



Title: An investigation into the effects of a mindfulness-based meditation activity for reducing worry levels of female students in a DEIS Band 2 primary school.

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THE EFFECT OF MINDFULNESS-BASED MEDITATION ON WORRY

Declaration

I hereby certify that this material, which I now submit for assessment on the programme leading to the award of the degree of Professional Master of Education, is entirely my own work and has not been taken from the work of others, save to the extent that such work has been cited and acknowledged within the text of my work. I further declare that this dissertation has not been submitted as an exercise for a degree at this Institute and any other Institution or University. I agree that the Marino Institute of Education library may lend or copy the thesis, in hard or soft copy, upon request.

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Table of Contents

Acknowledgements.....	v
Abstract.....	vi
Chapter 1: Introduction.....	1-2
Chapter 2: Literature Review.....	3-13
Chapter 3: Methodology.....	14-19
Chapter 4: Statement of Results.....	20-25
Chapter 5: Analysis and Discussion.....	26-37
Chapter 6: Summary and Conclusion.....	38
References.....	39-49
Appendix Index.....	vii
Appendix A: Letter of information to board of management and principal.....	viii-x
Appendix B: Information and consent form for parents.....	xi
Appendix C: Student information script.....	xii
Appendix D: Penn State Worry Questionnaire for Children.....	xiii-xiv
Appendix E: Mindfulness-based meditation script.....	xv

List of Tables

Table 1: Descriptive statistics for participants.....	20
Table 2: Descriptive statistics for the Penn State Worry Questionnaire for Children pre-intervention.....	23
Table 3: Pre-intervention mean worry scores for intervention and control groups.....	25
Table 4: Post-intervention mean worry scores for intervention and control groups.....	25

List of Figures

Fig. 1: Number of participants per category of total worry scores.....	21
Fig. 2: Attendance of participants in the mindfulness-based intervention.....	21
Fig. 3: Mean ratings of worry pre and post intervention categorised by control or intervention group.....	24

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Abstract

The aim of the present study was to assess if an 8-day mindfulness-based meditation activity would cause a statistically significant decrease in the worry levels of participants by comparing results from a worry questionnaire. 84 participants were recruited from an all-female DEIS Band 2 primary school in Ireland with an age range of 10 – 13 years. Participant groups included two sixth-class groups, one fifth-class group and one fourth-class group. Groups were assigned to either an intervention condition or a control condition. Both conditions' worry levels were assessed using the Penn State Worry Questionnaire for Children (PSWQ-C). The intervention group then participated in an 8-day mindfulness-based meditation breathing activity. The control group did not have any change to their normal routine. After 8 days both conditions completed the PSWQ-C again to assess their worry levels. Hypothesis One which stated that participants who received a mindfulness-based meditation intervention for 8-days would have reduced levels of worry was supported. Hypothesis Two, which stated that participants in the control group would not have reduced levels of worry, was supported. Hypothesis Three, which stated that participants who engaged in mindfulness-based meditation intervention for 8-days would have reduced worry levels in comparison to a control group, was also supported. The main finding of the research was that participating in a short mindfulness meditation each day was beneficial in reducing the worry levels of female students in a DEIS Band 2 primary school.

Chapter 1: Introduction

It has been shown that factors such as stress, anxiety and worry have a negative impact on the overall health and well-being of children (Department of Education and Skills, Health Service Executive & Department of Health, 2015; Fernández-Baena, Trianes, Escobar, Blanca & Muñoz, 2015; Williams et al., 2009). Recently in Ireland, the Department of Education and Skills, the Health Service Executive and the Department of Health (2015) have noted the need for an increase in the mental well-being of children. With the recent surge in the popularity of positive psychology, studies have found that interventions which include mindfulness-based activities can alleviate the symptoms of depression and anxiety disorders in children more effectively than Cognitive Behavioural Therapy (CBT), which is the way in which many mental health disorders are treated currently (Cartwright-Hatton, Roberts, Chitsabesan, Fothergill & Harrington, 2004; McQueen & Smith, 2015). Researchers are beginning to question the way in which the effectiveness of CBT, is measured and whether the results obtained through the use of CBT should be the gold standard for therapy (Cartwright-Hatton et al., 2015).

Following on from this, it has been noted that prevention of mental health issues may also be a beneficial area of research (Pluskota, 2014; Seligman, 2005). Pluskota (2014) also noted that schools could be an ideal location to develop these skills of prevention in children. As positive psychology and the impact of mindfulness on children is relatively recent (Pluskota, 2014), more research needs to be conducted into the implementation of mindfulness in the classroom to alleviate worry and act as a preventative measure for possible future stress and anxiety.

For the purposes of this study, worry is considered to be repetitive negative thoughts (Borkovec, Robinson, Pruzinsky & DePree, 1983). Worry is the defining characteristic for many anxiety disorders (American Psychiatric Association, 2013) and, therefore, research

related to anxiety is also discussed. Stress has been defined as feeling anxious or worried (Costello & Lawler, 2014) and is a contributor to negative mental health (Cannon, Coughlan, Clarke, Harley & Kelleher, 2013; Liu, 2015). As a result research relating to stress is also considered. Putwain (2007) noted that stress, anxiety and worry are often used interchangeably in the literature, and therefore all three are related concepts are considered important.

An experimental quantitative study which used an independent group design was conducted to test the hypotheses relating to the efficacy of a short mindfulness-based intervention in reducing worry. Chapter Two introduces the topics of mindfulness and mental health and discusses them in relation to children. It includes relevant and recent literature. Chapter Three, the methodology chapter, discusses the research design, the recruitment of participants and important information related to the participants. The instruments are then discussed in terms of suitability to the study, followed by the procedure of the study and finally the ethical considerations are discussed. Chapter Four consists of a statement of results from the statistical analysis of the data. The findings are analysed and discussed in detail in Chapter 5, where a comparison between the findings and the literature is considered. This is then followed up with a summary and conclusion in Chapter 6.

Chapter Two: Literature Review

Positive psychology

Mental health was traditionally viewed in pathological terms, similar to that of physical health (Hefferon & Boniwell, 2011; Shapiro, Schwartz & Santerre, 2005). It was a science primarily devoted to healing mental illness (Seligman, 2005). During the 1960s, a shift occurred when there was a backlash against psychoanalysis and behaviourism and people such as Allport (1961) and Maslow (1971) began researching positive mental health (Shapiro et al., 2005; Hefferon & Boniwell, 2011). Maslow coined the term 'positive psychology' (Maslow, 1954, pp. 201) decades before Seligman made it popular. The field of positive psychology is about experiencing a positive subjective experience (Seligman, 2005). The change in the traditional views of mental health is signified by the appointment of Martin Seligman to the role of President of the American Psychological Association (APA) in 1998. Seligman declared his intention to correct the trajectory of what was a pathologically focused psychology (Hefferon & Boniwell, 2011). The aim was to move from a disease model to a health model of psychology (Hefferon & Boniwell, 2011). This means that, instead of focusing just on moving people on the lower end of a scale, for example, from a -8 'severely depressed' to a -3 'moderately depressed', the focus would now include moving those who fell on a +3 'languishing' to a +8 'flourishing' (Hefferon & Boniwell, 2011). In other words, researchers wanted to focus not just on how to make those with mental illnesses better, but to find out why some people were happier and more productive, and how they achieved this; how people's quality of life could be improved (Hefferon & Boniwell, 2011; Seligman & Csikszentmihalyi, 2000).

This new dimension of psychology, known as positive psychology, focuses on facets such as well-being, happiness, personal strengths and characteristics of positive groups and institutions (Hefferon & Boniwell, 2011). It involves well-being and satisfaction in relation

to the past; flow, joy and happiness in relation to the present; and optimism, hope and faith for the future (Seligman, 2005; Hefferon & Boniwell, 2011). Positive psychology can also be broken down into three nodes: subjective, individual and group (Seligman, 2005; Hefferon & Boniwell, 2011).

- The subjective node relates to positive experiences such as optimism, happiness and wellbeing throughout the past, present and future (Hefferon & Boniwell, 2011).
- The individual node involves characteristics of what Hefferon and Boniwell (2011, pp. 3) describe as ‘the good person’, such as talent, wisdom and courage.
- The group node studies citizenship, positive institutions and communities in relation to altruism, work ethic and tolerance (Hefferon & Boniwell, 2011).

The following study focuses mainly on the subjective node. One of the primary aims of positive psychology is "flourishing", which is described as a state of positive mental health (Hefferon & Boniwell, 2011). A flourishing individual will have excellent mental and physical health, and is more resilient to hardships and change than a non-flourisher (Schotanus-dijkstra et al., 2016). In recent years, there has been a focus on mindfulness to achieve flourishing. Several mindfulness studies have shown the large effects positive psychology interventions can have on those suffering from mental illness (Meagher, Chessor & Fogliati, 2017), which indicates the benefits of mindfulness-based interventions for all populations.

