health and Well-being, 1,* 137-164. doi: 10.1111/j.1758-0854.2009.01008.

Huppert, F. A. & Johnson, D. M. (2010). A controlled trial of mindfulness training in schools: The importance or practice for an impact on well-being. *The Journal of Positive Psychology, 5,* 264-274. doi: 10.1080/17439761003794148.

Infantino, J. & Little, E. (2005). Students perceptions of classroom behaviour problems and the effectiveness of different disciplinary methods. *Educational Psychology, 25,* 491-508. doi: 10.1080/01443410500046549.

Institute of Medicine. (2009). *Preventing mental, emotional and behavioural disorders among young people: pgroess and possibilities.* Washington, DC: The National Academies Press. Retrieved from: http://www.samhsa.gov/co-occurring/news-and-features/preventing-disorders-summary.aspx

Jain, S., Shapiro, S. L., Swanick, S., Roesch, S. C., Mills, P. J.Bell, I. & Schwartz, G. E. R. (2007). A randomised controlled trial of mindfulness meditations versus relaxation training: Effects on distress, positive states of mind, rumination and distraction. *Annals of Behavioural Medicine, 33*, 11-21. doi: 10.1207/s15324796abm3301_2.

Jansiewicz, E. M. (2008). *The relationship between executive functions and metacognitive strategy learning and application*. (Unpublished Doctoral thesis). Atlanta, GA: Georgia State University.

Jensen, C. G., Vangkidle, S., Frokjaer, V. & Hasselbalch, S. G. (2012). Mindfulness training affects attention – or is in attentional effort? *Journal of Experimental Psychology: General, 141*, 106-123. doi: 10.1037/a0024931.

Jessor, R. (1993). Successful adolescent development among youth in high-risk settings. *American Psychologist, 48*, 117-126. doi: 10.1037/0003-006X.48.2.117.

Jha, A., Krompinger, J. & Baime, M. (2007). Mindfulness training modifies subsystems of attention. *Cognitive, Affective & Behavioural Neuroscience, 7,* 109-119. doi: 10.3758/CABN.7.2.109.

Jha, A., Stanley, E. A. & Baime, M. (2010). What does mindfulness training strengthen? Working memory capacity as a functional marker of training success. In R. A. Baer (Ed.), *Assessing mindfulness and acceptance processes in clients: Illuminating the theory and practice of change* (pp. 207-221). Oakland, CA: Context Press/New Harbinger Publications.

Joyce, A., Etty-Leal, J., Zazryn, T., Hamilton, A. & Hassed, C. (2010). Exploring a mindfulness meditation program on the mental health of upper primary children: a pilot study. *Advances in School Mental Health Promotion,* 3, 17-25. doi: 10.1080/1754730X.2010.9715677.

Kabat-Zinn, J. (1990). *Full Catastrophe Living: the program of the stress reduction clinic at the University of Massachusetts Medical Center.* New York, NY: Dell.

Kabat-Zinn, J. (1994). *Wherever you go, there you are*. London, UK: Piatkus.

Kabat-Zinn, J. (2003). Mindfulness-based interventions in context: Past, present, and future. *Clinical Psychology: Science and Practice, 10,* 144-156. doi: 10.1093/clipsy/bpg016.

Kabat-Zinn, J. (2005). *Coming to our senses*. New York, NY: Hyperion.

Kabat-Zinn, J., Lipworth, L. & Burney, R. (1985). The clinical use of mindfulness meditation for the self-regulation of chronic pain. *Journal of Behavioural Medicine, 8,* 163-190. doi: 10.1007/BF00845519.

Kabat-Zinn, J., Lipworth, L., Burney, R. & Sellers, W. (1987). Four-year follow-up of a meditation-based program for the self-regulation of chronic pain: Treatment outcomes and compliance. *Clinical Journal of Pain, 2,* 159-173.

