MINDFUL OR MIND FULL? THE EFFECTIVENESS OF A SMALL SCALE MINDFULNESS-BASED INTERVENTION IN A MAINSTREAM PRIMARY SCHOOL WITH YEAR FOUR CHILDREN

By

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ABSTRACT

This research aimed to establish the effectiveness of a mindfulness-based intervention facilitated by a trainee educational psychologist and a class teacher, with a class of Year Four children. The study took a pragmatist approach to research, whereby a mixed method approach was considered the best way to address the study's research questions. The Year Four children in a mainstream primary school participated in a six week mindfulness-based intervention, with activities taken from '60 Mindful Minutes' (The Nurture Group Network, 2014). Quantitative data were collected and analysed in relation to the children's social and emotional well-being, levels of mindfulness, and observable behaviour (peer relationship difficulties, prosocial behaviour, conduct problems and hyperactivity and inattention) at four time-points. This was to allow for a comparison of scores between a half-term of Personal, Social, and Health education/normal school, the half term of the mindfulness intervention, and after a follow-up period. Qualitative data was collected at follow-up: the class teacher was interviewed and the children were asked to provide brief written feedback.

Both the quantitative and qualitative data indicated that the children became more "mindful" after completing the intervention. Additionally, positive effects for their social and emotional well-being were found. The intervention was well-accepted by both the children and their class teacher, and evidence was found at follow-up for the maintenance of mindfulness practices. The findings provide positive implications for practice, in regards to both educational settings and educational psychologists.

DEDICATION

To my parents, Roma and Stephen Carey.

To my brother, Mark Carey.

To my partner, Steven Gillespie.

To everyone who believed that I would get to this point, thank you.

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CHAPTER ONE: INTRODUCTION

This chapter introduces key aspects underlying the present study. Firstly, what constitutes positive mental health and well-being and its importance is briefly discussed. Secondly, the prevalence of mental health difficulties in children and young people is outlined. Thirdly, a brief description is provided of how mental health services in the United Kingdom have evolved over the past two decades. The concept of "universal interventions" is introduced, alongside consideration of their importance in the current mental health climate and finally, an overview of the structure of the thesis is provided, which concludes with a rationale for the present study.

1.1 What is "well-being" and "mental health" and why is it important?

Literature surrounding mental health has previously taken a deficit-model approach by predominantly exploring mental health difficulties and conceptualised these difficulties as the absence of mental well-being. However from this rhetoric, an increase in focus on the presence of positive mental health and well-being has developed (Cane and Oland, 2015). Keyes (2013) notes, "there is a new generation of research in which scholars are investigating mental health and human development and not merely the absence of mental illness but also the presence of subjective well-being" (Keyes, 2013, p V). Perhaps it is helpful to consider mental health on a continuum, with positive mental health at one end of the continuum, and clinical disorders at the other pole.

"Mental health" is defined by the World Health Organisation (WHO) as "a state of well-being" within which someone realises their potential, can cope with common life stressors, is able to work productively, and can provide a contribution to the community (WHO, 2013). To assess an individual's quality of life and thus their mental health and well-being, one can consider objective aspects of life such as wealth, level of education, occupational success and

physical health (Keyes, 2013). Alternatively, mental health may be defined through a subjective approach, whereby "individuals evaluate their own lives as evaluations made, in theory, after reviewing, summing, and weighing the substance of their lives" (Keyes, 2013, p 4). The shift in standpoint from measuring external and objective aspects of mental health, to focusing on internal evaluations of individual well-being is mirrored in the move from the field of behaviourism, a theory focused on observable behaviour and the environment, to the field of humanistic psychology, through which "introspection and subjective appraisal was considered meaningful data" (Keyes, 2013, p 5).

The notion of "positive psychology" aligns with the focus on positive mental health and well-being, with positive psychology defined as "the study of what is ''right'' about people—their positive attributes, psychological assets, and strengths. Its aim is to "understand and foster the factors that allow individuals, communities, and societies to thrive" (Kobau et al, 2011, p 1). By taking a mental health promotion and positive psychology approach, Kobau et al (2011) argue that this provides individuals with: "an updated way of thinking about mental health that provides for the richness of human experience" (Kobau et al, 2011, p 6); consideration of the full spectrum of mental health to reduce stigma associated with mental health difficulties; encouragement of conversations around mental health; enhancement of screening, and evidence-based targeted and universal interventions aimed at promoting positive mental health.