Positive prevention

Positive prevention has emerged within the field of positive psychology. It evolved in relation to the development of mental health diseases such as depression, anxiety and schizophrenia, and how it may be possible to develop protective factors to avoid the development of such mental illnesses (Pluskota, 2014; Seligman, 2005). Positive prevention focuses on building competency rather than correcting weaknesses, as the

disease model of psychology treated the disorders, but did not decrease their prevalence (Pluskota, 2014; Seligman, 2005). There are certain human strengths that buffer people against mental illness; if these qualities are strengthened then the risk for mental illness is lessened (Seligman, 2005). As stated by Pluskota, (2014), schools appear to be the ideal location for implementing strategies to encourage positive prevention as most children spend a large quantity of time in school.

Mindfulness

In the move away from a pathological model of psychology, more researchers implemented the use of meditation from traditional Eastern spiritual disciplines (Shapiro et al., 2005). Mindfulness practices have been used by psychotherapists in recent years in relation to personal development (Ludwig & Kabat-Zinn, 2008). Shapiro (1980) described mindfulness as a family of techniques which aim to focus attention, but in a non-analytical way. Mindfulness-based meditation involves attending to internal and external stimuli without getting fixated on one particular stimulus (Shapiro et al., 2005). The aim of mindfulness practice is to cultivate ‘present moment awareness’ (Ludwig & Kabat-Zinn, 2008, p.1350). Langer (1989) describes mindfulness as a facilitative state; one that augments increased creativity and flexibility and also improves memory and retention. A current ‘working definition’ from the literature describes mindfulness as a process of ‘openly attending [...] to [the] present moment experience’ (Creswell, 2017, p.493). According to Ludwig and Kabat-Zinn (2008), by maintaining awareness moment-to-moment, and by disengaging from attachment, beliefs and emotions through mindfulness, a person can create a greater sense of emotional balance and well-being. The benefits of mindfulness have been observed to positively affect physical and mental health (Ludwig & Kabat-Zinn, 2008) and have been integrated into many institutions including workplaces (Good et al., 2016) and schools (Sibinga et al., 2016).

Mindfulness-based meditation practice involves a primary focus on the breath, as well as tuning into events of the mind and body (Salmon, Santorelli, & Kabat-Zinn, 1998). Davidson et al. (2003) demonstrated that mindfulness practice has an effect on the brain and immune function. The focus on breathing regulates the autonomic nervous system, focuses the mind and increases self-awareness (Salmon et al., 1998), further emphasising the positive impacts of mindfulness meditation.

Children's mental health

International research claims that children today are experiencing stress at high levels (Mendelson et al., 2010). This is a worrying trend as children who experience stressful life events are more likely to develop emotional problems such as those associated with inattention and hyperactivity (Fernández-Baena, et al., 2015; Williams et al., 2009). Stressful life events are also associated with having a negative influence on children's mental health (Cannon et al., 2013). It has been noted that many factors interacting, including the everyday hassles in a child's life, are contributing more strongly to children's mental health than major life events such as the death of a close relative or moving house (Byrne, Thomas, Burchell, Olive & Mirabito, 2011).

These everyday hassles range from having to get up too early, to being ignored by other children at school (Byrne et al., 2011). As these occurrences contribute the most to mental health (Byrne et al., 2011), it is necessary for those in the school environment to be far more aware of the emotional needs of the students in order to foster the holistic development of the child (Napoli, Krech & Holley, 2005), as required by the Department of Education and Science (1999). With the increasing and concerning rate of diagnoses of anxiety, stress disorders and depression (Coughlan et al., 2013), it is important that teachers have the knowledge and skills required to help students to deal with these issues (Napoli et al., 2005). Anxiety disorders are one of the most prevalent psychiatric disorders

amongst children (O'Keefe, Gavin, Cullen & MacNicholas, 2013). The leading cause of disability in the 10-24 years cohort of people is mental health problems (Gore et al., 2011).

Daily stress is also reported to have an impact on emotional and academic development (Fernández-Baena et al., 2015), another factor in emphasising the importance of teachers having the knowledge and skills to deal with stress. Anxiety in particular has been found to negatively impact students' academic performance (Shapiro, Schwartz & Bonner, 1998). A survey carried out by the Department of Health states that most Irish children have positive overall mental health (Department of Health, 2012). However, research has found that, by the age of 13, one-in-three children will have experienced some form of mental health disorder (Cannon et al., 2013). This research has compared Irish 11 to 13 year olds with UK and US cohorts of the same age and found that mental health disorders are more prevalent amongst the Irish cohort (Cannon et al., 2013). This indicates the need for programmes to resolve the mental health problems afflicting Irish youth (Cannon et al., 2013).

Worry

Worry is common in children (Kertz & Woodruff-Borden, 2011; Muris, Meesters & Gobel, 2001). Borkovec et al. (1983) defined worry as repetitive and uncontrollable negative thoughts and/or images, usually about future events. Excessive worry is a key component in anxiety disorders such as Generalised Anxiety Disorder (American Psychiatric Association, 2013), Separation Anxiety Disorder and Social Anxiety Disorder (Rabner, Mian, Langer, Comer & Pincus, 2017). It is the intensity and number of worries that differentiate the severity of worry into clinical and non-clinical labels, however all children worry (Weems, Silverman & La Greca, 2000). Difficulty concentrating is a common diagnostic criterion within mood disorders such as the ones mentioned above (American Psychiatric Association, 2013). Difficulty concentrating has been positively

correlated with worry (Hallion, Steinman & Kusmierski, 2018), which emphasises the need to reduce worry in our classrooms where concentration is necessary for productivity.

Gender

Gender differences in relation to worry experienced by children mirror that of adults, which show that females tend to report higher levels of worry than males (Kertz & Woodruff-Borden, 2011; Muris et al., 2001; Muris, Roelofs, Meesters & Boomsma, 2004; Păsărelu, Dobrea, Balazsi, Predescue, Şipos & Lupu, 2017). The gender differences found are prevalent in both clinical and non-clinical groups (Păsărelu et al., 2017). Carsley, Khoury and Heath (2017) indicated that many of the original studies assessing the effectiveness of mindfulness-based interventions did not focus on gender effects, but that more recent studies have indicated that females respond better to mindfulness-based activities.

Socio-economic factors and mental health

Mental health problems have been repeatedly found to be more common in areas of social disadvantage (Fryers, Melzer & Jenkins, 2003). Children in the social welfare system have been found to have increased prevalence of stress and mental health problems than the general population (Dore, 2005). It has also been shown that children from disadvantaged backgrounds are at an increased risk of developing anxiety, depression and low self-esteem (Bøe, Øverland, Lundervold & Hysing, 2012; Napoli et al., 2005; Parker & Roy, 2001). As a result of this, studies have recently been looking into the effectiveness of mindfulness-based interventions for children who are subject to lower socio-economic status (Costello & Lawler, 2015).

Mindfulness and children's mental health

Following on from the results demonstrated by Cannon et al. (2013), it is important to note that childhood stress has been identified as a precursor for stress during adulthood, as people carry the patterns for stress learned in childhood into their adult lives (Napoli et al., 2005). If a child can learn a skill to buffer against negative occurrences, then the likelihood of them developing mental health problems in the future is lessened (Seligman, 2005). Therefore, implementing a positive prevention strategy, such as incorporating tools to reduce stress and encourage relaxation that are core in mindfulness meditation, are important in the classroom, as these are skills for life (Napoli et al., 2005).

Anxiety and worry appear antithetical to mindfulness on several dimensions (Borkovec, 2002). Worry is characterised by continued anxiety around future and past events, leading to a heightened cognitive awareness and higher levels of cortisol in the brain (Borkovec, 2002), whereas mindfulness is based on non-judgemental openness and attention to the present (Ludwig & Kabat-Zinn, 2008). Therefore, it is thought that mindfulness-based practices could be useful in alleviating the symptoms of worry (Delgado, Guerra, Perakakis, Vera, del Pasco & Villa, 2010). Considering that some students in a class could be experiencing stress and anxiety (Bøe et al., 2012; Costello & Lawler, 2014), and that most people will experience some sort of negative mental health at some stage in their lives (Cannon et al., 2013), it is important that students have the skills to deal with such emotions nurtured from an early age (Department of Health, 2012; Fernández-Baena et al., 2015).

