

The Effects of Mindfulness-based Techniques in Irish Primary Schools

Laura Morgan

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Supervisor: Rosemary Fish

Head of Department: Dr S. Eccles

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Department of Psychology

DBS School of Arts

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Abstract

The aim of this research was to study the effects of a mindfulness-based intervention on levels of perceived stress and mindfulness in teachers, and on social anxiety levels, and behavioural and emotional control in children. Two matched primary schools took part in the study. Teachers and pupils in School A had been trained in mindfulness and used mindfulness techniques throughout the day, every day, while teachers and pupils in School B did not. Results showed that teachers in school A reported significantly higher levels of mindfulness than teachers in school B (as measured by the MAAS). Although there was no significant difference in levels of stress reported by teachers in each school, there was a strong negative correlation between stress and mindfulness scores with higher mindfulness scores associated with lower levels of perceived stress (as measured by the PSS). Results showed a significant difference in overall behaviour and emotional control scores (as measured by the BERS), specifically in the subscales of intrapersonal and affective strength scores of children in junior infants, with those practicing mindfulness scoring higher than those that did not. A significant difference was also found in affective strength scores of children in first class and interpersonal strength scores of children in second class. Those children that practice mindfulness every day (school A) reported lower levels of social anxiety (as measured by the SASC-R) than their counterparts in school B. No statistical significances were reported within the subscales.

Introduction

Jones (2011) describes mindfulness as a mode of being that is rooted in paying attention to present conscious experience in a non-judgemental way. By increasing awareness of the contents of the mind through meditation, thoughts and feelings can be responded to effectively so that they do not cause emotional distress or harmful behaviours. During mindfulness meditation an individual is alert but relaxed and focused on breathing. Other thoughts may enter the mind but these are merely acknowledged and allowed to pass. Mindfulness promotes enhanced sensory awareness, greater cognitive control, and allows greater regulation of emotion and attention (Jones, 2011). Most of the time people function on autopilot, however, being mindful allows current sensory experience to be brought to the forefront of consciousness. Instead of concentrating on past and future events the focus becomes the present. Fredrickson (2009) believes that appreciating sensory experiences elicits positive emotions while also building psychological and emotional resilience (as cited in Jones, 2011). Many thoughts are attached to emotions. Mindfulness encourages a more decentred perspective on these feelings, which in turn allows for their acknowledgement in a non-judgemental way, resulting in the acceptance of these thoughts and feelings. Huppert (2010) states that acting impulsively can be avoided by recognising feelings, and, through mindfulness providing ourselves with the opportunity to think about the response to these feelings (as cited in Jones, 2011).

Despite the success of Mindfulness-Based Stress Reduction (MBSR) with adults, Suttie (2007) states that there has been little corresponding research on children, though that's starting to change. She believes that many schools are now adopting mindfulness training because the techniques are easy to learn and can help children become more responsive and less reactive, more focused and less distracted, and more calm and less stressed. Burke (2009) believes that mindfulness approaches such as mindfulness-based stress reduction (MBSR),

mindfulness-based cognitive therapy (MBCT), dialectic behaviour therapy (DBT), and acceptance and commitment therapy (ACT) promote psychological health and well-being, though research with children and adolescents is still in the early stages. The Garrison institute in New York is an organisation that studies and promotes mindfulness in education. The Garrison Institute surveyed schools and found that many are adopting mindfulness training because it results in children becoming more responsive, attentive, focused, calm, and less stressed. It was also found that mindfulness creates a more positive learning environment (Suttie, 2007). Burke (2010) believes that mindfulness training is both feasible and beneficial for children across a wide range of ages and contexts (as cited in Jones, 2011). Because mindfulness has potentially preventative applications, psychotherapist Jini Lavelle believes that instead of adults learning mindfulness techniques to deal with depression and stress, children should learn these skills in schools as they grow up (as cited in Jones, 2011).

Children may experience stress which can result in anger and violent behaviour, conduct disorders, and anxiety, and much of the stress incurred is out of their control (Napoli, Krech & Hooley, 2005). Morales and Guerra (2006) carried out research on children in elementary schools in economically disadvantaged communities and found that troubles with teachers and schoolmates are associated with concurrent and later academic, emotional, and behavioural problems (Rubin, Bukowski and Parker, 1998 cited in Morales & Guerra, 2006). Peer rejection and peer victimisation are seen as life event stressors that can have negative effects on children including aggression and delinquency. Living in communities of low socioeconomic status creates additional stress on families such as lack of stability and structure, which can compromise children's development. Unfortunately these areas also have high rates of violence, and exposure to violence has been associated with a host of childhood problems including symptoms of Post-Traumatic Stress Disorder (PTSD), emotional distress, poor academic functioning, internalising and depression, and externalising

and aggression (Morales & Guerra, 2006). Studies also found that children in these areas have lower achievement in maths and reading and higher levels of depression and aggression. Parents who strive to survive rather than thrive are unable to facilitate their children's learning (Morales & Guerra, 2006).

Morales and Guerra (2006) found a stronger relationship between school stress and depression than between family or neighbourhood stress and depression. Mindfulness can help both children and teachers in these situations deal with stress and increase their ability to focus (as cited in Napoli et al., 2005). Napoli et al. (2005) state that schools that engage in mindfulness training generally view students and teachers as partners in the learning experience, and have the ability to create positive changes both in and out of the classroom. Researchers report that children who engage in mindfulness were better focused, made better decisions when in conflict, had improved attention, and had reduced anxiety before taking a test (Napoli et al., 2005). Stress in children is not limited to school pressures; there are also external pressures from the home. Childhood stress can be carried into adulthood; therefore stress-reduction skills are critical for children. Stress-reduction programmes in schools have been associated with improvement of academic performance, self-esteem, mood, concentration, and behaviour problems (Ballinger and Heine, 1991; Dendato and Diener, 1986; Kiselica, Baker, Thomas and Reedy, 1994; Napoli, 2002; Shillingford and ShillingfordMackin, 1991 as cited in Napoli et al., 2005). Children face information overload when watching television, surfing on the internet, and playing video games. Mindfulness in the classroom can increase attention and learning, while decreasing stress (Napoli et al., 2005).

Biegel and Brown (2010) believe that many children today are struggling academically, psychologically, and cognitively, and that those in economically-disadvantaged areas are particularly affected. It was found that in the US, mental health problems affect one

in every five young people (NIMH, 2009; Wu et al., 2001 as cited in Biegel & Brown, 2010) and 75% of 12th grade public school students in the US are not doing math at grade level and 60% are not reading at grade level (Children's Defence Fund, 2008 as cited in Biegel & Brown, 2010). Biegel and Brown (2010) found that a mindfulness based programme improved students' school-readiness, aptitude, and mental health.

Huppert and Johnson (2009) state that schools need to provide more than a formal education; they need to consider the well-being of the child. Figures released by UNICEF (2007) show alarmingly low rates of well-being among children in economically advantaged countries such as the UK and the US. Mindfulness in schools can improve well-being of children by increasing confidence, self-esteem, resilience, and improving social and emotional skills (Huppert & Johnson, 2009). When being mindful individuals become focused on the present moment rather than on the past or future. Being mindful allows a person to observe and accept experiences as they are, and this has direct benefits for emotional regulation and resilience. Mindfulness enhances well-being by teaching people to learn to respond rather than react. Mindfulness improves self-efficacy and competence, and has beneficial effects on learning, problem-solving, decision-making and other cognitive processes (Huppert & Johnson, 2009). As well as accepting our own thoughts and feelings an individual can gain empathy and kindness towards others.

Le Croy and Rose (1986) discuss how schools can influence children's behaviour and emotional development. There are huge increases in the number of children diagnosed with conduct disorders, Attention Deficit Hyperactivity Disorder (ADHD), stress disorders, depression, and anxiety disorders (as cited in Napoli et al., 2005). Goldman, Genel, Bezman, and Slanetz (1998) found that ADHD occurs in about 3% to 5% of school-age children and occurs with the greatest frequency before age eight (as cited in Butcher, Mineka & Hooley, 2010). Similarly Nock, Kazdin, Hiripi, and Kessler (2007) found that conduct disorders are

linked to oppositional defiant disorder (ODD) which has a prevalence of 11.2% for boys and 9.2% for girls (as cited in Butcher et al., 2010). Harrison, Manocha, and Rubia (2004) found that children with ADHD can use mindfulness techniques to improve their ADHD behaviour, self-esteem, and relationship quality (as cited in Singh et al., 2007).