Kabat-Zinn, J., Wheeler, E., Light, T., Skillings, Z., Scharf, M. J., Cropley, T. G., Hosmer, D. & Bernhard, J. D. (1998). Influence of a mindfulness meditation-based stress reduction intervention on rates of skin clearing in patients with moderate to severe psoriasis undergoing phototherapy (UVB) and photochemotherapy (PUVA). *Psychosomatic Medicine, 60*, 625-632.

Kang, C. & Whittingham, K. (2010). Mindfulness: a dialogue between Buddhism and clinical psychology. *Mindfulness, 1*, 161-173. doi: 10.1007/s12671-010-0018-1.

Kataoka, S. H., Stein, B. D., Jaycox, L. H., Wong, M., Tu, W., Escudero, P., … Fink, A. (2003). A school-based mental health program for traumatised Latina immigrant children. *Journal of the American Academy of Child and Adolescent Psychiatry, 42,* 311-318. doi: 10.1097/01.CHI.0000037038.04952.8E

Kegan, R. (1982). *The evolving self: Problem and process in human development*. Cambridge, MA: Harvard University Press.

Keyes, C. L. M. (2002). Promoting a life worth living: Human development from the vantage points of mental illness and mental health. In R. M. Lerner, F. Jacobs & D. Wertlieb (Eds.), *Promoting positive child, adolescent and family development: A handbook of program and policy innovations (Vol. 4), pp. 257-274.* Thousand Oaks, CA: Sage.

Kiken, L. G. & Shook, N. J. (2011). Looking up: mindfulness increases positive judgements and reduces negativity bias. *Social Psychological and Personality Science, 2*, 425-231. doi: 10.1177/1948550610396585.

Kristeller, J. L., Baer, R. A. & Quillian-Wolever, R. (2006). Mindfulness-based approaches to eating disorders. In R. A. Baer (Ed.), *Mindfulness-based treatment approaches: Clinician's guide to evidence base and applications* (pp. 75-93). Burlington, MA: Academic Press.

Kumar, S. M., Feldman, G. C. & Hayes, A. M. (2008). Changes in mindfulness and emotional regulation in an exposure-based cognitive therapy for depression. *Cognitive Therapy and Research, 32*, 734-744. doi: 10.1007/s10608-008-9190-1.

Kuyken, W., Watkins, E., Holden, E., White, K., Taylor, R. S., Byford, S. … Dalgleish, T. (2010). How does mindfulness-based cognitive therapy work? *Behaviour Research and Therapy, 48*, 1105-1112. doi: 10.1016/j.brat.2010.08.003.

Langer, E. J. (1989). *Mindfulness*. Cambridge, MA: Perseus Publishing.

Langer, E. J. & Moldoveanu, M. (2000). The construct of mindfulness. *Journal of Social Issues, 56,* 1-9. doi: 10.1111/0022-4537.00148.

Larkin, S. (2010). *Metacognition in Young Children*. Oxford, UK: Routledge.

Lau, M., Bishop, S., Segal, Z., Buis, T., Anderson, N., Carlson, L.… Devins, G. (2006). The Toronto Mindfulness Scale: Development and validation. *Journal of Clinical Psychology, 62*, 1445-1467. doi: 10.1002/jclp.20326.

Lazar, S. W., Kerr, C. E., Wasserman, R. H., Gray, J. R., Greve, D. N., Treadway, M. T. & Fischi, B. (2005). Meditation experience is associated with increased cortical thickness. *NeuroReport, 16,* 1893-1897. doi: 10.1097/01.wnr.0000186598.66243.19.

Lee, J., Semple, R. J., Rosa, D. & Miller, L. (2008). Mindfulness-based Cognitive Therapy for Children: results of a pilot study. *Journal of Cognitive Psychotherapy, 22*, 15-28. doi: 10.1891/0889.8391.22.1.15.