CBT is a widely accepted treatment for adults and children suffering with anxiety disorders (Cujipers, Sijbrandij, Koole, Huibers, Berking & Andersson, 2014). However, research such as that conducted by Cartwright-Hatton et al. (2004) demonstrate that children in particular are not achieving regular functioning, that is having normal levels of anxiety,

even after treatment. Cartwright-Hatton et al. (2004) claim that approximately 40% of children receiving CBT still meet the clinical diagnosis criteria for anxiety disorders. As an alternative to CBT, Acceptance-Based Behaviour Therapy (ABBT) has been implemented more recently with significant results in decreasing the symptoms of anxiety in children (Meagher et al., 2017). ABBT involves the use of mindfulness meditation in conjunction with psycho-education on the role of worry in experiential avoidance, and education around acceptance techniques (Meagher et al., 2017). One of the main components of this behaviour therapy is the use of mindfulness meditation (Meagher et al., 2017). This use of mindfulness meditation as a treatment for anxiety disorders indicates the positive impact that mindfulness meditation can have on children, not just an adult population.

Cannon et al. (2013) emphasise the role of school in promoting mental health, well-being and resilience amongst its pupils and staff, and therefore more mindfulness-based activities should be observed throughout the school day (Fernández-Baena et al., 2015). The Department of Education and Skills, Health Service Executive, Department of Health (2015) issued guidelines for mental health promotion in primary schools. This document emphasises the idea that positive mental health is essential in experiencing a fulfilling life (Department of Education and Skills et al., 2015).

Mindfulness in the classroom

Recently, research has extended into the use of mindfulness in the classroom environment (Black & Fernando, 2014; Costello & Lawler, 2014; Semple, Reid & Miller, 2005; Sibinga, et al., 2016;). This stems in some part from research which shows that our classrooms are often 'mindless' (Gardner, 1991; Kamii & Lewis, 1991). Mindlessness has been described as an un-flexible state of mind and it is thought that people experience this state much of the time (Langer, 2005). It is the inability to change our point of view, or to look at things in a more positive way (Langer, 2005). Flexibility in how people perceive

things is an important skill for children to develop as it helps avoid discriminatory thoughts (Langer, 2005). Langer (2005) indicated that mindfulness may have more of an effect on happiness than teaching people how to be positive.

Benefits of mindfulness in the classroom

It has been stated that children who are mindful are able to deal with stressful situations more productively and can increase the quality of their learning process (Langer, 1993). Students partaking in mindfulness-based breathing exercises are better able to relax and focus before a test, and also make better decisions when faced with conflict (Napoli, 2004). This study also demonstrates that these children are better at redirecting their attention when off-task (Napoli, 2004), all of which are positive improvements for children in the classroom. Teachers and students participating in the MindUp curriculum in the U.S. reported favourable impressions of the curriculum (Maloney, Lawlor, Schonert-Reichl & Whitehead, 2016), as have similar programmes in the U.K. focusing in on skills in well-being programmes (Hefferon & Boniwell, 2011). Ireland may follow in the same direction as the recently issued guidelines for mental health in primary schools indicates (Department of Education and Skills et al., 2015).

Recent research on Mindfulness in Classrooms

Although several studies have indicated the benefits of introducing mindfulness practice into the classroom (Costello & Lawler, 2014; Cohn & Frederickson, 2010), much of the research carried out has been international, particularly U.S studies. Schonert-Reichl et al. (2015) conducted a randomised trial of the MindUp programme to assess its effectiveness in U.S. elementary schools. This study suggests that mindfulness-based programmes can cultivate well-being in children (Schonert-Reichl et al., 2015). In an Irish context, Costello and Lawler (2014) conducted a study focusing on perceived stress levels of students from lower socio-economic backgrounds and how mindfulness interventions produced

statistically significant decreases in these perceived stress levels. This study employed a 5-week mindfulness based programme (Costello & Lawler, 2014), and other studies involve an 8-week mindfulness based interventions (Schonert-Reichl et al., 2015; Rix & Bernay, 2015). van de Weijer-Bergsma, Langenberg, Brandsma, Oort & Bögels (2012) conducted a study which was similar to the MindUp study, which focused on a MindfulKids program. Participants comprised of students from the Netherlands and also focused on using mindfulness to reduce stress and increase well-being of students between the ages of 8 and 12 years. This study did not provide an alternative activity for the participants in the control group, but did provide the mindfulness-based program to these students at a later date, if they wished to participate in it (van de Weijer-Bergsma et al., 2012). Few studies were found to have implemented follow-up studies to assess whether people continued mindfulness practices after the intervention, or to assess differences if practices were not maintained. The research conducted by Cohn and Frederickson (2010) in particular focused on following up and found that Positive Emotions (PEs) remained high in the group that responded to the follow up. However, it must also be noted that only 95 out of 202 participants consented to take part in the follow-up study, which raises some questions around the effectiveness as it implies that participants did not continue to meditate after the end of the study (Cohn & Frederickson, 2010).

The Present Study

The aim of the present study is to assess whether the worry levels of students in a single sex DEIS Band 2 primary school between the ages of 10 and 13 are affected by the implementation of an 8-day mindfulness-based meditation intervention by comparing results on a measure of worry for children.

Hypothesis One: Those participants receiving the mindfulness-based intervention will have reduced levels of worry post-intervention.

Hypothesis Two: Those participants in a control group, who did not participate in mindfulness-based meditation, will not show reduced levels of worry.

Hypothesis Three: Those participants receiving the mindfulness-based intervention will have reduced levels of worry post-intervention in comparison with those who did not participate in the intervention.

Chapter Three: Methodology

Introduction

This chapter discusses the research design. This is followed by information about the participants. The materials utilised in the study are then described. Following on from this a detailed description of the procedure can be found. Ethical considerations of the study are included at the end of this chapter.

Research Design

The study was an experimental quantitative study which used an independent group design. Groups of participants were assigned to be either in a control group or in an intervention group. The participants were asked to complete a questionnaire to assess their level of worry. Participants in the intervention group took part in a mindfulness-based meditation activity. Those in the control group participated in regular school activities that resulted in no change to their regular timetable for 8 days. Both groups completed the same questionnaire at the end of the 8 days. The independent variable is the administration of the activity. The dependent variable is the impact the activity has on worry levels. The measure that explored the levels of worry experienced by the participants is a standardised instrument. Data collection was carried out in person by the researcher.

Participants

The sample consisted of 84 students recruited from a single sex DEIS Band 2 primary school (see Appendix A). The vision of the DEIS plan is for education to better opportunities for those living in areas that cause them to be at risk of disadvantage and social exclusion (Department of Education and Skills, 2017). All participants were under the age of 18 and therefore parental consent as well as student consent was obtained (see Appendix B and Appendix C). Participants were informed about the nature of the study,

their right to not participate, and their right to withdraw from the study. Students were female with an age range of 9-13 years. Groups of participants were assigned to either a mindfulness-based activity or a control group. Out of 84 participants, 53% participated in the mindfulness-based meditation (n=44) and 47% were in the control group (n= 40).

Materials

A 14-item Penn State Worry Questionnaire for children (Chorpita, Tracey, Brown, Collica & Barlow, 1997) which is internally reliable ($\alpha = .94$) and has a high test re-test reliability, $r = .92$; $p > .001$, and high convergent and discriminant validity (Chorpita et al., 1997) was used to assess the general anxiety or worry levels of the participant (see Appendix D). The Penn State Worry Questionnaire for children (Chorpita et al., 1997) is a self-report measure designed to assess worry in children and adolescents aged between 7 and 17. The participants are asked to indicate how often the given statement applies to them by choosing “never true”, “sometimes true”, “most times true” or “always true” (Chorpita et al., 1997). The 14-item Penn State Worry Questionnaire for Children (PSWQ-C) was scored from 0 to 3, where “never true” received a score of 0 and “always true” received a score of 3. Items 2, 7 and 9 were reversed scored due to the wording of the statements. These items received a score of 0 for “always true” and 3 for “never true”. A higher total score indicates a higher level of worry, with a maximum score of 42 (Chorpita et al., 1997).

A 5-minute mindfulness meditation activity which focused on breathing was facilitated each day with the group participating in the intervention. The mindfulness-based activity encouraged the participants to focus on their breathing and how it felt. As stated in the literature review, research has suggested that such activities can reduce stress and worry. The researcher intended to use a script produced by Mendelson et al. (2010) but this was not available to the researcher at the time of the study. The researcher chose a script which

encapsulated the ideas described in the method of the study by Mendelson et al. (2010) which is part of a mindfulness based cognitive therapy for treating trauma (Fortuna & Vallejo, 2015) (see Appendix E).