Lahey, Miller, Gordon, and Riley (1999) found that there is a high prevalence of conduct disorder among children and adolescents ranging from 2% to more than 10% in the general population (as cited in Singh et al., 2007). Kazdin (2003) also found that these children and adolescents tend to have negative long-term outcomes as adults, and approximately 80% of them are likely to meet criteria for a psychiatric disorder (as cited in Singh et al., 2007). Singh et al. (2007) explain how children with conduct disorders are usually treated through behavioural or other psychosocial interventions, but argue that these methods do not have a long-term effect. They believe that mindfulness training provides children with conduct disorders the opportunity to focus and attend to conditions that signal maladaptive behaviours. They found that children with conduct disorders who practiced mindfulness techniques could use it to moderate and control their behaviour in situations that usually lead to aggressive behaviour. Singh et al. (2007) believed that children could learn socially acceptable self-regulatory skills that would enable them to take responsibility for their lives and manage their behaviour.

Singh et al. (2007) adopted a mindfulness approach known as Meditation on the Soles of the Feet and implemented this into a second level school. During this, children and adolescents learned to shift attention from an emotionally arousing thought or situation to an emotionally neutral part of the body i.e. the soles of the feet. They found this method simple yet useful across a range of settings. Participants consisted of three children (child A, child B, and child C) aged 13-14 years old. All children were at risk of expulsion for multiple instances of aggressive behaviour at school and had minimally passing grades. Child A was

aggressive towards others and set fires. Child B was aggressive to peers and cruel to animals. Child C was aggressive towards peers and highly non-compliant. Training consisted of a 4-week course in mindfulness techniques based on Meditation on the Soles of the Feet. Results showed that aggressive behaviour decreased minimally during the mindfulness training but decreased substantially during the 25 weeks of practice following the training. For child A instances of fire setting was reduced by 52%, for child B there was an 18% reduction in the frequency of cruelty to animals, and for child C there was a 4% reduction in non-compliance. All three participants graduated without any further threat of expulsion, and were able to self-regulate their aggression enough to avoid future school sanctions for at least a year after completing the practice phase (Singh et al., 2007).

Research on the effects of mindfulness in schools is still in its early stages, and most of this research is based on secondary schools. In the late 1990s Caroline Mann taught mindfulness meditation techniques to students aged 12 and 13 in the UK. She found that pupils found it useful for coping with stress and incidents in the playground, and also improved performance on memory tests (as cited in Jones, 2011). Biegel and Brown (2010) released a white paper reporting the results of a pilot, school-based mindfulness programme in young children known as The Mindful Schools Programme. This study explored whether mindfulness training could improve academic achievement, powers of attention, social skills, behavioural problems and engagement with academic studies among elementary school children. The students received training in the following mindfulness-based activities: listening, breathing, movement, walking, eating, seeing, emotions, test taking, activities of daily living, and lessons on the promotion of kindness and caring. There was a continuous emphasis on strengthening attention to, and awareness of, the present moment (Biegel & Brown, 2010). Students were assessed using a number of quantitative measures immediately before and after the mindfulness course, and then three months later to see what effects the

course had. The attentional capacities of children were measured using the Attention Network Task-Child Version (ANT-C). Biegel and Brown (2010) reported that 64% of children improved their scores on ANT-C cognitive control, and this effect persisted at three-month follow up. The Social Skills Rating System (SSRS) was used to assess students' social behaviours. The programme improved teacher-rated social skills and these effects remained evident three months later (as cited in Jones, 2011).

Huppert and Johnson (2010) implemented a four-week mindfulness programme in two secondary schools based in the UK. Students completed online questionnaires before and after the study. The Warwick-Edinburgh Mental Well-Being Scale, the Ego Resiliency Scale, and the Cognitive and Affective Mindfulness Scale- Revised were used to assess their psychological well-being, resilience and self-reported mindfulness. At the beginning students tended to fall in the middle to upper range of the well-being, resilience and mindfulness scales. By the end of the programme, there was a significant increase in well-being. It was found that the more practice students did, the more benefit they gained, and those students low in emotional stability derived particular benefit. However, there were no significant benefits in relation to resilience (as cited in Jones, 2011).

Smalley (2007) conducted research involving 44 children aged between four and five years old in a university based early childhood centre. The research involved an 8-week mindfulness-based intervention. Children learned mindfulness-based techniques which included sitting, movement and body scan meditations. Parent and teacher reports of executive functioning, social skills and temperament post treatment indicated significant improvements in some domains of executive functioning on teacher ratings, but not parent ratings (as cited in Burke, 2009). Saltzman and Golding (2008) report an 8-week modified MBSR intervention with a sample of 31 children in grades four to six. Improvements in attention, and emotional reactivity, and some areas of meta-cognition based on self and

parent report measures, and objective measures of attention were reported (as cited in Burke, 2009). Similarly, Lee, Semple, Rosa, and Miller (2008) report an open trial of a 12-week MBCT-C programme with 25 children (9-12 years). Reductions were reported in parent-rated externalising behaviours for completers but not on internalising behaviours, or self-report measures (cited in Burke, 2009).

Napoli et al. (2005) conducted a study on 228 first to third grade students participating in the Attention Academy Programme (AAP) intervention. The programme involved 12 sessions which included sitting, movement, body scan mindfulness meditations, and relaxation exercises. The Attention Academy Programme aimed to help students improve their quality of life through practicing mindfulness. The goals of the programme were to help students learn to increase their attention to the present experience, approach each experience without judgement, and view each experience as novel and new with a beginner's eye. Significant improvements were reported in post treatment measures of self-rated test anxiety, and teacher rated attention and social skills, objective measures of selective attention but not sustained attention (as cited in Burke, 2009). Results from three attentional measures administered to the students show significant differences between those who did and did not participate in mindfulness practice training. In another related AAP study researchers enrolled 194 students (first-third grade) from two elementary schools. They were then divided into an experimental group and control group. AAP training sessions were held over a period of 24 weeks. The ADD-H Comprehensive Teacher Rating Scale (ACTeRS), the Test of Everyday Attention for Children (TEA-Ch), and the Test for Anxiety Scale (TAS) were administered before and after training. The results showed a statistically significant difference between experimental and control groups. Within the experimental group there was an increase in selective attention, and a reduction of both test anxiety and teachers' ratings of students' ADHD behaviours (Napoli et al., 2005).

Wall (2005) conducted a study which provided mindfulness training to children and involved a 5-week modified MBSR intervention. Children were aged 11-13 years. Participants reported feeling calmer after the intervention; however this was combined with Tai Chi lessons making the specific effects of mindfulness unclear (as cited in Huppert & Johnson, 2009). Huppert and Johnson (2009) aimed to advance understanding of the effects of mindfulness training in adolescents by administering a modified MBSR course in a school context in the UK. One hundred and seventy three students aged 14-15 years took part. The Cognitive and Affective Mindfulness Scale-Revised (CAMS-R) was used to measure mindfulness, the Ego-Resiliency Scale (ERS) was used to measure resilience, the Warwick-Edinburgh Mental Well-being Scale (WEMWBS) was used to measure well-being, the Big-Five Personality test was used to measure personality. Results were not significant, and Huppert and Johnson believed that this was because only 33% of participants practiced at least three times a week, while 34.8% of participants practiced more than once but less than three times a week, and 32.7% of participants practiced once a week or less. Practice was found to contribute significantly to the prediction of change in mindfulness, and well-being, but not to the change in resilience. The change in wellbeing was also associated with several of the baseline personality measures. Although results were not significant, 69% of students reported that they enjoyed learning about mindfulness and 74% thought they would continue with the mindfulness practice (as cited in Huppert & Johnson, 2009).

Demands and stress in the workplace are increasing and this often leads to inappropriate coping during leisure time (Walach et al., 2007). Kyriacou (2001) considers teaching as one of the most stressful professions (as cited in Klassen & Chiu, 2010). Klassen and Chiu (2010) found that female teacher's experienced more classroom stress than male teachers; females averaged 13% more workload stress and 8% more classroom stress than male teachers. This stress was as a result of children's behaviours, greater workload stress,

and lower classroom management self-efficacy. Klassen and Chui (2010) also found that teacher's self-efficacy influences student learning, achievement and behaviour. Self-efficacy is the belief an individual has about one's own capabilities and is assumed to be lower at the beginning of a teacher's career but increases and becomes more stable over time with more experience. Those with greater classroom stress also experienced lower job satisfaction which is associated with job performance. These teachers displayed lower commitment and were at risk of burn out and other health consequences.

