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Title: Mindfulness in Schools

Author: Francesca Nagle

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Mindfulness in Schools

Mindfulness refers to a particular way of paying attention, and has been described as "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). Interest in applications of mindfulness-based interventions which teach mindfulness skills with adult populations has increased rapidly in recent years, with an expanding evidence base suggesting positive outcomes across a wide range of contexts, including physical and mental health (Baer, 2003; Grossman, Neimann, Schmidt & Walach, 2004). This is reflected in the current National Institute for Health and Clinical Excellence (NICE) guidelines, which include Mindfulness-Based Cognitive Therapy (MBCT) in their recommendations for the prevention of recurrent depression (NICE, 2010).

Consequently, there is now an increasing interest in mindfulness applications with children and young people, although such applications have been investigated less extensively (Burke, 2010). Initial findings indicating that mindfulness-based interventions have the potential to promote young people's social and emotional functioning (Miners, 2008) and well as to improve their academic performance (e.g. Semple, Reid & Miller, 2005; Beauchemin, Hutchins & Patterson, 2008) have led to the development of a number of programmes to teach mindfulness in schools. The Mindfulness in Schools (.b) programme is one of many such mindfulness-based interventions, which has been developed in the UK and is the focus for the present review. Specifically, this critique will focus on the available evidence base in relation to the proposed impact on learning and cognition.

Mindfulness in Schools (.b) Programme

The .b [*dot-be*] programme (which stands for 'Stop, Breathe and Be') is an intervention developed as part of the Mindfulness in Schools Project (MiSP), which consists of a nine lesson course for schools. The programme was developed in the UK by classroom teachers with experience of mindfulness practice (Burnett, Cullen & O'Neill, 2011). A key component of the .b programme is that the course must be taught by teachers who engage in regular mindfulness practice and have completed a .b training course.

The .b programme has been developed as a universal intervention designed to be incorporated within the school curriculum. In this way, it is intended to be applicable to a wide range of young people, including those experiencing stress and/or mental health difficulties, those in the normal range of mental health, or those who are actively flourishing (Kuyken et al., 2013). Currently, the .b materials are intended for use with secondary school pupils, however a version is now being developed for primary pupils (Mindfulness in Schools Project, 2013).

The .b curriculum draws upon a range of mindfulness traditions, including Mindfulness-Based Stress Reduction (MSBR; Kabat-Zinn, 1990) and Mindfulness-Based Cognitive Therapy (MBCT; Segal, Williams & Teasdale, 2002). It is designed to support a range of principles, including the explicit teaching of skills and attitudes, adaptation of approaches to meet the needs of young people, use of a range of age-appropriate, interactive and experiential teaching methods, and focused teacher education to support self-efficacy (Kuyken et al., 2013). Additionally, the programme places a strong emphasis on implementation fidelity (Durlak & DuPre, 2008) and is thus supported by a manual and indicative script, and the provision of age-appropriate resources, including a course booklet and audio files to support mindfulness practice.

The .b literature states that the programme aims to teach ‘mindfulness as a life skill’, claiming that, amongst other outcomes (including coping with stress and anxiety and improving relationships with others) the .b programme supports students ‘to help them concentrate and learn better’ and ‘to perform better in music and sport’(Mindfulness in Schools Project, 2013). Furthermore the .b literature (Weare, 2012) suggests that:

Mindfulness can contribute directly to the development of cognitive and performance skills and executive function. It can help young people pay greater attention, be more focused, think in more innovative ways, use existing knowledge more effectively, improve working memory, and enhance planning, problem solving, and reasoning skills (p.2).

Limited published research currently exists directly supporting the claims of the .b programme in relation to outcomes for learning. In order to support a fuller understanding of the extent to which the existing evidence base supports the use of this intervention, these findings will be considered alongside broader research evidence investigating applications of mindfulness approaches with children and young people, and in relation to a discussion of proposed theoretical mechanisms for their effectiveness. Associated implications for Educational Psychology practice will be considered.