Liehr, P. & Diaz, N. (2010). A pilot study examining the effect of mindfulness on depression and anxiety for minority children. *Archives of Psychiatric Nursing, 24*, 69-71. doi: 10.1016/j.apnu.2009.10.001.

Linehan, M. M. (1993). *Cognitive-behavioural treatment of borderline personality disorder*. New York, NY: Guilford Press.

Lister, S. (2010). School teaches boys to meditate to reduce stress. *The Times, January 12th, 2010.* Available from: http://www.timesonline.co.uk/tol/life_and_style/education/article6984113.ece

Lumby J. (2011). Enjoyment and learning: policy and secondary school learners' experience in England. *British Educational Research Journal, 37*, 247-264. doi: 10.1080/01411920903540680.

Maedgen, J. W. & Carlson, C. L. (2000). Social functioning and emotional regulation in the attention deficit hyperactivity disorder subtypes. *Journal of Clinical Child Psychology, 29*, 30-42. doi: 10.1207/s15374424jccp2901_4

Mahmoud, J. S. R., Staten, R., Hall, L. A. & Lennie, T. A. (2012). The relationship among young adult college students' depression, anxiety, stress, demographics, life satisfaction and coping styles. *Issues in Mental Health Nursing, 33,* 149-156. doi: 10.3109/01612840.2011.632708.

Manly, T., Anderson, V., Nimmo-Smith, I., Turner, A., Watson, P. & Robertson, I. H. (2001). The differential assessment of children's attention: The Test of Everyday Attention for Children (TEA-Ch), normative sample and ADHD performance. *The Journal of Child Psychology and Psychiatry, 42*, 1065-1081. doi: 10.1017/S0021963001007909.

Masten, A. S. & Motti-Stefanidi, F. (2009). Understanding and promoting resilience in children: promotive and protective processes in schools. In T. B. Gutkin & C. R. Reynolds (Eds.), *The Handbook of School Psychology* (4th ed., pp. 721-738). New York, NY: Wiley.

McCracken, L. M., Gauntlett-Gilbert, J. & Eccleston, C. (2010). Acceptance of pain in adolescents with chronic pain: Validation of an adapted assessment instrument and preliminary correlation analyses. *European Journal of Pain, 14,* 316-320. doi: 10.1016/j.ejpain.2009.05.02.

Melbourne Academic Mindfulness Interest Group (2006). Mindfulness-based psychotherapies: A Review of conceptual foundations, empirical evidence and practical considerations. *Australian and New Zealand Journal of Psychiatry, 40*, 285-294. doi: 10.1080/j.1440-1614.2006.01794.x.

Mendelson, T., Greenberg, M. T., Dariotis, J. K., Gould, L. F., Rhoades, B. L. & Leaf, P. J. (2010). Feasibility and preliminary outcomes of a school-based mindfulness intervention for urban youth. *Journal of Abnormal Child Psychology, 38*, 985-994. doi:10.1007/s10802-010-9418-x.

Miners, R. (2008). Collected and connected: Mindfulness and the early adolescent. *Dissertations Abstracts International: Section B: The Sciences and Engineering*, 68, 9

Modinos, G., Ormel, J. & Aleman, A. (2010). Individual differences in dispositional mindfulness and brain activity involved in reappraisal of emotion. *Social, Cognitive and Affective Neuroscience, 5*, 369-377. doi: 10.1093/scan/nsq006.

Morone, N. E., Greco, C. M. & Weiner, D. K. (2008). Mindfulness meditation for the treatment of chronic low back pain in older adults: A randomised controlled pilot study. *Pain, 134,* 310-319. doi: 10.1016/j.pain.2007.04.038.

Muraven, M. & Baumeister, R. F. (2000). Self-regulation and depletion of limited resources: Does self-control resemble a muscle? *Psychological Bulletin, 126,* 247-259. doi: 10.1037//0033-2909.126.2.247.

Murgatroyd, S (1982). 'Coping' and the crisis councillor. *British Journal of Guidance & Counselling, 10,* 151-166. doi: 10.1080/03069888200760171.