Schaubman, Stetson, and Plog (2011) believe that student behaviour affects teacher stress and the student-teacher relationship. Baker and colleagues (1997) believe that students who have a good relationship with their teachers have a better chance for positive outcomes. In order to gain a positive trusting relationship with their students, teachers need to spend more time interacting with their students. Students with challenging behaviour often need the most support from teachers, which may exceed teacher's resources (as cited in Schaubman, Stetson, & Plog, 2011). Esteve (2000) believes that the reason student's behaviour causes stress for teachers is because they did not receive adequate training to learn how to manage students with behavioural challenges (as cited in Schaubman et al., 2011). Christenson, Ysseldyke, Wang, and Algozzine (1983) believe that if one child causes particular stress for a teacher, then the teacher can become unrealistically biased in their judgement of that child, and this can result in negative outcomes for the child (as cited in Schaubman et al., 2011). Greene, Abidin and Kmetz (1997) found that teacher behaviour towards children with challenging behaviour was more neutral or negative in comparison to their behaviour towards children without behaviour problems (as cited in Schaubman et al., 2011). Such maladaptive behaviours are usually dealt with through disciplinary measures, which often create more stress for the teacher and the child involved. Clunies-Ross, Little, and Kienhuis (2008) found that teachers who use reactive strategies to discipline children reported higher stress levels.

This type of reactive management was found to be more harmful to both teachers and students. Students under this type of management reported being less engaged and their on-task behaviours declined (as cited in Schaubman et al., 2011).

Esteve (2000) believes that the role of the teacher is being challenged and expanded as teacher's are being asked to organise extra-curricular activities, attend staff meetings, engage in professional development courses, provide supervision during unstructured tasks, and perform several other tasks not specific to classroom teaching (as cited in Schaubman et al., 2011). Standardised testing has created enormous pressure on teachers for children to meet standards of achievement. Blasé (1986) found that student achievement is directly affected by teacher stress, and he believes that teachers' creative abilities are being hindered by the constant pressure of school demands. Instead of creating lesson plans that are stimulating and meaningful, teachers are more concerned with controlling students (as cited in Schaubman et al., 2011).

Teasdale, Segal, and Williams (1995) believe that mindfulness can result in a more serene and balanced emotional state, which can make a person more resilient to stress (as cited in Walach et al., 2007). Gold et al. (2009) found that stress within the teaching profession has a negative impact on the health and well-being of individual teachers and on retention and recruitment for the profession as a whole. An MBSR course was taught to a group of primary school teachers and evaluated to establish its effects on levels of anxiety, depression, and stress. The results showed improvement for most participants for anxiety, depression and stress, some of which were statistically significant. This approach could be a potentially cost-effective method to combat teacher stress and burnout. In another study conducted by Gold et al. (2009), researchers recruited nine qualified teachers and two teaching assistants from six local primary schools. To measure emotional status and stress levels, the Depression Anxiety Stress Scale (DASS21) was administered before and after

taking the MBSR course. The Global Problem scale from the Fear Questionnaire, and the Kentucky Inventory of Mindfulness Skills (KIMS) were also used. Pre-training DASS scores showed that most teachers were suffering from significant emotional distress. Post-training DASS scores improved following the 8- week MBSR intervention, with significant improvements in depression and stress. Accept without Judgement and Total KIMS scores were also significantly higher post MBSR (Gold et al., 2009).

Walach et al., (2007) assessed MBSR as a method for personnel development. Researchers recruited 29 volunteers from the general population, 12 subjects comprised the treatment group, and 17 subjects comprised the control group. The course lasted 8 weeks (8 2.5 hour classes and a 6 hour day of mindfulness). Study participants completed a number of measures including; Coping with Stress questionnaire, Salutogenetic Subjective Analysis of the Workplace (SALSA), Locus of Control, General complaints from the Freiburg Complaint List (FBL), and the Satisfaction with Life questionnaire (SWLS). After completion most respondents reported changes in the way they coped with stress such as not experiencing immediate panic, not reacting immediately, and not bringing work related problems home. Overall there was an increase in positive strategies and decrease in negative strategies for dealing with stress.

Napoli et al. (2005) believe that students in elementary school generally do not have curriculum content related to health. Most of this information is left for middle and high school. Napoli et al. (2005) believe that integrating a mindfulness practice training programme into the physical education curriculum can be an excellent model to offer students life skills to deal with stress and increase attention skills in the classroom. Napoli et al. (2005) also argue that because techniques such as attention to breathing are compatible with all religious traditions, there is room to integrate mindfulness into religious education. In Irish primary schools there is potential for mindfulness to be integrated into the Social,

Personal and Health Education (SPHE) curriculum. The SPHE curriculum provides many aims which are similar to that of mindfulness training, for example, SPHE aims to: promote the personal development and well-being of the child, enable the child to be self-confident and have a positive sense of self-esteem, to develop and enhance the social skills and communication of children, to promote co-operation and conflict resolution, to improve decision-making, and to develop an understanding of healthy living (NCCA, 1999; Pp. 9-10). The SPHE curriculum consists of strands and strand units. Under the strand 'Myself' are the strand units 'self-identity' and 'taking care of my body'. It is within these two strand units that the researcher proposes mindfulness be integrated as these areas relate to self-confidence, self-awareness, decision-making, and healthy living. However, it is not proposed that mindfulness be taught as a discrete SPHE lesson; instead it should be integrated naturally throughout daily school life in much the same way as other content in the SPHE curriculum.

Most research to date on mindfulness in education has been based in the US and UK, and this research is primarily based on adolescents in secondary school. Research on mindfulness in Irish schools is limited, and most research based in Ireland is focused on adolescents in secondary schools. This study proposes to study the effects of a mindfulness-based intervention in Irish primary schools. This is a relatively new approach that only a small number of primary schools have adopted. One such school (School A) located in Dublin, was one of the first primary schools in Ireland to adopt a mindful approach to education. Pupils and teachers presently engage in mindfulness-based meditation throughout the day and report positive effects. School B is a matched primary school which is not engaged in mindful practices. These schools will be used to study the effects of mindfulness in an Irish primary school context. Accordingly a number of hypotheses were generated:

H1: There will be lower levels of stress and higher levels of mindfulness among teachers in school A when compared to those in school B.

H2: Teachers' levels of mindfulness and stress across schools will be strongly, negatively correlated.

H3: Mindfulness practice (school A versus school B), class level (junior infants, senior infants, first class, and secondclass) and gender will affect levels of teacher reported emotional and behavioural functioning in children.

H4: Levels of child social anxiety will be lower in school A when compared to levels in school B.

Method

Participants

Participants consisted of teachers and pupils from two schools in the Dublin area. Both schools have been designated as disadvantaged and are defined as DEIS (Delivering Equality of Opportunity in Schools) 'band 1' schools. DEIS schools are located in designated disadvantaged areas. These schools are associated with many behavioural challenges, learning difficulties, and health issues such as bullying, high levels of anxiety, substance abuse, and early school leaving (Downes, 2010). These schools receive government funding for resources and interventions aimed at improving numeracy and literacy levels, providing extra support for children with behaviour and learning difficulties, and liaising with parents. School A is a junior school (junior infants to second class) whereas school B is a vertical school (junior infants to sixth class). In order to achieve a balanced sample between both schools, pupils were chosen from junior infants, senior infants, first class, and second class. Both schools have a population of approximately 300 pupils. Both schools are mixed sex schools; however in school B boys leave after first class leaving just girls from second class up. Both schools consist of an all-female staff. Teachers and students in School A practice mindfulness on a daily basis, whereas teachers and students in school B do not practice mindfulness. The total number of teachers in each school that completed questionnaires was 23. Table 1 describes the breakdown of participants and the measures completed.