Theoretical underpinnings and empirical support

Although mindfulness-based interventions have been in use for over two decades, it is only more recently that mindfulness has been examined as a psychological construct (Burke, 2010). Consequently, a need for consensus on the conceptualisation and operationalized definition of the term to enable research progress has been emphasised (Bishop et al., 2004; Davidson, 2010).

Two conceptualisations of mindfulness which may be seen to relate to learning and cognition include mindfulness as a method (Bishop et al., 2004) and mindfulness as a cognitive process (Carson & Langer, 2006).

Mindfulness as a method refers to the repeated practice of re-directing attention towards the present experience (Bishop et al, 2004). This can be practiced within the context of meditation or within everyday activities. Mindfulness practice can be broadly categorised into two types, emphasising either a narrow focus of attention or a broad focus of attention (Davis, 2012). The first approach has been described as 'effortful attention' (Wells, 2006) and involves the voluntary focusing of attention on a chosen object in a sustained fashion. Individuals are encouraged to be aware of the tendency for attention to drift towards other objects of experience, and to bring their attention back to the object of focus where this occurs. In contrast, the second approach does not involve a single object of focus, but an open monitoring of the content of experience from moment to moment.

Effortful attention is included as part of the .b programme through short practice activities, for example focusing on the experience and sensations of eating a raisin or noticing one's own breathing. Repeated practice of this mental activity is thought to improve an individual's ability to sustain attention on a desired focus at the expense of distraction, and thus increase capacity for conceptual thinking (Kabat Zinn, 1990). Furthermore, research has suggested that a reduction in rumination increases cognitive resources to perform tasks more effectively (Leary, Adams & Tate, 2006).

Conceptualisations of mindfulness as a cognitive process include the concepts of metacognition (Bishop et al., 2004) and cognitive flexibility (Carson & Langer, 2006). Mindfulness and metacognition are seen to be related constructs through a common focus on observing internal and external processes (Davis, 2012). This process is seen to facilitate the

capacity to process a broader range of information, thereby giving rise to greater choice in how to respond to experiences (Bishop et al., 2004). Mindfulness has also been equated with the concept of cognitive flexibility, which refers to an individual's ability to appreciate a range of perspectives, and to adapt these flexibly according to different contexts (Carson & Langer, 2006). A proposed benefit of such cognitive flexibility is that this supports the ability to consider a wide range of possibilities in decision making, and it has been suggested that the cognitive skills developed through mindfulness practice promote a flexible approach to tasks, which can in turn contribute to improved memory and enjoyment of tasks (Langer, 1997). Furthermore, Langer & Moldoveanu (2000) attribute the causes of boredom to mindlessness, thereby suggesting that mindfulness practice can support children to develop a greater interest in their work.

However, little is known about how mindfulness training affects the neural mechanisms that regulate cognition. It is argued that the absence of a clear operational definition limits progress in research in this area, but that the previously outlined theoretical framework which groups mindfulness practices into one of two categories (narrow/broad attentional focus) could offer a framework from which to delineate the specific psychological processes implicated in such practices (Lutz, Slagter, Dunne & Davidson, 2008). Using this framework, Ainsworth, Eddershaw, Meron, Baldwin & Garner (2013) directly compared the effects of 'focused attention' (FA) and 'open monitoring' (OM) mindfulness meditation on alerting, orienting and executive attention network function in healthy individuals. Both FA and OM practice were found to improve executive attention, as compared with a relaxation control group, providing some support for the role of mindfulness in improving specific cognitive abilities. Other studies investigating the impact of mindfulness on cognition have demonstrated improvements in sustained attention, visuo-spatial and working memory, and

concentration (Chambers, Chuen Yee Lo & Allen, 2008; Jha, Krompinger & Baime, 2007; Zeidan, Johnson, Diamond, David & Goolkasian, 2010).