Once the data was collected, SPSS computer software (IBM, 2016) was used to analyse the data that is collected from all the participants. Two dependent t-tests were conducted to measure the difference, if any, in worry levels of the participants from the beginning of the study to the end of the study. A one-tailed independent t-test was conducted to assess the effect of participation, or non-participation, in a mindfulness based intervention on the worry levels of the participants.

Procedure

The principal of the school was approached and asked if students from the school could participate in an 8-day mindfulness-based intervention in the school. Letters of information were submitted to the board of management and to the principal of the school (see Appendix A). There were some concerns about whether a mindfulness-based meditation would be in line with the Catholic ethos of the school; however, once the research behind the study was examined it was agreed that there was no discord with the ethos. The researcher consulted with several class teachers and the vice principal of the school when composing the letters of information and consent for the parents of the participants. This was to ensure that the parents understood the study as well as possible, and that the information that they required was presented in an appropriate and accessible manner. There are a high percentage of parents with English as an additional language (E.A.L.) and therefore this was an important aspect of the recruitment process. Once the researcher received confirmation of authorisation to complete the study, information and consent forms were then distributed to two sixth class groups, a fifth class group and a fourth class group (see Appendix B).

A selection of students from third class also participated in a small pilot study to ensure the language of the PSWQ-C was suitable for the participants. The pilot study revealed that the researcher should read the statements aloud to the students prior to giving them the questionnaire to ensure that ability to read the statements was not negatively influencing the results. The researcher and class teacher were also present while the students were completing the questionnaire and were able to assist any participants who were struggling to read and understand the statements. While distributing the forms the researcher explained the study to the students in accessible language (see Appendix C).

Consent forms were returned to the researcher by the given deadline. On the day of the deadline the researcher distributed the PSWQ-C to the participants. The researcher explained the study to the students again and gave them the chance to opt out of the study at any point. Any pupils who were absent completed the PSWQ-C on the next day they were present. The classes were then split into intervention groups and non-intervention groups. For the convenience of the school, whole classes were grouped together. To ensure the fairness of the test, one sixth class group was placed in the intervention group and one in the control group. The researcher then began a 5-minute mindfulness-based guided meditation with the groups receiving the intervention. The researcher completed this with each class group at a similar time each day between 1.30pm and 3pm. The intervention group took part in this activity for 8 days, with a break of 2 days as a result of the weekend and students not being in school. The control group did not take part in any activity that changed their normal routine in school. The students who opted out of the study, or who did not return a consent form completed a silent reading activity while the students were participating in the mindfulness-based meditation activity. The researcher recorded the attendance of the students participating each day. At the end of the 8-day intervention, the researcher administered the PSWQ-C to all of the participants again.

The researcher then pooled the data to be transformed and analysed by SPSS software (IBM, 2016). Items 2, 7 and 9 were reverse scored, where “never true” received a score of 3 and “always true” received a score of 0. After the data were re-coded, two dependent t-tests were conducted to ascertain if worry levels of each of the groups changed. An independent t-test was conducted to assess any differences in levels of worry between the intervention group and the control group. Effect size was also computed.

Ethics

Ethical approval was granted by the Marino Ethics in Research Committee (MERC). Students were recruited and were made aware of their right to withdraw at any stage in line with ethical requirements when conducting research involving children (Department of Children & Youth Affairs, 2012). Students were made aware that there were no consequences for not participating in the study, this was particularly important as the researcher was a teacher in one of the class groups in the weeks prior to the study (British Educational Research Association, 2011; Department of Children & Youth Affairs, 2012). The researcher ensured that there was an appropriately enjoyable alternative activity in place for the students who opted to not participate in the study. Consent was received from parents (see Appendix B) and participants were informed that by completing the PSWQ-C and handing it back to the researcher they were consenting to participate in the study (Department of Children & Youth Affairs, 2012).

When the data was pooled the students' were assigned a number to ensure confidentiality. Hardcopy data was kept in a locked location. All soft copy data was stored on a password protected laptop, and the files were password encrypted to ensure confidentiality. Back up data was kept in a password protected cloud location. All data will be destroyed 13 months post-submission of the dissertation. Anonymity could not be guaranteed, however the researcher can ensure confidentiality. All of which is in compliance with both national and

international ethical standards (Department of Children & Youth Affairs, 2012; British Educational Research Association, 2011).

Students in the control group did not participate in any activity outside of their normal schedule due to timetable restrictions around learning support. In this aspect the design is similar to the study conducted by van de Weijer-Bergsma et al., (2012). It is the intent of the researcher to return to the school and to offer mindfulness meditation to those who did not have the opportunity to participate in this activity so as to ensure that these students are not at any disadvantage from not receiving the intervention (Psychological Society of Ireland, 2011), as was the intention of van de Weijer-Bergsma et al., (2012).

Chapter Four: Statement of Results

Results are displayed in relation to data management including participant information, scoring of the PSWQ-C and attendance. Preliminary analyses are then considered with a focus on reliability analysis and descriptive statistics. Lastly, the results from the two dependent t-tests and the independent t-test are presented in relation to the three hypotheses.

Data management

Data was collected from 84 female participants with ages ranging from 10-13 ($M = 11.25$; $SD = .943$) (see Table 1), divided into an intervention condition ($n = 44$) and a control condition ($n = 40$), on a 14-item worry scale (see Appendix E for worry scale). Total worry scores for each participant were recorded and were grouped into 5 categories (see Fig. 1). The data were screened for missing data and no missing data were found. From looking at the data, one outlier was found; however it was decided that there was no justification for removal of the outlier and so it remained in the data set.

Table 1:

Descriptive statistics for participants

	Intervention Group	Control Group
Number of Participants	44	40
Mean (Age)	11.3	11.2
Standard Deviation (Age)	.823	1.067
Skewness	-.086	.112
Kurtosis	-.678	-1.417

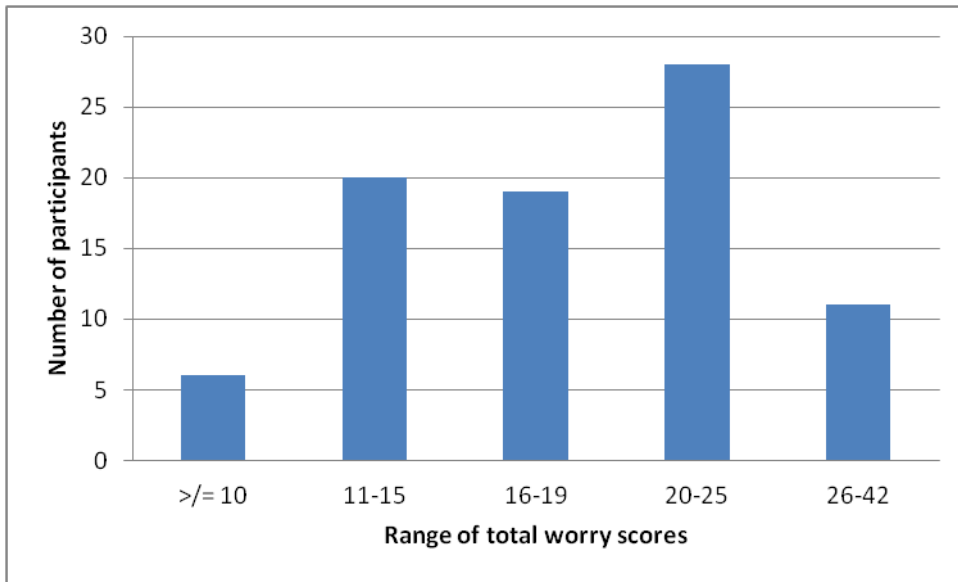


Fig. 1: Number of participants per category of total worry scores.

Attendance was taken for each participant involved in the study across the 8-day intervention. It was found that 25 out of the 44 participants in the intervention group participated in the intervention for the full 8 days. In total, 2 out of the 44 participants were present for half the intervention or less (see Fig. 2).