Table 1

School A (trained in mindfulness)	School B (not trained in mindfulness)
MAAS and PSS (teacher completed)	
23 teachers (females)	23 teachers (females)
BERS (teacher rated scale)	
46 junior infants (25 boys, 21 girls)	48 junior infants (21 boys, 27 girls)
46 senior infants (24 boys, 22 girls)	53 senior infants (34 boys, 19 girls)
28 first class (15 boys, 13 girls)	42 first class (28 boys, 14 girls)
20 second class (9 boys, 11 girls)	19 second class (all girls)
SASC-R (child completed)	
29 first class (17 boys, 12 girls)	35 first class (22 boys, 13 girls)
19 second class (8 boys, 11 girls)	19 second class (all girls)
Total School A: 212 respondents	Total school B: 239 respondents
Total (N)= 450 respondents	

As can be seen from Table 1 a total of 450 measures were completed. Of these, 46 consisted of teacher's (all female) responses to the Perceived Stress Scale (PSS) and Mindful Attention and Awareness Scale (MAAS), 302 (156 boys and 146 girls) consisted of teacher-ratings of their pupils on the Behavioural and Emotional Rating Scale (BERS), and 102 (47 boys and 55 girls) consisted of children's responses to the SASC-R.

Measures

Behavioural and Emotional Rating Scale (BERS; Epstein & Sharma, 1998) is a teacher rating scale used to measure the emotional and behavioural strength of children. The

BERS is a 52 item scale which assesses five dimensions: Interpersonal Strengths, Family Involvement, Intrapersonal Strengths, School Functioning, and Affective Strength. Family involvement was excluded when examining the subscales. Teachers rate the statements on a 4-point Likert scale ranging from 0 (not at all like the child) to 3 (very much like the child). The scale provides an overall Strength Index, which is a single summary score of strength, and five subscales. Higher scores indicate higher strength levels in each subscale. The five subscales have a mean standard score of 10 and a standard deviation of 3. The sum of the five subscales' standard scores can be transformed into the Strength Index. Epstein, Ryser, and Pearson (2002) found high stability and reliability across the five subscales with Cronbach alpha coefficients' ranging from .79 to .99. In the current study, the Cronbach alpha coefficient for Interpersonal Strength was .97, Intrapersonal Strength was .93, School Functioning was .86, and Affective Strength was .88.

Mindful Attention Awareness Scale (MAAS; Warren Brown & Ryan, 2003) is a 15-item scale which was used to assess core characteristics of dispositional mindfulness, namely, open or receptive awareness of and attention to what is taking place in the present. Participants were asked to rate a collection of statements relating to everyday experiences. Participants must rate the statements on a 6-point Likert scale ranging from 1 (almost always) to 6 (almost never); higher scores indicate more mindfulness, and the total score can range from 15 to 90. Jermann et al. (2009) found that the Cronbach alpha coefficient of the MAAS was .84, which confirms the good internal consistency of the questionnaire. In the current study, Cronbach's alpha coefficient was .86 suggesting very good scale score reliability.

Perceived Stress Scale (PSS; Cohen et al., 1983) is a 14-item self-administered questionnaire designed to measure the degree to which situations in one's life are appraised as stressful. Items evaluate the degree to which people find that life is unpredictable, uncontrollable, or overloaded. These three aspects have been confirmed as central

components of the experience of stress. Participants were asked to rate the frequency of stressful emotions over the previous month on a 5-point Likert scale ranging from 0 (never) to 4 (very often). The total PSS score is obtained by reversing the scores of items 4, 5, 6, 7, 9, 10, and 13 and subsequently adding the 14 item scores. A higher score indicates a higher level of perceived stress. As stress is influenced by daily stressors, vital events, and resources encountered, the temporal validity of stress evaluated by the PSS is only 8 weeks. Remor (2006) found that the PSS demonstrated adequate reliability and found a Cronbach alpha coefficient of .81. In the current study, Cronbach's alpha was .88.

Social Anxiety Scale for Children- Revised (SASC-R; La Greca & Stone, 1993) assesses children's feelings of social anxiety in the context of their peer relations. This is a 22-item child-completed questionnaire which contains three subscales; fear of negative evaluation (FNE), social avoidance and distress specific to new situations (SAD-New), and generalised social avoidance and distress (SAD-G). For each item children rated how much they felt the item was true for them on a 5-point Likert scale ranging from 1 (not at all) to 5 (all the time). La Greca and Stone (1993) reported the following Cronbach's alpha coefficients for each subscale: FNE was .86, SAD-New was .78, and SAD-G was .69. In the current study the Cronbach's alpha coefficient for FNE was .56, SAD-New was .54, and SAD-G was .45. An overall Cronbach's alpha coefficient for the scale was .43.

Design

The current research has a cross-sectional design allowing the researcher to describe differences and correlations between two populations (school A and school B) at a single point in time. The independent variables were mindfulness practice, gender and class (grade level). Dependent variables included: level of mindfulness, perceived stress, interpersonal

strength, intrapersonal strength, school functioning, affective strength, fear of negative evaluation from peers, social avoidance and distress specific to new situations, and generalised social avoidance and distress. Psychometrically validated, quantitative measures were employed to measure the effects of the independent variable on dependent variables.

Procedure

This study was reviewed and approved by the Ethics committee at Dublin Business School (DBS). As this study involved children in primary schools, the researcher was ethically obligated to ensure anonymity and confidentiality, and to obtain informed consent. All adult participants were briefed about the research procedures and were informed that they were not obligated to participate and could withdraw their consent at any time. It was agreed that both schools would receive a copy of findings when the research was complete. The study conducted consisted of meeting with the principals of both schools (on separate occasions) to describe the nature of the study. Having gained permission from both principals, a letter of consent was signed by the principal on behalf of students and teachers. A questionnaire pack was then distributed to each school and the researcher spoke briefly to staff. The following day teachers completed the PSS and MAAS during their lunch break while in the staff room. All teachers in school B that were present on the day of testing completed questionnaires, however in school A only those that were present and trained in mindfulness techniques completed questionnaires. Over the following fortnight teachers completed the BERS for each pupil in their class (junior infants to second class), and had the children in their class complete the SASC-R (first and second class). The questionnaire packs were then collected by the researcher and there was an agreement made with both principals to share any significant findings.

In 2008 teachers in school A participated in a 5 day mindfulness course run by the Ananda programme. Since then, teachers have implemented mindfulness techniques into their classrooms. Children in school B did not receive any formal training in mindfulness. Children in school A rely on their teachers to guide them through techniques. The Ananda programme provides a variety of courses, workshops and presentations in mindfulness meditation and mindful living for individuals, groups, business, teachers and pupils in secondary schools in Dublin and Wicklow (Ananda Programmes, 2008). The course was led by one primary school teacher trained in Mindfulness Based Stress Reduction (MBSR) and another primary school teacher trained in Mindfulness for children. The course consisted of lectures and workshops where participants gained an understanding of the basic principles of mindfulness and its benefits in schools. Participants engaged in meditation, body awareness exercises, mindful walks, mindful eating exercises using all 5 senses, and learned breathing techniques. Participants also learned how mindfulness has been used in schools in the UK and the US, and how it can be integrated into the SPHE curriculum and used in schools on a daily basis. Mindfulness time in school A is signalled by a chime over the intercom. This occurs three times daily, usually after lunch times, and lasts for one minute. The meditation involves children and teachers sitting with their two feet on the floor, with their eyes closed, and their hands on their stomachs feeling them expand and contract while taking deep breaths. Other mindfulness techniques have been taught to the children such as mindful stretches and mindful eating; however these are done at the discretion of class teachers.