In further support of these findings, one study reviewed the current evidence on the effects of mindfulness practice on objective measures of cognitive functions, including measures of attention, memory and executive function (Chiesa, Calati & Serretti, 2011). Findings suggested that early phases of mindfulness training, which tend to focus on the development of FA, were associated with significant improvements in selective and executive attention. OM practice included in later phases of mindfulness training, however, were associated predominantly with improved unfocused sustained attention abilities. Mindfulness practice was also found to contribute to improved working memory capacity and some executive functions. However, the authors reported methodological limitations of many of the reviewed studies and variation in study design, highlighting the need for further high quality studies using standardised mindfulness interventions. The standardised approach adopted through the .b curriculum may therefore be seen as a strength of the programme, providing the necessary foundations for the development of a replicable and comparable research base.

Although research has gone some way towards establishing an operationalized definition of mindfulness, the precise mechanisms through which mindfulness practice might improve cognitive performance remain unclear. Furthermore, as the research investigating the effects of mindfulness practice on cognitive functions has been based on adult samples, little is known about whether similar processes are likely to apply in younger populations.

Mindfulness applications with children and young people

Due to developmental differences in cognitive skills between adults and children and the fact that the majority of research in this area has been conducted with adult samples, it is important to give consideration to the application of mindfulness interventions with young

people (Grossman et al., 2004). It has been suggested that children may benefit from mindfulness interventions in the same way as adults (Hooker & Fodor, 2008), however many researchers have advocated the importance of adaptations to ensure that the teaching of mindfulness skills to children and adolescents is developmentally appropriate (Jha, 2005; Ott, 2002).

However, it is unclear what stage of development is necessary to be reached before mindfulness practice can be introduced effectively (Thompson & Gauntlett-Gilbert, 2008). For example, proponents of a Piagetian framework (e.g. Wagner, Rathus & Miller, 2006) suggest that it may be necessary for a child to have reached the stage of 'formal operations' (at approximately 12 years), where abstract and hypothetical reasoning is possible. However, practitioners who adopt a cognitive behavioural therapy (CBT) perspective have found clinically effective work to be possible from the slightly younger age of seven years, during what Piaget referred to as the 'concrete operations' stage (Verduyn, 2000). The extent to which mindfulness-based interventions are considered developmentally appropriate and accessible for younger children will remain an important question for the ongoing development of the .b curriculum aimed at the primary years (Mindfulness in Schools Project, 2013).

Given that research in this area is less well established, studies have initially focused on investigating the feasibility and acceptability of mindfulness-based interventions with children and young people. Two recent reviews of the literature in this area have indicated such interventions to be acceptable to participants, with no reports of any adverse effects (Burke, 2010; Harnett & Dawe, 2012).

To date, only two published studies have directly evaluated the impact of the .b programme. The first of these involved an initial controlled trial of a previous four session

version of the mindfulness in schools programme (Huppert & Johnson, 2010). Differences between intervention and control groups failed to reach significance for measures of mindfulness, resilience and psychological wellbeing. However, a significant positive association was reported between improvements in psychological wellbeing and mindfulness and the amount of individual practice undertaken outside of sessions, with significant impacts for students who practised regularly. Although this study did not investigate outcomes for learning and cognition, this raises important considerations relating to the required amount of practice necessary for effects of the programme to be observed. As the .b programme emphasises the aim of teaching mindfulness as a 'life skill', the degree of independent practice is an important factor which need to continue to be controlled for in future studies.

The second study involved a controlled trial investigating the effects of the eight session .b curriculum with 522 adolescents in 12 secondary schools (Kuyken et al., 2013). Students who participated in the intervention reported fewer depressive symptoms, lower stress and greater wellbeing, compared with controls. Additionally the degree to which students practised mindfulness skills independently was associated with improved wellbeing and reduced stress levels at a three month follow up. Although this study provides preliminary evidence for the acceptability and efficacy of the .b curriculum, the study did not investigate outcomes for learning and relied only on self-report measures to assess impact. It would therefore be important for future research to employ objective measures to assess both emotional and cognitive outcomes of the intervention.