Murrell, A. R. & Scherbarth, A. J. (2006). State of research and literature: ACT with children, adolescents and parents. *The International Journal of Behavioural Therapy and Consultation, 2*, 531-543.

Napoli, M., Krech, P.R. & Holley, L.C. (2005). Mindfulness training in elementary school students. *Journal of Applied Psychology, 21,* 99-125. doi: 10.1300/J370v21n01_05.

National Advisory Mental Health Council (1990). *National plan for research on child and adolescent mental disorders (DHHS Publication No. 90-1683).* Washington, D.C.: US Department of Health and Human Services. Retrieved from: http://www.eric.ed.gov/PDFS/ED326762.pdf

Nelson, T. O., Stuart, R. B., Howard, C. & Crowley, M. (1998). Metacognition and clinical psychology: A preliminary framework for research and practice. C*linical Psychology and Psychotherapy, 6,* 73-79. doi: 10.1002/(SICI)1099-0879(199905).

NICE. (2005). *Depression in Children and Adolescents: Identification and management in primary, community and secondary care.* London, UK: The British Psychological Society. Retrieved from: http://www.nice.org.uk/nicemedia/pdf/CG028NICEguideline.pdf

NICE. (2008). *Promoting children's social and emotional wellbeing in primary education.* London, UK: National Institute for Health and Clinical Excellence. Retrieved from: http://www.nice.org.uk/nicemedia/pdf/PH012Guidance.pdf

NICE (2009). *The treatment and management of depression in adults*. London, UK: National Institute for Health and Clinical Excellence. Retrieved from: http://www.nice.org.uk/nicemedia/pdf/CG90NICEguideline.pdf

Nolen-Hoeksema, S. (1991). Response to depression and their effects on the duration of depressive episodes. *Journal of Abnormal Psychology, 100*, 569-582. doi: 10.1037/0021-843X.100.4.569.

Nolen-Hoeksema, S., Stice, E., Wade, E. & Bohon, C. (2007). Reciprocal relations between rumination and bulimic, substance abuse and depressive symptoms in female adolescents. *Journal of Abnormal Psychology,* 116, 198-207. doi: 10.1037/0021-843X.116.1.198.

Norwich, B., Richards, A. & Nash, T. (2010). Educational Psychologists and children in care: Practices and issues. *Educational Psychology in Practice, 26*, 3755-390. doi: 10.1080/02667363.2010.521310.

Ortner, S., Kilner, S. & Zelazo, P. (2007). Mindfulness meditation and reduced emotional interference on a cognitive task. *Motivation and Emotion, 31,* 271-283. doi: 10.1007/s11031-007-9076-7.

Osterman, K. F. (2000). Students' need for belonging in the school community. *Review of Educational Research, 70*, 323-367. doi: 10.3102/00346543070003323.

Palmer, A. & Rodger, S. (2009). Mindfulness, stress, and coping among University students. *Canadian Journal of Counselling, 43,* 198-212.

Parasuraman, R. (1998). *The attentive brain*. Cambridge, MA: MIT Press.

Payton, J., Weissberg, R. P., Durlak, J. A., Dymnicki, A. B., Taylor, R. D., Schellinger, K. B. & Pachan, M. (2008). *The positive impact of social and emotional learning for*

Kindergarten to Eighth-grade students: findings from three scientific reviews. Retrieved from: www.lpfch.org/sel.

Pellegrini, A.D. & Long, J.D. (2002). A longitudinal study of bullying, dominance, and victimization during the transition from primary school through secondary school. *British Journal of Developmental Psychology, 20*, 259-280. doi: 10.1348/026151002166442.

Peterson, C. & Seligman, M. E. P. (1984). Causal explanations as a risk factor for depression: Theory and evidence. *Psychological Review, 91,* 347-374.