Data analysis

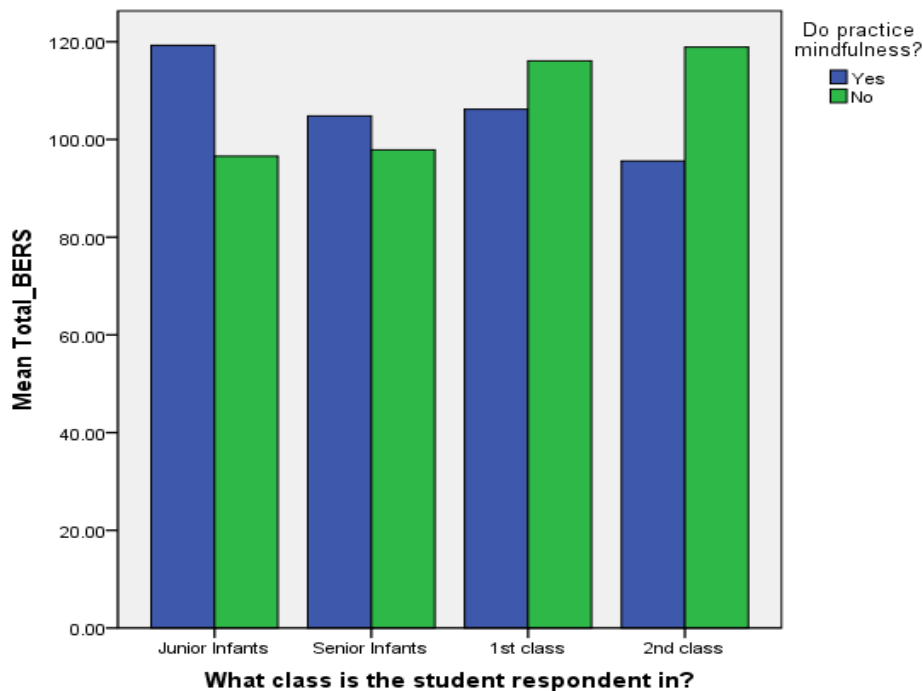
Analysis was conducted using SPSS 18. Correlations between perceived stress scores and levels of mindfulness in teachers were conducted. A three-way between-groups ANOVA was conducted to test for the 'main effect' for each variable and also explore the possibility of an 'interaction effect' between variables. Post-hoc analyses used a series of independent samples t-tests.

Results

Preliminary analyses were performed to ensure that there were no violations of the assumptions of normality, linearity and homoscedasticity. A Pearson product-moment correlation coefficient was used to measure the relationship between mindful awareness (as measured by the MAAS) and perceived stress (as measured by the PSS). A strong negative correlation was observed between the variables ($r = -.504$, $p < .05$, 2-tailed) with high levels of mindful control associated with lower levels of perceived stress in teachers. An independent samples t-test showed significantly higher levels of mindfulness in teachers in school A ($M = 59.91$, $SD = 9.84$) than teachers in school B ($M = 50.96$, $SD = 11.55$), $t(42.91) = 2.83$, $p < .05$. However, there was no significant difference found in perceived stress levels of teachers in school A and teachers in school B, $t(39.29) = -.62$, $p > .05$.

A three-way between-groups analysis of variance was conducted to explore the impact of three independent variables; gender (male, female), class (junior infants, senior infants, first class and second class) and mindfulness (yes, no) on the dependent variable, levels of behavioural and emotional control, as measured by the Behavioural and Emotional Rating Scale (BERS). Levene's Test of Equality of Error Variances was significant; as such a more stringent significance level of .01 was used for evaluating results (Pallant, 2007). There was a statistically significant main effect for gender, $F(1, 256) = 12.76$, $p < .05$, suggesting that females received higher BERS ratings ($M = 112.91$, $SD = 2.46$) than males overall ($M = 99.34$, $SD = 2.48$). There was also a statistically significant interaction effect for class and mindfulness, $F(3, 256) = 6.70$, $p < .05$. Results illustrated on the graph below show that scores of those who practice mindfulness seem to decline with age, while the scores of those who do not practice mindfulness seem to improve with age. The main effect for class, $F(3, 256) = 2.33$, $p > .05$, did not reach statistical difference, nor did the main effect for mindfulness, $F(2, 256) = .42$, $p > .05$.

Graph 1



In light of the finding of a significant interaction effect for class and mindfulness an independent-samples t-tests was conducted to compare the overall BERS scores of children in junior infants, senior infants, first class and second class who practice mindfulness (school A) with the children in these classes who do not practice mindfulness (school B). As described by Pallant (2007), in order to reduce the risk of finding false significant results (Type 1 error) the Bonferroni adjustment was used, as such the alpha level (.05) was divided by four, creating a new alpha level of .0125 which was rounded to .01. Children in junior infants in school A ($M= 119.28$, $SD= 24.88$) were found to have significantly, $t(82) = 3.41$, $p < .01$, higher BERS scores than children in junior infants in school B ($M= 96.57$, $SD= 34.82$) suggesting better emotional and behavioural adjustment of children who practiced

mindfulness. There were no significantly different scores for children in senior infants; $t(78) = 1.27, p > .01$, first class; $t(68) = -1.58, p > .01$, and second class; $t(35) = .55, p > .01$.

Further analyses were conducted to explore the differences in BERS sub-scale scores of children by class (i.e., junior infants, senior infants, firstclass, and secondclass) in school A and school B. Again, the Bonferroni adjustment was used creating a new alpha level of .01.

Subscale 1- Intrapersonal Strength: There was a significant difference in scores of children in junior infants in school A ($M = 27.33, SD = 6.33$) and school B; ($M = 21.89, SD = 9.64$); $t(79.62) = 3.22, p < .01$. No significant differences were reported in scores of children in senior infants; $t(97) = .39, p > .01$, first class; $t(67) = .34, p > .01$, and second class; $t(38) = -1.88, p > .01$.

Subscale 2- Interpersonal Strength: There was a significant difference in scores of second class children in school A ($M = 27.75, SD = 10.92$) and school B; $M = 38.90, SD = 11.92$; $t(38) = -3.09, p < .01$. No significant differences were found in scores of children in junior infants; $t(92) = 2.08, p > .01$, senior infants; $t(86.51) = 1.80, p > .01$, and first class; $t(67) = -1.33, p > .01$.

Subscale 3- School Functioning: There were no significant differences reported in scores of children in junior infants; $t(83) = 2.46, p < .01$, senior infants; $t(78) = .94, p > .01$, first class; $t(67) = .08, p > .01$, and second class; $t(37) = -a.64, p > .01$.

Subscale 4- Affective Strength: There were significant differences found in scores of children in junior infants in school A ($M = 17.76, SD = 3.89$) and school B; $M = 14.22, SD = 5.76$; $t(78.88) = 3.46, p < .01$, and children in 1st class in school A ($M = 14.15, SD = 3.27$) and school B ($M = 16.90, SD = 4.07$); $t(67) = -2.96, p < .01$. No significant difference were

reported in scores of children in senior infants, $t(95) = .65, p > .01$, and second class; $t(36) = -2.62, p < .01$.

A three-way between-groups analysis of variance was conducted to explore the impact of gender, class and mindfulness on levels of social anxiety, as measured by the Social Anxiety Scale for Children- Revised (SASC-R). Subjects were divided into four groups according to their class (Group 1: junior infants; Group 2: senior infants; Group 3: first class; Group 4: second class). There was a statistically significant main effect for mindfulness, $F(1, 91) = 4.41, p < .05$, with children who practice mindfulness reporting less social anxiety ($M = 49.88, SD = 2.54$) than children who do not practice mindfulness ($M = 56.33, SD = 2.29$). The main effect for class, $F(1, 91) = .10, p > .05$, did not reach statistical difference, nor did the main effect for gender, $F(1, 91) = .64, p > .05$. In light of the finding of a significant main effect for mindfulness a series of independent-samples t-tests were conducted to compare the SASC-R sub-scales scores of children in school A and school B. The Bonferroni adjustment was used creating a new alpha level of .025 which was round up to .03.

Subscale 1- Fear of Negative Evaluation (FNE) from peers: Results found no statistical difference in scores of children in school A and school B, $t(100) = -1.91, p > .03$.

Subscale 2- Social Avoidance and Distress Specific to New Situations: Again, there was no statistical difference found in scores of children in school A and school B, $t(100) = -1.76, p > .03$.

Subscale 3-Generalised Social Avoidance and Distress: Results once again found no significant difference in scores of children in school A and children in school B, $t(96) = -1.97, p > .03$.

Discussion

The purpose of this research was to study the effects of mindfulness in Irish primary schools. The Ananda programme runs courses and workshops on mindfulness, and has been successful in recruiting schools for training. This programme has helped schools to implement mindfulness practices into their daily routines. This study was carried out in a school that received training in mindfulness from the Ananda programme (school A), and another matched school with no specific stress reduction practice in place (school B). Teacher ratings of emotional and behavioural control (BERS) were collected for 302 from junior infants, senior infants, first class, and second class. Self-report measures were used to capture levels of stress (PSS) and mindfulness (MAAS) in 46 teachers, and to measure social anxiety (SASC-R) in 102 first and second class children.