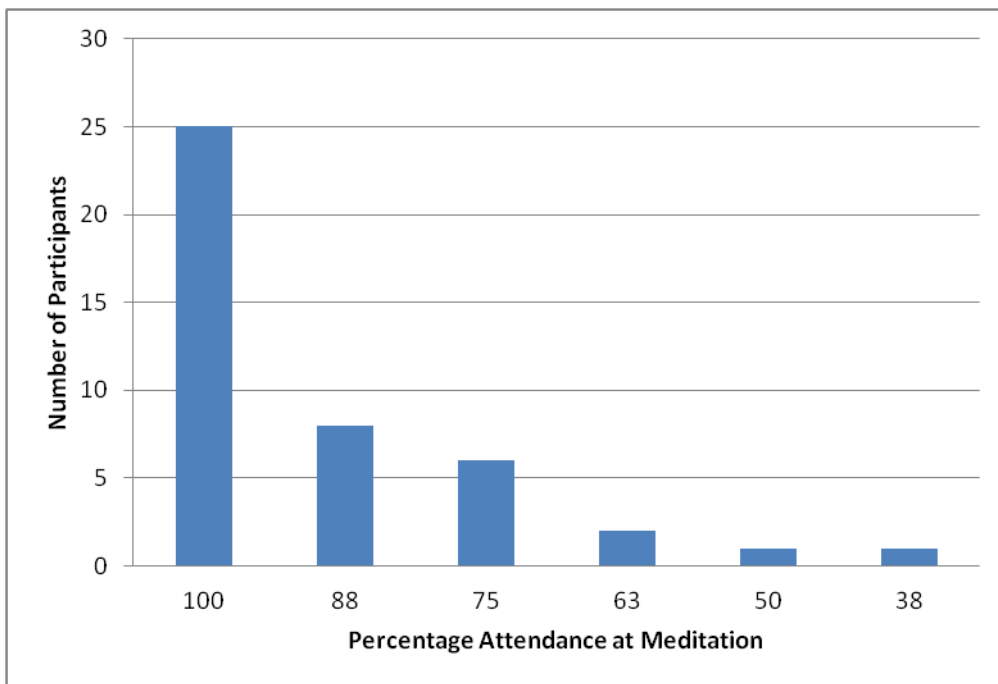


Fig. 2: Attendance of Participants in the Mindfulness-Based Intervention.

Preliminary Analyses

In this study, reliability analysis was conducted to test the internal reliability of the PSWQ-C using a calculation of Cronbach's Alpha. As the Cronbach's alpha value was greater than 0.7 ($\alpha = .822$) the scale is considered to have good internal reliability which suggests that the participants are responding to the questionnaire in a consistent manner. The "item total correlation" column shows that the items are positively correlated with the total score, suggesting that the items are tapping into a similar construct, in this case worry. The "alpha if item deleted" column indicates that if any one item was removed, the internal reliability of the scale would be lower. From the total worry scores of the control ($M = 18.9$) and intervention ($M = 18.66$) groups pre-intervention, similar worry levels can be observed and therefore the groups are comparable at baseline.

Descriptive Statistics

Frequencies and descriptive statistics were conducted on the worry scores of the participants. Skewness for the worry variable fell within the normal range pre-intervention, where total worry skewness is .042 ($SE = .263$). The kurtosis value for the worry variable also fell within the normal range pre-intervention, where total worry kurtosis is .044 ($SE = .520$) (see Table 2 for descriptive statistics). As skewness and kurtosis fell within the normal range (± 1), it can be assumed that the data are normally distributed and therefore parametric statistics can be used.

Table 2:

Descriptive Statistics for the Penn State Worry Questionnaire for All Children Pre-intervention.

	Total Worry (N = 84)
Mean	18.77
Median	19
Mode	16
Standard Deviation	6.325
Skewness	.042
Kurtosis	.044

Dependent t-tests

Hypothesis One which stated that participants who participated in a mindfulness-based intervention would have a statistically significant reduction in levels of worry was supported. A one-tailed dependent t-test was used and a statistically significant decrease post-intervention was revealed, [$t(43) = 6.997, p < .05$]. If one looks to the means, such a decrease can also be observed (see Fig. 3).

Hypothesis Two which stated that the participants in the control group, who did not participate in the mindfulness-based intervention, would not have a statistically significant decrease in worry levels was also supported. A one-tailed dependent t-test was used and no statistically significant decrease post-intervention was revealed, [$t(39) = -.013, p = .159$]. If one looks to the means, no decrease can be observed (see Fig. 3).

Independent t-tests

Hypothesis Three which stated that participants who took part in a mindfulness-based intervention would have statistically significant reduction in their levels of worry post intervention in comparison with those who did not participate in a mindfulness-based intervention was supported. Before the outcome of the t-test could be read, homogeneity of variance had to be checked. Levene's test for equality of variances revealed that equal variances were to be assumed. A one-tailed independent t-test was used and worry levels of those who participated in the intervention dropped significantly afterwards in comparison with the control group, [$t(82) = -2.166, p < .05$]. If the means are looked at, the decrease can also be observed (see Fig. 3, Table 3 and Table 4).

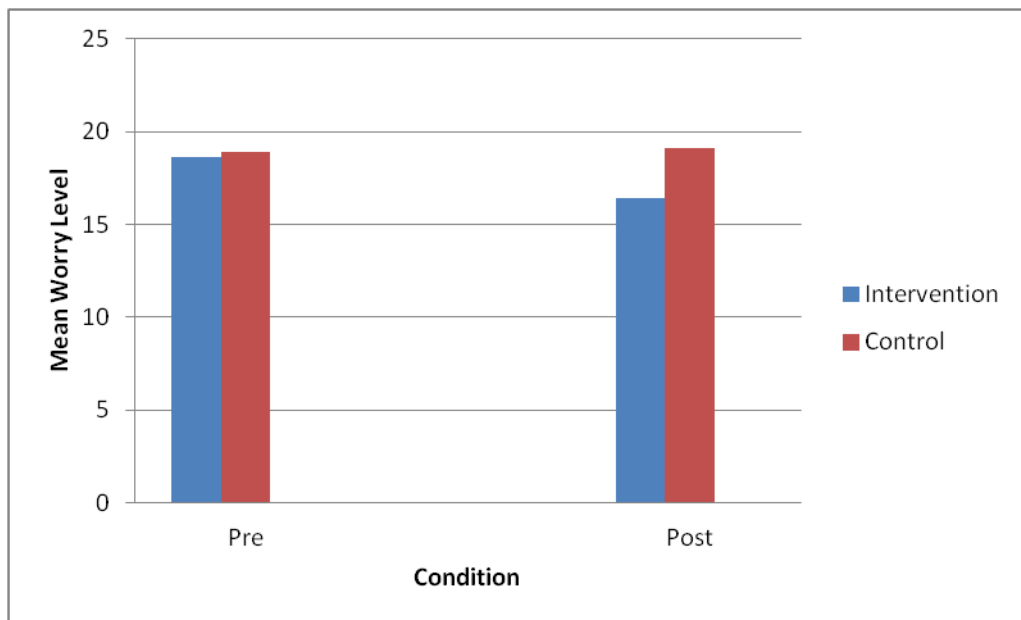


Fig. 3: Mean ratings of worry pre and post intervention categorised by control or intervention group.

Table 3:

Pre-intervention Mean Worry Scores for Intervention and Control Groups

	Intervention Group	Control Group
N	44	40
Mean	18.66	18.9
Standard Deviation	7.14	5.377
Skewness	.134	-.142
Kurtosis	.029	-.556

Table 4:

Post-intervention Mean Worry Scores for Intervention and Control Groups.

	Intervention Group	Control Group
N	44	40
Mean	16.43	19.13
Standard Deviation	6.297	4.942
Skewness	.085	-.416
Kurtosis	-.105	-.218

Effect Size

Cohen's d was calculated to test the size of the effect observed ($d = 0.474$). The observed effect is considered to be a small effect size as the d value falls between 0.2 and 0.5; however, it can be noted that the value is very close to 0.5 and could be interpreted as a medium effect size.

Chapter 5: Analysis and Discussion

This chapter begins with an analysis of the principal findings of the study. This is followed by a description of how these findings relate to the current literature already in existence, and as discussed in the literature review. Gender is then considered. Suggestions for future research are proposed, along with suggestions for teachers, principals and parents' councils.

Principal findings

The first dependent t-test indicates that those who participated in mindfulness-based meditation for 8 days as part of their school day produced a lower average worry score on the PSWQ-C upon re-test. This suggests that implementing this mindfulness-based meditation could help to reduce worry levels of students in the classroom. The effectiveness of the activity in reducing worry levels supports the previous literature that indicate that mindfulness activities in the classroom can reduce negative mental health effects such as stress and worry (Semple et al., 2005; Sibinga et al., 2016).

The second dependent t-test indicates that those who were in the control condition did not display a decrease in worry levels. When looking at the charts in the results section a slight increase in worry levels of these participants can be observed, however the increase was not significant (see Fig. 2). As the scores of those in the control group did not decrease, it can be assumed that their worry levels remained relatively stable.

Looking at the total worry scores of the students at the beginning of the study revealed some interesting insights. The mean score for worry among all of the participants ($N=84$) was 18.77. The average worry levels for those in the control group did not decrease ($M = 19.3$), in fact a slight increase in worry levels was observed. As these participants were not partaking in any alternative activity, no reason for this impact can be noted as a variety of

factors could be at play. The majority of participants pre-intervention for both the control and intervention groups fell into the “20-25” category for total levels of worry, which could indicate that some outliers affected the mean value ($M = 18.77$). The majority of participants scored 20-25 on the PSWQ-C, indicating higher levels of worry (see Fig. 1), which is consistent with the literature pertaining to the mental health of students (Cannon et al., 2013) and young people internationally (Coughlan et al., 2013).