Pine, D. S., Mogg, K., Bradley, B. P., Montgomery, L., Monk, C. S., McClure, E. … Kaufman, J. (2005). Attention bias to threat in maltreated children: Implications for vulnerability to stress-related psychopathology. *American Journal of Psychiatry, 162*, 291-296. Doi: 10.1176/appi.ajp.162.2.291.

Poissant, H. (2004). Metacognition in attention deficit hyperactivity disorder (ADHD) and its link with executive functioning. *Cognition, Brain, Behaviour, 8*, 433-452.

Posner, M. I. (1980). Orienting of attention. *Quarterly Journal of Experimental Psychology, 32,* 3-25.

Putwain, D. W. (2009). Assessment and examination stress in key stage 4. *British Educational Research Journal, 35,* 391-411. doi: 10.1080/01411920802044404.

Ramel, W., Goldin, P. R., Carmona, P. E. & McQuaid, J. R. (2004). The effects of mindfulness meditation on cognitive processes and affect in patients with past depression. *Cognitive Therapy and Research, 28,* 433-455. doi: 10.1023/B:COTR.0000045557.15923.96.

Reid, E. & Miller, L. (2009). An exploration in mindfulness: Classroom of detectives. *Teachers College Record, 111,* 2775-2785.

Rimes, K. A. & Wingrove, J. (2011). Pilot study of mindfulness-based cognitive therapy for trainee clinical psychologists. *Behavioural and Cognitive Psychotherapy, 39*, 235-241. doi: 10.1017/S1352465810000731.

Robins, C. J., Keng, S-L, Ekblad, A. G. & Bratley, J. G. (2011). Effects of mindfulness-based stress reduction on emotional experience and expression: A randomised controlled trial. *Journal of Clinical Psychology, 68*, 117-131. doi: 10.1002/jclp.20857.

Roemer, L. & Orsillo, S. M. (2002). Expanding our conceptualisation of and treatment for generalised anxiety disorder: Integrating mindfulness/acceptance-based approaches with existing cognitive-behavioural models. *Clinical Psychology: Science and Practice, 9,* 54-68. doi: 10.1093/clipsy.9.1.54.

Roemer, L. & Orsillo, S. M. (2003). Mindfulness: A promising intervention strategy in need of further study. *Clinical Psychology: Science and Practice, 10,* 172-178. doi: 10.1093/clipsy.bpg020.

Ryan, R. M. & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development and well-being. *American Psychologist, 55,* 68-78. doi: 10.1037/0003-066X.55.1.68.

Safran, J. D. & Segal, Z. V. (1990). *Interpersonal process in cognitive therapy*. New York, NY: Basic Books.

Salovey, P., Mayer, J. D., Goldman, S. L., Turvey, C. & Palfai, T. F. (1995). Emotional attention, clarity, and repair: Exploring emotional intelligence using the Trait Meta-Mood Scale. In J. W. Pennebaker (Ed.), *Emotion, disclosure, and health* (pp.125-154. Washington, DC: American Psychological Association.

Samuelson, M., Carmody, J., Kabat-Zinn, J. & Bratt, M. A. (2007). Mindfulness-based stress reduction in Massachusetts correctional facilities. *The Prison Journal, 87,* 254-268. doi: 10.1177/0032885507303753.

Schonert-Reichl, K. A. & Hymel, S. (2007). Educating the heart as well as the mind: why social and emotional learning is critical for students' school and life success. *Education Canada, 47*, 20-25.

Schonert-Reichl, K. A. & Lawlor, M. S. (2010). The effects of a mindfulness-based education program on pre- and early-adolescents' well-being and social and emotional competence. *Mindfulness, 1,* 137-151. doi: 10.1007/s12671-010-0011-8.

Segal, Z. V., Williams, J. M. G. & Teasdale, J. D. (2002). *Mindfulness-based cognitive therapy for depression: A new approach to preventing relapse*. New York, NY: Guilford.