Results showed that teachers in school A reported significantly higher levels of mindfulness than teachers in school B. Although there was no significant difference in levels of stress reported by teachers in each school, there was a strong negative correlation between stress and mindfulness scores with higher mindfulness scores associated with lower levels of perceived stress. Results of an ANOVA examining the effect of class, mindfulness and gender on BERS scores showed a significant main effect for gender, and a significant interaction effect for class and mindfulness. Follow up analyses using a series of independent samples t-test showed a significant difference in overall BERS scores, and specifically intrapersonal and affective strength scores of children in junior infants with those practicing mindfulness scoring higher than those that did not. A significant difference was also found in affective strength scores of children in first class and interpersonal strength scores of children in second class. Interestingly, this difference showed that children's scores who practice mindfulness decreased with age, while scores of those who did not practice mindfulness increased with age. All other findings relating to the BERS subscales were not significant.

Results of an ANOVA testing the effects of class, mindfulness and gender on SASC-R scores showed a significant main effect for mindfulness. Those children that practice mindfulness every day (school A) reported lower levels of social anxiety than their counterparts in school B. No statistical significances were reported within the subscales.

The hypothesis that teachers in school A would have significantly higher levels of mindfulness than teachers in school B was supported by significant differences in levels of self-reported mindfulness. Jones (2011) believes that mindfulness-based techniques allow an individual to become focused on the present moment, and by doing so a person may acknowledge other thoughts, including worries or fears, but deal with them at a later stage. Meditation is central to mindfulness and during meditation an individual becomes aware of their breathing. This promotes calmness and improves wellbeing. Jones (2011) states that by practicing mindfulness a person learns to take time to think about responses rather than acting impulsively. It can be surmised that through meditation and breathing techniques, teachers in school A are more calm, pay more attention to the present experience, and allow themselves adequate time to think about future actions and decisions.

It was hypothesised that teachers in school A would have significantly lower perceived stress levels than teachers in school B, however this was not found to be the case. Gold et al. (2009) reported a significant improvement in levels of anxiety, stress, and depression of primary school teachers who took part in a Mindfulness Based Stress Reduction (MBSR) course. Similarly, Walach et al. (2007) found that participants who completed a course on mindfulness based techniques gained more positive strategies for coping with stress, while reducing the number of negative strategies used. Although no significant difference was found in levels of stress between teachers in school A and school B, it was hypothesised that there would be a relationship between teacher's perceived stress and levels of mindfulness. As mentioned previously, researchers propose that mindfulness

can help to reduce stress levels and can improve strategies for coping with stress (Gold et al., 2009; Walach et al., 2007). A strong significant relationship was found between perceived stress and levels of mindfulness, whereby higher levels of mindfulness were associated with lower levels of stress.

The researcher hypothesised that there would be significant differences in teacher-rated emotional control and behavioural control of children in school A and school B. In schools, Suttie (2007) believes that mindfulness promotes better attention, concentration and behaviour of children. Mindfulness also improves academic performance and helps to create a positive classroom environment. It can also affect academic functioning and reduce levels of concentration and attention. Mindfulness can help children cope with such stressors and has been shown to enhance academic performance, improve decision making, reduce levels of anxiety, and promote positive behaviour (as cited in Napoli et al., 2005). In support of the hypothesis levels of overall BERS, intrapersonal strength and affective strength of children in junior infants were higher, suggesting better functioning for those children that practiced mindfulness than those that did not. However, counter-intuitive results were found in levels of interpersonal strength of children in second class, and affective strength of children in first class, where results were in the opposite direction. These findings may be a result of a method effect due to the clustered nature of the data as only two teachers rated a total of 39 second class children, while ratings of other classes were made by a higher number of teachers. There was an overall main effect for gender found, and this could be as a result of an all-girls second class in school B, meaning higher ratings for girls than for boys. Future research and analysis should take this into account and analysis techniques such as multi-level modelling could be employed.

It was hypothesised that there would be significantly lower levels of anxiety in the children in school A than the children in school B. Researchers have identified several

stressors which children face in schools including peer rejection, troubled relationships with teachers, and work overload, as well as environmental stressors which impact on their education such as living in a disadvantaged area and being exposed to violence within the community (Morales and Guerra, 2006; Napoli et al., 2005). Such stressors can have detrimental effects on children and can result in violent behaviour, conduct disorders, and anxiety disorders. Fredrickson (2009) believes that mindfulness can improve an individual's psychological and emotional resilience and should be taught to children in order to avoid stress later in life (as cited in Jones, 2011). Interestingly results did not support the hypothesis as no statistical differences were found in fear of negative evaluation from peers (FNE) scores, social avoidance and distress specific to new situations (SAD-New), and generalised social avoidance and distress (SAD-Gen) scores of children in school A and school B.

Some of the findings reported here may be the result of limitations of the current research. The sample and time-frame for the research were limiting. As mindfulness is a new concept for Irish primary schools, the researcher was limited with the choice of sample. Only one primary school in the Dublin area has implemented mindfulness-based techniques into their daily routine, and this school consisted of pupils from junior infants to 2nd class meaning pupils were aged 4-8 years old. In school A, the maximum amount of mindfulness experienced by children in first and second class was 25 months. Children in junior infants had only 5 months experience with mindfulness techniques, and children in senior infants had 15 months experience. The maximum age of respondents was 8 years old and the researcher believes that children this young may have had difficulty understanding and completing the self-report questionnaire. The SASC-R was created for children; however teachers did express concern about the 5-point Likert scale which may suggest that some children had difficulty with this. Perhaps the lower Cronbach's alpha coefficient found for this sample reflects this reality. Future research may benefit from a more representative sample of

children ranging from junior infants to sixth class in order for an accurate and holistic measurement of the effects of mindfulness in primary school. This would have the added benefit that children in more senior classes would be able to complete the questionnaire with less difficulty. Furthermore, each class level would ideally have at least 10 months (1 school year) practice of mindfulness techniques. Huppert and Johnson (2009) report similar findings when examining the results of a 5-week modified MBSR intervention with children aged 11-13 years old. Results of The Cognitive and Affective Mindfulness Scale-Revised (CAMS-R) which was used to measure mindfulness were not significant, and researchers believed that this was a result of how much time children spent practicing mindfulness techniques. They found that only 33% of participants practiced at least three times a week, while 34.8% of participants practiced more than once but less than three times a week, and 32.7% of participants practiced once a week or less. Although this study differs slightly, the amount of time a person has been practicing mindfulness may have an impact on the results.

Both schools used in this study were based in disadvantaged areas and were defined as DEIS 'band 1' schools. Downes (2010) states that these schools have many health issues such as hunger in school, bullying, substance abuse, student- teacher conflict, early school leaving, and problematic sleep patterns. Downes (2010) found that high levels of pupils experiencing problematic sleep patterns were linked to levels of anxiety which affect academic performance as well as sleep. It was also found that a lot of these children reported feeling they had no one to talk to about their problems. He believes that some pupils at risk of early school leaving are falling through the gaps in these areas. Literacy and numeracy levels in these schools are lower than other areas and require specific interventions to help improve these, including speech and language programmes, reading schemes, and numeracy schemes (Downes, 2010). Given these challenges and the higher stress levels, anxiety levels, and

behavioural problems in DEIS schools, more time may be needed for a mindfulness intervention to make a significant effect on such levels.

For ethical reasons children's questionnaires and ratings were not linked to responses of their class teacher. The purpose of this research was to measure if levels of mindfulness impacted on overall perceived stress scores, overall levels of children's anxiety, and overall levels of behaviour in two schools. In future research, making this link could examine whether there is a relationship between teacher's levels of mindfulness and perceived stress, and children's anxiety levels and behaviour. Schaubman et al. (2011) found that work overload, and challenging behaviours were the main cause of teacher stress. Teacher stress impacts on children's achievements at school as the teacher lacks commitment and creativity. If a teacher is experiencing stress this also has a negative effect on their interaction with their students, and often leads to negative management strategies. By linking child respondents to teacher respondents researchers could explore the effects of teacher stress on children's levels of anxiety, the effects of children's behaviour on teacher stress, and the effects of teacher's levels of mindfulness on children's levels of anxiety and behaviour.

Information was not gathered relating to diagnoses such as ADHD, conduct disorders or emotional disorders in the children taking part in the study. Kazdin (2003) found that children with these conditions tend to be effected negatively later in life. Evidence supporting the use of mindfulness with such children shows how it can help them to self-regulate and gain control of behaviours, as well as improve self-esteem (Singh et al., 2007). Future research may be strengthened by the measurement of such diagnoses.