The results of the independent *t*-test imply that participating in mindfulness-based meditation in the classroom on a daily basis can reduce the worry levels of students significantly in comparison to a control group. This replicates findings from other studies that tested the impact of a mindfulness-based intervention to reduce worry or anxiety in children, such as the studies by Napoli et al. (2005) and Costello and Lawler (2014).

After conducting the independent *t*-test, the researcher computed Cohen’s *d* to calculate the size of the effect observed. This is important as the independent *t*-test only shows that there was an effect, not how large the effect is. This test allows us to describe the standardised mean difference of the effect (Lakens, 2013). Effect sizes are important to consider when conducting research. Determining the effect size allows researchers to report the practical significance of the results found, not only the statistical significance (Lakens, 2013). Effect sizes also allow meta-analytic conclusions to be drawn by comparing the standardised effect sizes across different studies, which is important for future research (Lakens, 2013). If the means in this study are examined the difference appears large, looking at the effect size allows the results to be interpreted more accurately. The effect size from the results obtained through computing Cohen’s *d* suggests a small to medium practical significance.

Mindfulness for reducing worry, stress and anxiety in children

As the previous research stated, mental health problems are the primary cause of disability in the 10-24 year old cohort (Gore et al., 2011). The present research adds to the literature

around preventative measures and provides a short and simple activity that can be completed during the school day which could improve the mental health of children. Gore et al. (2011) also stated that within mental health problems, anxiety disorders are the most common and most debilitating. Providing students with the skills to deal with stress, worry and anxiety from a young age could reduce the amount of children affected by mental health problems in the future. It appears that mindfulness-based meditation could be useful in achieving this

As indicated in the literature review, children carry the patterns learned in childhood to deal with stress and worry with them into adulthood (Napoli et al., 2009). The lack of change in worry levels of participants in the control group indicates that an equally stressed and worried population of adults could emerge in the future. Schools commit to developing the child in a holistic way (Department of Education and Skills, 1999), and therefore initiatives surrounding well-being, such as mindfulness-based meditation, need to be implemented to ensure that mental health is being addressed as well as physical health. As it is a requirement for children to go to primary school in many countries, children spend a large portion of their days in school and as a result of this schools appear to be an appropriate location to teach children mindfulness skills (Pluskota, 2014).

Present Study in Comparison to Previous Studies

This study differed from many of the other studies due to the duration of the activity introduced. The present study involved participating in a short mindfulness-based meditation which focuses on breathing for 5-minutes on a daily basis for 8 consecutive days. Many other studies utilised a framework of longer sessions on a weekly or bi-weekly basis (Delgado et al., 2010; Rix & Bernay, 2015; Semple et al., 2005; Sibinga et al., 2016). The observed effect of the intervention suggests that participating in mindfulness-based meditation for a short time every day could be as effective as participating in longer

sessions once or twice each week. This has important implications for schools as teachers are more likely to find the time to implement a shorter activity into their regular school day as a “brain break” or a transition activity.

The study is also comparable with the van de Weijer-Bergsma et al., (2012) study in relation to the independent group design and the treatment of the control group. Both studies offer the mindfulness-based activity after the end of the study, without implementing any change to the regular activity of the control group for the duration of the intervention. This was beneficial in these studies as the change in worry levels could then be attributed to the activity implemented.

Many of the studies discussed in the literature used qualitative (Rix & Bernay, 2015) or mixed methods (Delgado et al., 2010; van de Weijer-Bergsma et al., 2012) research to assess the effectiveness of the mindfulness activity being implemented. Several studies investigating the effectiveness of mindfulness-based interventions employ mixed methods research. The study conducted by Delgado et al. (2010) examines daily self-reports of worry and duration of worry episodes to assess the worry of the participants alongside the use of the PSWQ. This type of data collection allowed for in-depth analysis of the participants’ perception of their own levels of worry which is useful when making conclusions.

The present study utilised a quantitative design, as did Mendelson et al. (2010). Important insights emerge through utilising different types of research, as the topic is addressed from different angles (Sale, Lohfield & Brazil, 2002). Each approach to research has its own aims; a quantitative approach measures and analyses the causal relationship between two variables, whereas a qualitative approach has an emphasis on process and meanings (Sale et al., 2002). When analysis of the same idea is conducted repeatedly using different types of research it allows a well-rounded and in-depth view of the topic to develop.

Social Disadvantage

Much of the literature states that stress, worry and anxiety are negatively impacting the mental health of children (Cannon et al., 2013) and that this stress, worry and anxiety experienced by children in turn is negatively affecting their academic performance (Fernandez-Baena et al., 2015; Shapiro et al., 1998). Therefore, if students are experiencing consistent worry, it could be impacting their academic achievement, and if left unaddressed, certain students may be at an academic disadvantage. As stated in the literature review, children who come from backgrounds that have a lower socio-economic status have higher levels of stress, worry and anxiety (Bøe et al., 2012). Therefore, the students involved in this study are more likely to have higher worry levels than their counterparts with a higher socio-economic status as they attend a DEIS Band 2 school. This is reflected in the levels of worry reported by the participants at the beginning of the study.

The level of worry being experienced by the students in this study may not be comparable to a regular sample as the participants are attending a DEIS Band 2 school. As discussed in the methodology chapter, this means that a significant number of the students come from a lower socioeconomic background (Department of Education and Skills, 2017) Variables such as being part of a single-parent family, being a member of the travelling community, living in local authority accommodation and being eligible for free books are all factors in assigning DEIS status to primary schools (Archer & Sofroniou, 2008). These variables could impact the level of worry, stress and anxiety of the students, as the literature has indicated that such variables can contribute to higher worry levels (Bøe et al., 2012; Byrne et al., 2011; Costello & Lawler, 2014). Some might consider that these findings may only be relevant to students attending DEIS schools, however this is still relevant research as it is important to find intervention that work for at-risk groups. Reducing the worry levels of

the students could impact on their academic achievement (Fernandez-Baena et al., 2015) as well as their overall well-being (Costello & Lawler, 2014).

Gender

Previous research has indicated that females have a higher level of worry than males (Kertz & Woodruff-Borden, 2011; Muris et al., 2001; Muris et al., 2004; Păsărelu et al., 2017). More recent research has focused on how females respond more effectively to mindfulness-based interventions than males (Carsley et al., 2017). In relation to the present study, it can clearly be observed that the participants responded well to the mindfulness-based meditation activity. A significant drop in worry levels was observed for those participating in the activity. The significant drop in worry levels, even over a short term, could be in part due to the gender of the participants. This supports current research which is indicating that females respond better than males to mindfulness-based interventions (Carsley et al., 2017).

Strengths

Strengths of the study include the use of a standardised reliable scale, the PSWQ-C. This ensures that worry is being measured, and not a similar construct. Although, it must be noted that when testing for items such as worry, it cannot be guaranteed that it is being measured as it is an abstract concept (Howitt & Cramer, 2017). However, as the scale has been used on multiple occasions the validity and reliability of the results is more dependable (Howitt & Cramer, 2017). Reliability analysis was conducted on the PSWQ-C in this study, as stated in the results, and as the Cronbach's alpha value was greater than 0.7, the scale can be considered reliable. The study conducted by Delgado et al. (2010) also utilised the PSWQ, although the adult version of the scale was used as this study deals with university students. The different versions utilised indicate that the study is widely used and is, therefore, a suitable scale.

The use of a script for the mindfulness-based meditation is also an advantage of the study as this has been used before in mindfulness-based meditation and is a proven instrument. The present study is also building on research already conducted in the area of positive psychology in an educational setting, as discussed in the literature review, which is an asset.

As this study was examining a sample of children there were many ethical considerations. Ethics were considered throughout the process of designing and completing the study, and all steps were taken to ensure that the study was carried out ethically (Department of Children and Youth Affairs 2011; Psychological Society of Ireland, 2011). Students were fairly recruited from a local primary school. Consent was obtained from the parents and the students. Alternative activities were put in place for those not participating in the study and all participants were aware of their right to withdraw at any point throughout the study. Although some students did not receive parental consent or decided to not give consent to participate in the study, no participants dropped out of the study once it began. Those in the control group will be offered the activity at a future date. The researcher was also aware of the background of some of the parents of the students. Several parents are illiterate, and a significant number of the parents have very little English. As such, actions had to be taken to ensure that the parents understood the study and could give consent for their child to participate. This was achieved through revisions of consent and information forms, as well as ensuring that the students could explain the study to their parents. All ethical considerations are in line with the ideas laid out by the British Educational Research Association (2011), the Department of Children and Youth Affairs (2012) and the Psychological Society of Ireland (2011).