Seiffge-Krenke, I. (2000). Causal links between stressful events, coping style, and adolescent symptomology. *Journal of Adolescence, 23*, 675-691. doi: 10.1006/jado.2000.0352.

Seligman, M. E. P. & Csikszentmihalyi, M. (2000). Positive Psychology: An introduction. *American Psychologist, 55,* 5-14. doi: 10.1037//0003-066X.55.1.5.

Semple, R. J. & Lee, J. (2008). Treating anxiety with mindfulness: mindfulness-based cognitive therapy for children. In L. A. Greco and S. C. Hayes (Eds.), *Acceptance and Mindfulness Treatments for Children and Adolescents*, pp. 63-87. Oakland, CA: New Harbinger and Context Press.

Semple, R. J. & Lee, J. (2011). *Mindfulness-based cognitive therapy for anxious children: A manual for treating childhood anxiety*. Oakland, CA: New Harbinger.

Semple, R. J., Lee, J., Rosa, D. & Miller, L. F. (2010) A Randomized Trial of Mindfulness-Based Cognitive Therapy for Children: Promoting Mindful Attention to Enhance Social-Emotional Resiliency in Children. *Journal of Child and Family Studies, 19,* 218-229. doi: 10.1007/s10826-009-9301.y.

Semple, R., Reid, E. & Miller, L. (2005). Treating anxiety with mindfulness: An open trial of mindfulness training for anxious children. *Journal of Cognitive Psychotherapy*, *19,* 379-392.

Sen, S. (2006). Adolescence: A period of stress and strain. *Mental Health Reviews.* Retrieved (14/05/2010) from: http://www.psyplexus.com/mhr/adolescence_stress.html

Shapiro, S., Carlson, L., Astin, J. & Freedman, B. (2006). Mechanisms of mindfulness. *Journal of Clinical Psychology, 62*, 373-386. doi: 10.1002/jclp,20237.

Shapiro, S. L., Oman, D. & Thoresen, C. E. (2008). Cultivating mindfulness: effects on well-being. *Journal of Clinical Psychology, 64,* 840-862. doi: 10.1002/jclp.20491.

Shoval, E. (2011). Using mindful movement in cooperative learning while learning about angles. *Instructional Science, 39*, 453-466. doi: 10.1007/s11251-010-9137-2.

Siegel, D. J. (2007). *The mindful brain*. New York, NY: Norton.

Singh, N. N., Lancioni, G. E., Singh, A. D., Winton, S. W., Singh, A. N. … Singh, J. (2011). Adolescents with Asperger syndrome can use a mindfulness-based strategy to control their aggressive behaviour. *Research in Autism Spectrum Disorders, 5*, 1103-1109. doi: 10.1016/j.rasd.2010.12.006.

Singh, N.N., Lancioni, G. E., Singh, A. N., Winton, A. S. W., Singh, J. …Adkins, A. (2008). A mindfulness-based health wellness program for an adolescent with Prader-Willi Syndrome, *Behaviour Modification, 32*, 167-181. doi: 10.1177/0145445507308582.

Smalley, S. L., Loo, S. K., Hale, T. S., Shrestha, A., McGough, J., Flook, L. & Reise, S. (2009). Mindfulness and attention deficit hyperactivity disorder. *Journal of Clinical Psychology, 65,* 1087-1098. doi: 0.1002/jclp.

Solomon, Z. & Mikulincer, M. (2007). Posttraumatic intrusion, avoidance, and social functioning: A 20-year longitudinal study. *Journal of Consulting and Clinical Psychology, 75*, 316-325. doi: 10.1037/0022-0006X.75.2.316.