Similarly, the academic performance of children was not measured. Research suggests that mindfulness is associated with reduced anxiety before tests, improved academic functioning and an improved learning environment in the classroom (Napoli et al., 2005).

This research was limited by the challenge of appropriately measuring academic performance as there are no standardised tests for children in junior infants and senior infants, and children in first and second class will not undergo standardised testing until May 2012. As such, examining these results was beyond the scope of this study. It would have been unethical for the researcher to devise a test to distribute which measures overall academic performance as each school plan differs from teacher to teacher and school to school. How a school or teacher divides the curriculum is at the discretion of the school. Future research could explore sten scores of the Micra-T (English test) and Sigma-T (maths test) which are completed by pupils from first- sixth class at the end of each year.

Levels of mindfulness in children were not measured in the current study as an age appropriate measure of mindfulness could not be sourced. Future research could develop a new measure of mindfulness for children, or modify the current MAAS for children. The current SASC-R proved difficult for children to complete. Other scales were explored by the researcher such as the Spence Children's Anxiety Scale (SCAS: Spence, 1994) which is a 4-point Likert scale with 45 items; however it was assumed that the SASC-R was more accessible because it had fewer items. Perhaps this scale could be modified to a 3-point Likert scale in future in order for younger children to complete.

The researcher did not look at gender in teachers. All teachers included in the sample were female. Klassen and Chiu (2010) found that females reported 13% more workload stress, and 8% more classroom stress than males. Research suggests that some behavioural problems and anxiety disorders are associated with more boys than girls. Although everyone experiences stress in their lives how a person appraises or copes with a situation will determine how stressful it is. Prevalence of Post-Traumatic Stress Disorder (PTSD) in the general population is 6.8%, and in the United States 9.7% of women and 3.6% of men will develop this disorder (Butcher et al., 2010). Future research could perhaps include schools

with an equal staff of males and females to examine any differences that may arise in perceived stress levels and how these are affected by levels of mindfulness.

Research suggests that some behavioural problems and anxiety disorders are associated with more boys than girls. ANOVA results of BERS scores in the current research showed an overall main effect for gender. For example, Goldman and colleagues (1998) found that ADHD occurs most frequently among pre-adolescent boys, and states that ADHD is 6 to 9 times more prevalent among boys than girls. Nock and colleagues (2007) found the prevalence of ODD was 11.2% for boys and 9.2% for girls (as cited in Butcher et al., 2010). Researchers believe that there is an association between ODD and conduct disorders. Dadds and colleagues (1997) found that 9.7% of children in one community based school sample met diagnostic criteria for an anxiety disorder and this was more prevalent in girls than boys (as cited in Butcher et al., 2010). Costello and colleagues (2006) found that 2.8% of children under the age of 13 suffer with depression (as cited in Butcher et al., 2010). Future research could study this further to measure if these levels differ between children in primary schools in Ireland.

As the current research is a cross sectional design, any significant findings between levels of mindfulness and other variables are correlational and causal inferences cannot be made. In order to determine whether mindfulness is a causal factor for changes in variables, a longitudinal design should be used. Future longitudinal research could measure levels of stress, child anxiety, and academic and behavioural problems, and examine whether these change over time as a result of a mindfulness intervention.

Despite the limitations of this study a number of strengths should be noted, in particular the inclusion of a mixture of self-report measures and observer ratings, and selection of carefully matched schools. It should also be noted that this research has not been

carried out in Irish primary schools before. Although mixed results were reported in the current research, results of the effects of a mindfulness-based intervention in schools in the UK and the US demonstrate the benefits it has on both teachers and students. Mindfulness can help teachers to become focused on present experiences. Teachers can achieve calmness and improve well-being through meditation and other mindfulness techniques. Mindfulness can reduce teacher stress levels which in turn will reduce the rate of burn-out. For students, mindfulness can improve academic performance, reduce anxiety, and help children to gain control over their behaviour and emotions. Mindfulness in the Irish education system is still a new concept; however it can be integrated into the curriculum as part of Social Personal and Health Education (SPHE) where aims of SPHE overlap with aims of mindfulness. With our current economic climate adding to daily stressors, there is need for a stress intervention, and this should and could be implemented as early as possible. As interest grows and future research is conducted the researcher believes that there is potential for more and more schools, individuals, and companies to benefit from mindfulness-based interventions.

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Appendices

Appendix 1:Letter of consent

(Headed Paper)

To whom it may concern,

I, *principal's name*, give permission for Laura Morgan to distribute questionnaires to staff and students at *school name* regarding Mindfulness in Education.

Yours sincerely,

Principal's name

Signed: _____

Appendix 2: Letter for teachers

Dear Teachers,

Firstly I would like to thank each of you for participating in this study about mindfulness in education. My name is Laura Morgan and I am a primary school teacher in St. Michael's in Ballyfermot. I am also studying psychology at DBS and as part of this course I have to complete a research project. I chose to study mindfulness in primary education.

Enclosed is a pack of questionnaires for each teacher participating. There are 4 questionnaires; 3 are teacher-completed and 1 is child-completed. The child-completed questionnaire should be completed under the supervision of the class teacher. Participation is not compulsory. The teacher-completed questionnaires include 2 questionnaires about the teacher and a set of questionnaires for the teacher to complete about each child in the class.

I will collect the packs one week after they have been distributed (**Wednesday 8th February**) to allow teachers plenty of time to complete all questionnaires. Again, I would like to express how grateful I am to have your school's participation in this study. I believe that there are huge benefits to using mindfulness techniques within the school, and with your help I hope to measure these benefits.

If there are any questions regarding the study or the questionnaires please contact me on

██████████, or at ██████████.

Kind regards,

Laura Morgan

Appendix3: Mindfulness Awareness Attention Scale (MAAS) for school A

Teacher-completed

Please tick one of the following:

Gender: Male ___ Female ___

Age: 18-21 ___ 22- 34 ___ 35-44 ___
45- 54 ___ 55-64 ___ 65+ ___

How many years are you teaching? (Including current year) _____

What class do you currently teach? _____

On average how many hours per week do you practice mindfulness? (At home and at school) _____

Day-to-Day Experiences

Instructions: Below is a collection of statements about your everyday experience. Using the 1-6 scale below, please indicate how frequently or infrequently you currently have each experience. Please answer according to what really reflects your experience rather than what you think your experience should be. Please treat each item separately from every other item.

- 1- Almost Always
- 2- Very Frequently
- 3- Somewhat Frequently
- 4- Somewhat Infrequently
- 5- Very Infrequently
- 6- Almost Never

I could be experiencing some emotion and not be conscious of it until some time later.	1	2	3	4	5	6
I break or spill things because of carelessness, not paying attention, or thinking of something else.	1	2	3	4	5	6
I find it difficult to stay focused on what's happening in the present.	1	2	3	4	5	6
I tend to walk quickly to get where I'm going without paying attention to what I experience along the way.	1	2	3	4	5	6

I tend not to notice feelings of physical tension or discomfort until they really grab my attention.	1	2	3	4	5	6
I forget a person's name almost as soon as I've been told it for the first time.	1	2	3	4	5	6
It seems I am "running on automatic," without much awareness of what I'm doing.	1	2	3	4	5	6
I rush through activities without being really attentive to them.	1	2	3	4	5	6
I get so focused on the goal I want to achieve that I lose touch with what I'm doing right now to get there.	1	2	3	4	5	6
I do jobs or tasks automatically, without being aware of what I'm doing.	1	2	3	4	5	6
I find myself listening to someone with one ear, doing something else at the same time.	1	2	3	4	5	6
I drive places on 'automatic pilot' and then wonder why I went there.	1	2	3	4	5	6
I find myself preoccupied with the future or the past.	1	2	3	4	5	6
I find myself doing things without paying attention.	1	2	3	4	5	6
I snack without being aware that I'm eating.	1	2	3	4	5	6

Appendix 4: Mindfulness Awareness Attention Scale (MAAS) for school B

Teacher-completed

Please tick one of the following:

Gender: Male ___ Female ___

Age: 18-21 ___ 22- 34 ___ 35-44 ___

 45- 54 ___ 55-64 ___ 65+ ___

How many years are you teaching? (Including current year) _____

What class do you currently teach? _____

Day-to-Day Experiences

Instructions: Below is a collection of statements about your everyday experience. Using the 1-6 scale below, please indicate how frequently or infrequently you currently have each experience. Please answer according to what really reflects your experience rather than what you think your experience should be. Please treat each item separately from every other item.