Limitations

One of the main limitations of the study was the small sample size ($N = 84$). While most researchers are aware that smaller sample sizes have a higher possibility of not yielding significance in a test when it is there, it is often overlooked that a small sample size can also yield a false positive (Button et al., 2013; Schweizer & Furley, 2015). Smaller sample sizes are also at risk of yielding an effect size that is larger than the true effect (Schweizer & Furley, 2015). They are biased upwards as they are more likely to be affected by chance variation in the sampled data (Schweizer & Furley, 2015). In relation to the present study, the small sample size may have resulted in significance being interpreted when it is not present, or the magnitude of the effect may not be as great as the results imply. Small sample sizes also make replication attempts difficult. Upon replication the reason for not achieving statistical significance is unclear, it could be that the effect does not exist, or it could be a result of not having enough power to detect the effect (Schweizer & Furley, 2015). Taking all of this into consideration, the small sample size utilised in this study forces the interpretation of the data to be considered with caution. The issue of small sample sizes in psychological research has recently come to the fore with many studies receiving attention for possible false positives and negatives as a result of this (Schweizer & Furley, 2015). Educational research could face similar issues in the future. The regular difficulties in conducting research in the social sciences such as control, replication and ethical considerations (Ary, Cheser-Jacobs, Sorensen-Irvine & Walker, 2018) are compounded in a school environment where there is often tight scheduling and lack of flexibility for short-term interventions.

Another significant limitation to the study is the effect of the interaction of observer and subjects. The Hawthorne effect causes participants to alter their behaviour due to the awareness of being observed (Ary et al., 2018; French, 1953). In the Hawthorne

experiments, worker productivity increased as a result of the workers being singled out for observation, not as a result of changes to their working day (Ary et al., 2018). A similar situation may have occurred with this study, where certain classes were chosen to participate in an activity that they knew was a novelty as well as being enjoyable. Worry levels may have decreased as a result of participating in a novel activity. It could also be noted that the worry levels of the students were so high, due to them being from a lower socio-economic background and being female, that any activity would have had an effect.

The participants were also aware of the aim of the study as it was explained to them prior to participating to ensure that they knew what they were agreeing to participate in (Department of Children and Youth Affairs, 2012). The researcher had also been a teacher in the class with some of the participants which may have caused them to overstate their reduced levels of worry. The bias caused from relationship of the researcher and the participants is a significant limitation to the study and is something that should be considered when interpreting the results. The possibility of the interaction between the control and intervention group may also have caused a bias in the results which should also be considered.

Attendance may have been a factor in limiting the results of the study. The majority of the participants in the intervention group were present for the intervention on all 8 days (100% attendance); however, this is only 25 out of the 44 participants. As well as this, there were some students who were not present for a significant proportion of the intervention and this could have impacted on results. The possible effect of the activity if the participant was not present for a significant portion of the intervention must be considered. In fact, 2 participants participated in less than half of the mindfulness practice, while 18 participants missed at least one intervention. Future research could include participants keeping a log of their own mindfulness-based practices which could help ameliorate effects of such a

limitation. This could also help with the issue of missing days at the weekend. There were two days in the middle of the study where students did not participate in mindfulness meditation as they were not in school. The impact of the intervention could have been increased had the students been given the tools to complete their own meditation at home.

Another limitation of the study was the lack of implementation of an alternative activity for the control group. This emphasises the issue with scheduling time for mindfulness in schools. The classes in the control group did not receive a similar but alternative activity, their timetable remained unchanged. This was due to learning support occurring for these classes at the proposed time for the intervention. According to ethical guidelines for conducting research, there should be no disadvantage to those who are not in the group participating in the intervention (Psychological Society of Ireland, 2011). The researcher has the intention of offering a mindfulness-meditation activity at lunch time in the school in the near future to allow all students in the school the opportunity to participate. As discussed in the literature review, other studies have also offered the activity to a control group post-study to mitigate any possible disadvantage (van de Weijer-Bergsma et al., 2012).

Recommendations for Future Research

Future research should include an alternative activity for the control group to ensure that they are not adversely affected by not participating in the activity (Department of Children and Youth Affairs, 2012). This would also allow more conclusions to be drawn post-analysis. Conducting research on a larger scale would be advisable for future research for reasons articulated in the limitations section (Schweizer & Furley, 2015).

Future research into the effects of reducing worry through mindfulness-based meditation could include a gender aspect, where worry levels of males and females are recorded and compared. Conducting research with a male cohort and comparing it with that of a female

cohort could produce some useful insights into effective mindfulness-based interventions, as it has been stated that females respond better than males to mindfulness-based activities (Carsley et al.,2017).

As previous research has revealed, worry, stress and anxiety can have a negative impact on the academic achievements of children (Fernandez-Baena et al., 2015). Future research could involve a long-term study of test scores of participants who practice mindfulness meditation and those who do not to assess if any positive academic impact could arise from participating in mindfulness-based meditation.

Although the benefits of quantitative research were considered when beginning this research topic, future research could benefit from the use of a mixed methods approach to assessing the effects of a mindfulness-based intervention in reducing worry levels. It can be observed from the literature. From the literature it can be observed that several studies utilised a mixed methods approach when conducting mindfulness-based research such as Delgado et al. (2010). This could give an insight into how students felt about mindfulness meditation. It would also give an insight into how they perceived their own levels of worry, and what contributes to their worry levels. Mixed methods research has the intention of providing a greater understanding of the topic than qualitative or quantitative would on its own (Cohen, Manion & Morrison, 2017).

Recommendations for schools: Teachers and principals

The success of the mindfulness meditation intervention in reducing worry levels indicates that we can suggest with caution that mindfulness meditation practices should be implemented in the classroom environment, as suggested by Cannon et al. (2013). However, considering that teachers are already expected to teach what has been considered an over-crowded curriculum where many teachers find it difficult to integrate all of the required subjects (McCoy, Smyth & Banks, 2012), one must consider that they may not be

able to find time to allocate to mindfulness. Throughout the study, there were days where the classroom teachers found it difficult to allow the required 5-minute timeframe for the activity. As with many schools in Ireland, the participating school has a huge emphasis on literacy and numeracy. The school participating in the study allocated a disproportionate amount of time to English in particular, as many of the students have E.A.L. Therefore, the children who are at the most risk of developing higher worry, stress and anxiety levels due to their socio-economic status (Bøe et al., 2012) may be the least likely to implement such activities on a daily basis due to the timetabling restrictions in DEIS schools.

Rempel (2012) emphasises that mindfulness practices in the classroom contribute to the holistic development of the child, which is a key concept of the Primary School Curriculum in Ireland (Department of Education and Science, 1999). Following on from this, it could perhaps fall to the principal of the school to ensure the implementation of mindfulness practice into the school day. As the present study shows even a short 5 minute meditation can greatly improve the worry levels of the students in the school. Some schools in Ireland have already embraced mindfulness into their school day. While there is little empirical research to support this, several teachers have discussed their own use of mindfulness activities in the classroom, as reported in the Irish Times (MacBride, 2017). Many teachers still struggle to find the time in the day to sufficiently include everything on the curriculum, highlighting the benefits of a short mindfulness-meditation activity being effective.

Chapter 6: Summary and Conclusion

The present study aimed to assess the effectiveness of an 8-day mindfulness-based meditation intervention in decreasing the worry levels of students. A review of the literature revealed that positive psychology was on the rise, and that mindfulness practices were becoming more common. Three hypotheses were stated and an experimental independent group design was used to test the hypotheses. The PSWQ-C was administered to assess worry levels of all participants at the beginning and end of the study. Participants were split into an intervention group and a control group, where those in the intervention group participated in an 8-day mindfulness meditation intervention. The results of the questionnaires were compiled and scored and statistical tests were run to examine whether an effect could be observed. Overall, statistical significance was found and it can be noted that the mindfulness-based meditation intervention decreased the level of worry reported by the students in the intervention group. An interpretation of Cohen's d allowed a small to medium effect size to be observed. It is important to note that although a significant difference between the groups was found, one must be careful when interpreting the results and generalising them. There were several significant limitations to the study which could have produced a false positive, including small sample size and bias of the participants. There were several observations which concluded in recommendations for future research, including providing an alternative activity for the control group, conducting research to inspect the gender aspect of the effectiveness of mindfulness practices, as well as recommendations for the possibility of other positive effects of mindfulness-based meditation. A mixed methods approach was also recommended and could be included. Recommendations for schools were discussed, focusing on the feasibility of implementing mindfulness-based meditation to reduce worry into the regular school day.