Souvignier, E. & Mokhlesgerami, J. (2006). Using self-regulation as a framework for implementing strategy instruction to foster reading comprehension. *Learning and Instruction, 16,* 57-71. doi:10.1016/j.learninstruc.2005.12.006

Stange, J. P., Eisner, L. R., Hözel, B. R., Peckham, A. D., Rauch, S. L., Nierenberg, A. A. … Deckersbach, T. (2011). Mindfulness-based cognitive therapy for bipolar disorder: Effects on cognitive functioning. *Journal of Psychiatric Practice, 17*, 410-419.

Sternberg, R. J. (2000). Images of Mindfulness. *Journal of Social Issues, 56,* 11-26. doi: 10.1111/0022-4537.00149.

Stipek, D. E. P. (1988). *Motivation to learning*. Boson, MA: Allyn & Bacon

Suveg, C., Hoffman, B., Zeman, J. L. & Thomassin, T. (2009). Common and specific emotion-related predictors of anxious and depressive symptoms in youth. *Child Psychiatry and Human Development, 40,* 223-239.

Swanson, H. L. (1990). Influence of metacognitive knowledge and aptitude on problem solving. *Journal of Educational Psychology, 82,* 306-314.

Tang, Y-Y, Ma, Y., Wang, J., Fan, Y., Feng, S., Lu, Q. … Posner, M. I. (2007). Short-term meditation training improves attention and self-regulation. *Proceedings of the National Academy of Science of the United States of America, 104,* 17152-17156. doi: 10.1073/pnas.0707678104.

Teasdale, J. D. (2004). Mindfulness-based cognitive therapy. In J. Yiend (Ed.), *Cognition, emotion and psychopathology: Theoretical, empirical and clinical directions* (pp. 270-289). New York, NY: Cambridge University Press.

Teasdale, J. D., Pope, M., Moore, R. G., Hayhurst, H., Williams, S. & Segal, Z. V. (2002). Metacognitive awareness and prevention of relapse in depression: empirical evidence. *Journal of Consulting and Clinical Psychology, 70*, 275-287. doi: 10.1037//0022-006X.70.2.275.

Teasdale, J. D., Wlliams, J. M., Soulsby, J. M., Segal, Z. V., Ridgeway, V. A. & Lau, M. A. (2000). Prevention of relapse/recurrence in major depression by mindfulness-based cognitive therapy. *Journal of Consulting and Clinical Psychology, 68,* 615-623. doi: 10.1037//0022-006X.6B.4.615.

Tellegen, A. & Atkinson, G. (1974). Openness to absorption and self-altering experiences: A trait related to hypnotic susceptibility. *Journal of Abnormal Psychology, 83*, 268-277.

Thompson, M. & Gauntlett-Gilbert, J. (2008). Mindfulness with children and adolescents: effective clinical application. *Clinical Child Psychology and Psychiatry, 13*, 395-407. doi: 10.1177/1359104508090603.

Trentacosta, C. J. & Shaw, D. S. (2009). Emotional self-regulation, peer rejection, and antisocial behaviour: Developmental associations from early childhood to early adolescence. *Journal of Applied Developmental Psychology*, 30, 356-365. doi: 10.1016/j.appdev.2008.12.016.

Trumbell, R. & Appley, M. H. (1986). A conceptual model for the examination of stress dynamics. In M. H. Appley and Trumbell (Eds.) *Dynamics of Stress: Physiological, psychological and social perspectives*. New York, NY: Klewer Academic/Plenum Publishers.

Twohig, M. P., Field, C. E., Armstrong, A. B. & Dahl, A. L. (2010). Acceptance and mindfulness as mechanisms of change in mindfulness-based interventions for children and adolescents. In R. A. Baer (Ed.), *Assessing Mindfulness and Acceptance Processes in Clients: Illuminating the theory and practice of change* , pp. 225-250. Oakland, CA: New Harbinger Publications.

Twohig, M. P., Hayes, S. C. & Berlin, K. S. (2008). Acceptance and Commitment Therapy for childhood externalising disorders. In L. A. Greco and S. C. Hayes (Eds.), *Acceptance and Mindfulness Treatments for Children and Adolescents*, pp. 163-186. Oakland, CA: New Harbinger and Context Press.