The importance of positive mental health is well-documented in the literature, with Keyes (2013) stating that it is linked to positive outcomes such as: work productivity, physical health protection (including age-related physical disabilities, death and stronger immune system), and improved cognitive function. In addition, a meta-analysis of cross-sectional, longitudinal and experimental research found that positive affect enhances: altruism, sociability and activity, liking of self and others, immunity, and problem-solving skills in

relation to conflict (Lyubomirsky et al, 2005). The present study is in line with a positive psychology approach to mental health, with the implementation and evaluation of a universal intervention aimed to promote mental health and well-being in a class of primary-aged children.

1.2 Prevalence of mental health difficulties in children and young people

Albeit, the absence of positive mental health does not necessarily equate to a diagnosable mental illness, however, mental health difficulties in children and young people are a significant concern, with a recent estimation of almost 10% of 5-16 year olds in the United Kingdom experiencing a diagnosable mental health condition (Khan et al, 2015). Young people who experience what is considered under the most recent Special Educational Needs (SEN) Code of Practice (Department for Education and Department of Health, 2014) as 'social, emotional and mental health' (SEMH) difficulties constitute 19.3% of young people of pupils with SEN in English secondary schools (Department for Education, 2014). Furthermore, a report from the independent Mental Health Taskforce (2016) stated that half of all mental health difficulties have developed by the time an individual reaches 14 years, with this rising to three-quarters by the age of 24 years.

As a result of the growing social, emotional and mental health needs of children and young people, the wait for psychological therapy in 2015-2016 was an average of 32 weeks (Mental Health Taskforce, 2016). Statistics such as those above provide evidence for the importance of mental health promotion and prevention in childhood and adolescence, as well as a rationale for providing mental health support in educational settings, increasing intervention accessibility for this population.

1.3 Developments in mental health services in the United Kingdom

In 1995, Burns et al stated that approximately 60% of children and young people who were experiencing significant mental health difficulties were not receiving the support that they needed. In 1997, in response to the significant need for additional support for children with SEMH needs, the role of primary mental health workers (PMHWs) within CAMHS (Children and Adolescent Mental Health Services) was developed. Atkinson et al (2010) describe the role of the PMHW as someone who "could be employed to help tier 1 workers, such as teachers, to support the mental health of children, develop relationships within local areas, and be the link between schools and CAMHS" (p 2). A "tiered" model of mental health support was outlined in the Department for Education and Skills (DfES) and Department of Health (2004b) document; the framework encompasses both mental health promotion and early intervention, and specialist mental health services. 'Tier 1' refers to mental health support for children and young people provided by primary care professionals such as General Practitioners, school staff and social workers. This support may include identification of difficulties and referral to more specialised services, advice on less severe mental health difficulties, or mental health promotion. 'Tier 2' refers to professionals such as educational psychologists, community nurses and CAMHS workers, who can to support children and young people by providing consultation and support to professionals in primary care settings. 'Tier 3' and 'Tier 4' refer to more specialised services which a young person would be referred to by a professional in 'Tier 1' or 'Tier 2'. For example, clinical psychologists, psychiatrists, speech and language therapists, and psychotherapists, can provide Tier 3 and Tier 4 support to children and young people experiencing significant mental health difficulties.

A 2008 review of CAMHS by the Department for Children, Schools and Families, and the Department of Health, stated that "improvements in mental health and psychological well-

being are still not as comprehensive, as consistent or as good as they could be (p 8). When considering the current climate, as highlighted by the statistics in relation to the prevalence of mental health difficulties presented in 1.3, this appears to remain the case. The present study is an example of 'Tier 2' intervention, whereby a trainee educational psychologist implemented and evaluated a universal intervention, as well as provided support to a Tier 1 professional (class teacher) to implement aspects of the universal intervention.