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Appendix Index

Appendix A: Letter of Information to Board of Management and Principal.....	viii-x
Appendix B: Information and Consent form for Parents.....	xi
Appendix C: Student Information Script.....	xii
Appendix D: Penn State Worry Questionnaire for Children.....	xiii-xiv
Appendix E: Mindfulness-Based Meditation Script.....	xv

Appendix A: Letter of Information to Board of Management and Principal.

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Oideachais Marino

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Research Topic: To look at the effects of a mindfulness-based intervention on the worry levels of Primary School students.

Researcher: Gillian Fitzpatrick, Student Researcher, Marino Institute of Education,
gfitzpatrickpme16@momail.mie.ie

Background and Purpose: My name is Gillian Fitzpatrick and I am a final year Professional Masters of Education student in Marino Institute of Education. I am currently conducting a piece of postgraduate research. My chosen topic is to look at the effect of a mindfulness-based intervention on the worry levels of Primary School students, in particular those in the senior section of Primary School. I will be looking at students, from 3rd to 6th class to assess whether the mindfulness based intervention reduces worry levels of the students. I have previously completed an undergraduate degree in Psychology in University College Dublin which provided some motivation for the current study.

What will the study entail? The children will complete a questionnaire which will assess their level of worry at the beginning of the study and at the end of the study. Class groups will be assigned to either receive the mindfulness-based intervention (a meditation activity) or act as a control group where they will not participate in the mindfulness activity. The worry questionnaire and mindfulness-based activity will both be standardised, which

means that they have been used with this age group and for this specific topic before, and ensures they are appropriate measures to use.

Voluntary Participation and Consent: Participation is completely voluntary and it is up to the parent/guardians and the children if they consent to participate. However it should be noted that the activity is an enjoyable one. Any child who does not receive consent will not be permitted to participate in the study. Children's consent will also be obtained. Children can withdraw at any time from the study, even if they consented, and this will be made clear to the students. I will be present at all times the research is being conducted in the classroom and will be available to answer any questions a child may have. If any parent/guardian would like further information so that they can make a fully informed decision I am happy to disseminate the measures.

If consent is not given for a child to take part? For any reason if a child is not granted consent they will remain in the classroom, as it is not feasible for them to leave. They will participate in D.E.A.R. time as an alternative enjoyable activity.

Confidentiality and Use of the Results: The data collected from this study will be kept confidential. I will be responsible for the safekeeping of all data collected. Hardcopies of questionnaires will be stored in a locked location. Soft copies of the data will be stored on a locked computer and a back-up in a locked cloud location for the duration of the research project, at a maximum of 13 months after submission in keeping with the required practices of Marino Institute of Education, after which it will be destroyed. No other person will have access to this data at any time. The data collected will be used solely for the purpose of this research project and will be submitted for examination in May 2018.

Important Documents: Information sheets will be provided to every parent/guardian of the children in the classes. Attached with these will be a consent form for the parent/guardian of the child to sign if they grant consent for their child to participate in this

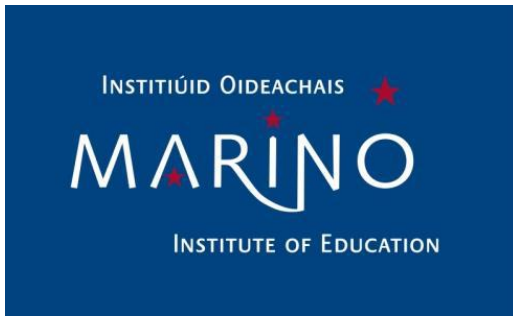
study. The researcher will also explain the study in simple terms to the students. The researcher will distribute and collect consent forms. The students will be told that by completing the questionnaire they are agreeing to participate.

Further Information: The Research Ethics Committee has granted full ethical approval for this research project. For any further queries, questions or concerns about any aspect of this research project please do not hesitate to contact me through the following:

Email: gfitzpatrickpme16@momail.mie.ie

Phone: 085-1483037

Thank you for reading this material and for any support you can provide to this study.

Appendix B: Information and Consent form for Parents

Marino Institute of Education Instiúid Oideachais Marino

Griffith Avenue, Ascaill Uí Ghríofa,

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Dear parent/guardian,

My name is Gillian Fitzpatrick and I am working as a student teacher in your child's school. As a part of my college work I am doing a project. As you might be aware children experience worry at all ages and this is something that schools want to help with. Research has shown that mindfulness meditation, which is a relaxation activity can help stop worry.

Your child's class has been chosen to participate in a short programme aimed at reducing worry. This activity should be enjoyable for the students and will only take 5 minutes of their time in class.

Please sign and return the consent form. If you do not want your child to participate please still return the form. If you have any questions you can contact me in the school.

Thank you for your co-operation,

Gillian Fitzpatrick

-
- I give permission
- I do not give permission

Signed: _____

Appendix C: Student Information Script

Hello,

As you know I am still in college training to become a teacher. As a part of my college work I am doing a project. Lots of things happen in our lives that can cause us to experience worry at all ages and this is something that schools want to help with. Research has shown that mindfulness meditation, which is a type of relaxation and breathing activity can help reduce worry.

Your class has been chosen to participate in a short programme aimed at reducing worry. This activity should be enjoyable and will only take 5 minutes of your time in class. Firstly, you will have to bring these forms home and ask whoever is at home if you can take part in the study. I know that lots of the people at home might have difficulty understanding some of this, so if you can help them to understand it, please do.

Once all of the forms are returned we can begin our study. The classes will either participate in the meditation activity or not. If your class is not chosen to participate you will have a chance to do so at a later date, so you will not miss out. If you do not want to participate you do not have to, you can participate in D.E.A.R. time instead.

When we are beginning the study I will give you a questionnaire to fill out. If you do not want to participate simply hand the blank questionnaire back to me at the end. By filling out the questionnaire you are letting me know that you want to participate.

If you have any questions you can ask me or your teacher.

Appendix D: The Penn State Worry Questionnaire for Children (PSWQ-C)

Name: _____

Age: _____

This questionnaire is about worrying. Worrying happens when you are scared about something and you think about it a lot. People sometimes worry about school, family, things that could happen in the future and other things.

Read each sentence carefully and circle the answer that best tells how you feel:

1. My worries really bother me.	Never true	Sometimes true	Most times true	Always true
2. I don't really worry about things.	Never true	Sometimes true	Most times true	Always true
3. Many things make me worry.	Never true	Sometimes true	Most times true	Always true
4. I know I shouldn't worry about things but I can't help it.	Never true	Sometimes true	Most times true	Always true
5. When I am under pressure I worry a lot.	Never true	Sometimes true	Most times true	Always true
6. I am always worrying about something.	Never true	Sometimes true	Most times true	Always true
7. I find it easy to stop worrying when I want.	Never true	Sometimes true	Most times true	Always true
8. When I finish one thing, I start to worry about everything else.	Never true	Sometimes true	Most times true	Always true
9. I never worry about anything.	Never true	Sometimes true	Most times true	Always true
10. I've been a worrier all my life.	Never true	Sometimes true	Most times true	Always true
11. I notice that I have been worrying about things.	Never true	Sometimes true	Most times true	Always true

12. Once I start worrying I can't stop.	Never true	Sometimes true	Most times true	Always true
13. I worry all the time	Never true	Sometimes true	Most times true	Always true
14. I worry about things until they are done.	Never true	Sometimes true	Most times true	Always true

Appendix D: Mindfulness Meditation Script

“I want you all to sit up straight, place both feet flat on the ground and close your eyes, take a moment to relax.

Place your hand on the centre of your stomach, or if you like one hand on your stomach and one on your chest. Feel how your belly moves when you take a deep breath in and when you release it. Feel your belly move out and in with your breath. Pay attention to the in-breath and the full duration of the out-breath.

Whenever you notice that your mind has moved from feeling the direct sensation of the movement of the breath, notice where your mind went (school, home, a discussion with a friend, and so on) and bring your mind back, gently but firmly, back to your breath and the feeling of your hand and belly moving in and out.

If your mind leaves a hundred times, you can bring your attention back to the direct sensation of your breath, with a lot of compassion and patience. Do not give yourself a hard time if your mind wanders a lot, just make sure that each time your mind wanders, bring your attention back to the feeling of your breath.

The breath teaches us that all is constantly changing, coming in and going out, just like the waves of the shore.” (Fortuna & Vallejo, 2015).

Students are left to continue the focus on breathing for the time left. When the time is coming to an end the researcher will ring a bell three times softly to indicate the end of the session.