- 1- Almost Always
- 2- Very Frequently
- 3- Somewhat Frequently
- 4- Somewhat Infrequently
- 5- Very Infrequently
- 6- Almost Never

I could be experiencing some emotion and not be conscious of it until some time later.	1	2	3	4	5	6
I break or spill things because of carelessness, not paying attention, or thinking of something else.	1	2	3	4	5	6
I find it difficult to stay focused on what's happening in the present.	1	2	3	4	5	6
I tend to walk quickly to get where I'm going without paying attention to what I experience along the way.	1	2	3	4	5	6
I tend not to notice feelings of physical tension or discomfort until they really grab my attention.	1	2	3	4	5	6

I forget a person's name almost as soon as I've been told it for the first time.	1	2	3	4	5	6
It seems I am "running on automatic," without much awareness of what I'm doing.	1	2	3	4	5	6
I rush through activities without being really attentive to them.	1	2	3	4	5	6
I get so focused on the goal I want to achieve that I lose touch with what I'm doing right now to get there.	1	2	3	4	5	6
I do jobs or tasks automatically, without being aware of what I'm doing.	1	2	3	4	5	6
I find myself listening to someone with one ear, doing something else at the same time.	1	2	3	4	5	6
I drive places on 'automatic pilot' and then wonder why I went there.	1	2	3	4	5	6
I find myself preoccupied with the future or the past.	1	2	3	4	5	6
I find myself doing things without paying attention.	1	2	3	4	5	6
I snack without being aware that I'm eating.	1	2	3	4	5	6

Appendix 5: Perceived Stress Scale

Teacher-Competed

Instructions

The questions in this scale ask you about your feelings and thoughts during the last month. In each case, you will be asked to indicate how often you felt or thought a certain way by circling a number. Although some of the questions are similar, there are differences between them and you should treat each one as a separate question. The best approach is to answer each question fairly quickly. That is, don't try to count up the number of times you felt a particular way, but rather indicate the alternative that seems like a reasonable estimate.

For each question choose from the following alternatives:

	Never	Almost Never	Sometimes	Fairly Often	Very Often
In the last month, how often have you been upset because of something that happened unexpectedly?	0	1	2	3	4
In the last month, how often have you felt that you were unable to control the important things in your life?	0	1	2	3	4
In the last month, how often have you felt nervous and stressed?	0	1	2	3	4
In the last month, how often have you successfully dealt with irritating life hassles?	0	1	2	3	4
In the last month, how often have you felt that you were effectively coping with important changes that were occurring in your life?	0	1	2	3	4
In the last month, how often have you felt confident about your ability to handle your personal problems?	0	1	2	3	4
In the last month, how often have you felt that things were going your way?	0	1	2	3	4
In the last month, how often have you found that you could not cope with all the things you had to do?	0	1	2	3	4
In the last month, how often have you been able to control irritations in your life?	0	1	2	3	4
In the last month, how often have you felt that you were on top of things?	0	1	2	3	4
In the last month, how often have you been angered because of things that happened that were outside of your control?	0	1	2	3	4
In the last month, how often have you found yourself thinking about things that you have to accomplish?	0	1	2	3	4
In the last month, how often have you been able to control the way you spend your time?	0	1	2	3	4
In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?	0	1	2	3	4

Appendix 6: Social Anxiety Scale for Children- Revised (SASC-R)

Child- Completed

Tick the box:

I am a Boy

I am a Girl

I am in 1st Class

I am in 2nd Class

Example:

a. I like summer holidays.... 1 2 3 4 5

b. I like to eat vegetables..... 1 2 3 4 5

	Not at all	Hardly ever	Some times	Most of the time	All the time
I worry about doing something new in front of other kids	1	2	3	4	5
I like to play with other kids	1	2	3	4	5
I worry about being teased	1	2	3	4	5
I feel shy around kids I don't know	1	2	3	4	5
I only talk to kids that I know really well	1	2	3	4	5
I feel that other kids talk about me behind my back	1	2	3	4	5
I like to read	1	2	3	4	5
I worry about what other kids think of me	1	2	3	4	5
I'm afraid that others will not like me	1	2	3	4	5
I get nervous when I meet new kids	1	2	3	4	5
I like to play sports	1	2	3	4	5
I worry about what others say about me	1	2	3	4	5
I get nervous when I meet new kids	1	2	3	4	5
I worry that other kids don't like me	1	2	3	4	5
I'm quiet when I'm with a group of kids	1	2	3	4	5
I like to do things by myself	1	2	3	4	5
I feel that other kids make fun of me	1	2	3	4	5
If I get into an argument with another kid I worry that he or she will not like me	1	2	3	4	5
I'm afraid to invite other kids to do things with me because they might say no	1	2	3	4	5
I feel nervous when I'm around certain	1	2	3	4	5

kids					
I feel shy even with kids I know well	1	2	3	4	5
It's hard for me to ask other kids to do things with me	1	2	3	4	5

Appendix 6: Behavioural and Emotional Rating Scale (BERS)

Teacher-completed

First initial of child's name: _____

Age of child: _____

What class is the child currently in? _____

Gender of the child: Boy _____ Girl _____

Instructions: This checklist measures the emotional and behavioural strengths of children. There are five dimensions being assessed: Interpersonal Strengths, Involvement with family, Intrapersonal Strengths, School Functioning, and Affective Strengths. Please circle the number **most like the child in question**. Some areas may pose difficulties depending on the age of the child, and the teacher's knowledge of their home-life, however please try to answer each item as honestly as possible and to the best of your ability for **each child in your class**.

	Very much like the child	Like the child	Not much like the child	Not at all like the child
Demonstrates a sense of belonging to family	3	2	1	0
Trusts a significant person with his or her life	3	2	1	0
Accepts a hug	3	2	1	0
Participates in community activities	3	2	1	0
Is self-confident	3	2	1	0
Acknowledges painful feelings	3	2	1	0
Maintains positive family relationships	3	2	1	0
Demonstrates a sense of humour	3	2	1	0
Asks for help	3	2	1	0
Uses anger management skills	3	2	1	0
Communicates with parents about behaviour at home	3	2	1	0
Expresses remorse for behaviour that hurts or upsets others	3	2	1	0
Shows concern for the feelings of others	3	2	1	0
Completes a task on first request	3	2	1	0
Interacts positively with parents	3	2	1	0
Reacts to disappointments in a calm manner	3	2	1	0

Considers consequences of own behaviour	3	2	1	0
Accepts criticism	3	2	1	0
Participates in church activities	3	2	1	0
Demonstrates age-appropriate hygiene skills	3	2	1	0
Requests support from peers and friends	3	2	1	0
Enjoys a hobby	3	2	1	0
Discusses problems with others	3	2	1	0
Completes schools tasks on time	3	2	1	0
Accepts the closeness and intimacy of others	3	2	1	0
Identifies own feelings	3	2	1	0
Identifies personal strengths	3	2	1	0
Accepts responsibility for own actions	3	2	1	0
Interacts positively with siblings	3	2	1	0
Loses a game gracefully	3	2	1	0
Completes homework regularly	3	2	1	0
Is popular with peers	3	2	1	0
Listens to others	3	2	1	0
Expresses affection for others	3	2	1	0
Admits mistakes	3	2	1	0
Participates in family activities	3	2	1	0
Accepts “no” for an answer	3	2	1	0
Smiles often	3	2	1	0
Pays attention in class	3	2	1	0
Computes math problems at or above grade level	3	2	1	0
Reads at or above grade level	3	2	1	0
Is enthusiastic about life	3	2	1	0
Respects the rights of others	3	2	1	0
Shares with others	3	2	1	0
Complies with rules at home	3	2	1	0
Apologizes to others when wrong	3	2	1	0
Studies for tests	3	2	1	0
Talks about the positive aspects of life	3	2	1	0
Is kind toward others	3	2	1	0
Uses appropriate language	3	2	1	0
Attends schools regularly	3	2	1	0

Uses note-taking and listening skills in schools	3	2	1	0
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