Tugade, M. M. & Fredrickson, B. L. (2004). Resilient individuals use positive emotions to bounce back from negative emotional experiences. *Journal of Personality and Social Psychology, 86,* 320-333. doi: 10.1027/0022-3514.86.2.320.

UNICEF. (2007). *Child poverty in perspective: An overview of child well-being in rich countries.* A comprehensive assessment of the lives and well-being of children and adolescents in the economically advanced nations (Innocenti Report Card. 7). Florence: UNICEF Innocenti Research Centre. Retrieved from: http://www.unicef.org/media/files/ChildPovertyReport.pdf

US Public Health Service (2000). *Report of the Surgeon General's Conference on Children's Mental Health: a national action agenda.* Washington, DC: Department of Health and Human Sciences. Retrieved from: http://www.surgeongeneral.gov/topics/cmh/childreport.html

Valentine, E. & Sweet, P. (1999). Meditation and attention: A comparison of the effects of concentrative and mindfulness meditation on sustained attention. *Mental Health, Religion and Culture, 2,* 59-70. doi: 10.1080/13674679908406332.

Vreeman, R. C. & Carroll, A. E. (2007). A systematic review of school-based interventions to prevent bullying. *Archives of Pediatrics and Adolescent Medicine, 161,* 78-88.

Wall, R. B. (2005). Tai Chi and mindfulness-based stress reduction in a Boston public middle school. *Journal of Paediatric Health Care, 19*, 230-237. doi: 10.1016/j.pedhc.2005.02.006.

Wallace, B. A. (2008). *A mindful Balance.* Tricycle, Vol XVII. No. 3, Spring 2008, pp. 60-63. Retrieved from: http://www.tricycle.com/a-mindful-balance

Weare K, & Grey, G. (2003). *What works in developing children's emotional and social competence and well-being? Research Report RR456. July 2003*. London: UK, Crown Copyright. Retrieved from: http://www.playfieldinstitute.co.uk/information/pdfs/publications/Flourishing_Wellbeing/What_Works_in_Developing_Childrens_Emotional_and_Social_Competence_and_Wellbeing_publication.pdf

Wenk-Sormaz, H. (2005). Meditation can reduce habitual responding. *Alternative Therapies in Health and Medicine, 11*, 32-58.

Wicksell, R. K., Melin, L., Lekander, M. & Olsson, G. L. (2009). Evaluating the effectiveness of exposure and acceptance strategies to improve functioning and quality of like in longstanding pediatric pain – a randomized controlled trial. Pain, 141, 248-257.

Williams, K., Kolar, M., Roger, B. & Pearson, J. (2001). Evaluation of a wellness-based mindfulness stress reduction intervention: A controlled trial. *American Journal of Health Promotion, 15,* 422-432.

Williams, J. M. G., Mathews, A. & MacLeod, C. (1996). The emotional Stroop task and psychopathology. *Psychological Bulletin, 120,* 3-24.

Williams, J. M. & Swales, M. (2004). The use of mindfulness-based approaches for suicidal patients. *Archives of Suicide Research, 8*, 315-329. doi: 10.1080/13811110490476671.

Winbush, N. Y., Gross, C. R. & Kreitzer, M. J. (2007). The effects of mindfulness-based stress reduction on sleep disturbance: a systematic review. *Explore, 3,* 585-591.

Zelazo, P. D. & Lyons, K. E. (2011). Mindfulness training in childhood. *Human Development, 54,* 61-65. doi: 10.1159/000327548.

Zylowska, L., Akerman, D. L., Tang, M. H., Futrell, J. L., Horton, N. L., Hale, T. S. ... Smalley, S. L. (2008). Mindfulness meditation training in adults and adolescents with ADHD: a feasibility study. *Journal of Attention Disorders, 11,* 737-746. doi: 10.1177/1087054707308502.