As the above studies have predominantly investigated the feasibility of the .b mindfulness curriculum and efficacy in relation to measures of psychological wellbeing, the potential for such a programme to promote positive outcomes for learning and cognition will be considered in relation to existing evidence investigating the impact of mindfulness interventions with children and young people.

A number of studies have indicated positive outcomes of mindfulness-based interventions relating to aspects of cognitive functioning, including measures of attention, executive function, and academic performance in both clinical (e.g. Bogels, Hoogstad, van Dun, De Shutter, & Restifo, 2008; Zylowska et al., 2008) and non-clinical child samples (e.g. Flook et al., 2010; Semple, Lee, Rosa & Miller, 2010).

For example, Saltzman & Goldin (2008) reported on the impact of an 8-week MBSR intervention delivered by experienced mindfulness instructors. A total of 31 children aged 9-11 years participated with their parents and the design included a wait-list control group. Findings indicated feasibility, as well as improvements in self and parent report measures of attention, emotional reactivity and some areas of meta-cognition, and some objective measures of attention. However, this study is limited in its use of a small sample size and potential influence of positive expectancy biases on parent report.

A further study (Napoli, Krech & Holley, 2005) made use of an RCT design with 228 children aged between five and eight years who were participating in the Attention Academy Program intervention, which involved twelve sessions of mindfulness and relaxation. Findings demonstrated significant improvements in measures of self-rated test anxiety, teacher-rated attention and social skills and objective measures of selective (visual) attention. Despite the methodological strengths of this study, including the use of an RCT design with a reasonable sample size and objective outcome measures, the intervention combined mindfulness with relaxation, thereby limiting direct comparisons with other MSBR/MBCT interventions, such as the .b programme. Furthermore, early research indicating the impact of mindfulness-based interventions for improving academic performance has frequently been limited through the lack of control groups, and through a failure to control for potential confounding effects of group support and psycho-education (e.g. Beauchemin, Hutchins & Patterson, 2008; Zylowska, 2008).

In reviewing the available evidence base, Burke (2010) concluded that whilst there is a reasonable degree of support for the feasibility and general acceptability of mindfulness-based approaches with children and adolescents, there is currently no generalised evidence base for the efficacy of such interventions in this population. This has been limited by a number of methodological limitations outlined above, including small samples, lack of control groups or random allocation, reliance on self-report measures, and failure to examine the relative contribution of mindfulness, independent of other potential factors.

Conclusions and Implications for Educational Psychology Practice

Although mindfulness-based interventions such as the .b curriculum draw upon a robust evidence base established in clinical adult populations, research investigating applications with children and young people is still in its infancy, with the main focus to date being on establishing the feasibility and acceptability of such programmes (e.g. Kuyken et al., 2013). Furthermore, different studies have employed different intervention elements and methods of analysis, limiting opportunities for comparisons between studies and making it difficult to establish which aspects of an intervention may have led to any reported effects.

Consequently, researchers have emphasised the need for research in this area to shift away from feasibility studies towards larger robust studies investigating the impact of such interventions, to support the exponential growth in practice (Burke, 2010; Weare, 2013). Despite the current lack of on established evidence base for the efficacy of the .b programme in promoting positive outcomes for learning and cognition, the manualised nature of the approach and emphasis on implementation fidelity may be seen to provide valuable opportunities for replication and comparison to enable further research developments specific to evaluating the efficacy of this intervention. This highlights an important role for EP involvement in contributing to the research in this rapidly developing area.

Given the growing popularity of mindfulness-based approaches in schools, EPs have a responsibility to support schools to consider developments within the evidence base in order to inform purchasing decisions in relation to mindfulness-based interventions and staff training. Relevant considerations may include ensuring that interventions are developmentally appropriate, and supporting schools to monitor implementation fidelity in order to promote optimal outcomes.

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