1.4 The "universal" intervention

Universal interventions are interventions which are "directed at the whole population regardless of risk status or presence of symptoms" (Higgins and O'Sullivan, 2015, p 426). Universal interventions take a strengths-based approach to mental health and well-being, with the intended aim to reduce the likelihood of future mental health difficulties developing (Higgins and O'Sullivan, 2015). The advantages of universal interventions have been discussed in the literature such as: their ability to reach a large group of children and young people, the potential reduction of mental health stigma, the increase in peer support, a decrease in peer relationship problems in the classroom, and the promotion of a shared positive view of mental health (Armbruster et al, 1999; Evans, 1999; Kubiszyn, 1999). Universal government initiatives preceding this study include: 'Social and Emotional Aspects of Learning' (SEAL) (Department for Children, Schools and Families, 2005) which focused on developing the social and emotional skills needed for "effective learning and positive behaviour" (p 1); the 'Targeted Mental Health in Schools Project' (TAMHS) (Department for Children, Schools and Families, 2008) focused on delivering school-based interventions to children aged 5-13 years; and more recently, a document titled 'Mental Health and Behaviour in schools' (Department for Education, 2014) provides advice around early identification, developing resilience and promoting positive mental health in children and young people.

There have been many positive outcomes for children and young people who have participated in universal interventions, for example, primary aged children's levels of anxiety was found to decrease after completing the 'FRIENDS for Life' programme, a cognitive behavioural therapy based universal intervention (Higgins and O'Sullivan, 2015). Furthermore, a meta-analysis of school-based universal interventions by Durlak et al (2011) reviewed 213 school-based social and emotional learning programmes and found that the children and young people who completed the social and emotional interventions displayed an increase in social and emotional functioning, an increase in positive attitudes and behaviour, and an increase in academic performance when compared with controls (Durlak et al, 2011). Moreover, Weare and Nind (2011) discuss the importance of mental health promotion and prevention in educational settings through the implementation of universal interventions. They concluded that whilst the statistical effect sizes were often considered 'small' or 'moderate' post-intervention, these translated into "real world" changes for the children and young people and should therefore be highly valued.

1.5 Rationale for the research

The interest in the present study arose after consideration of:

- the high prevalence of SEMH needs of children and young people;
- the efficacy and accessibility of universal interventions; and
- the efficacy of mindfulness-based practices (discussed in Chapter Two).

1.6 Overarching aim of the research

The research which is described and discussed in this thesis (Volume One) is a small-scale research project conducted in part fulfilment of the research and academic requirements for the degree of Applied Educational and Child Psychology Doctorate, University of Birmingham. The overarching aim of the research was for a trainee educational psychologist

('Tier 2' professional) to identify an effective universal intervention which would be both acceptable and feasible in a mainstream primary school setting. It is understood by the researcher that the children's SEMH are likely to be affected by both internal and environmental factors. The aim of the universal intervention was to affect classroom climate in relation to the discourse surrounding SEMH and well-being, and to provide the children with a mind-set and skill repertoire to inoculate themselves from environmental stress. It was hoped that the intervention could in the longer term, be implemented by school staff ('Tier 1' professionals) without extensive training. The present study's specific aim, research questions and hypotheses are outlined in Chapter Three.

1.7 Volume 1 structure

This thesis comprises six chapters: Introduction (Chapter One), Literature review (Chapter Two and Chapter Three), Methodology (Chapter Four), Results (Chapter Five), and Discussion and concluding comments (Chapter Six).

The Literature review (Chapters Two and Three) introduces the concept of "mindfulness", its benefits, and its wide range of applications according to the literature, both in adults and in children and young people. As part of Chapter Three, a more systematic literature review section focuses on the current UK literature in relation to mindfulness intervention in schools. Furthermore, the gaps in the literature which the present study aimed to address are outlined. Chapter Four provides a detailed description of the study's method including information related to the research design, the MBI content, and the pre and post intervention measures. The results of the study are outlined in Chapter Five and are then summarised and discussed in relation to the current literature on mindfulness interventions in Chapter Six (Discussion). The Discussion chapter also includes reflection on the study's use of methods and methodological approach, and suggestions for future research are provided. Implications for educational psychology practice, in relation to the implementation of mindfulness-based

interventions in educational settings, are discussed. Finally, Volume One concludes with 'personal reflections', a section which briefly reflects on the impact that the research has had on both the researcher's practice and management of their own well-being.

CHAPTER TWO: LITERATURE REVIEW OF INTERNATIONAL RESEARCH

This chapter aims to introduce mindfulness both as a concept and as a therapeutic intervention. In section one, a brief overview of the two main types of mindfulness-based interventions (MBIs) is provided, before the potential mechanisms underlying mindfulness practices are discussed. Finally, areas of application of MBIs, including a variety of populations and settings, are described. Section 2.6 summarises the benefits of mindfulness for adults, children and young people, according to international research. It includes the positive impact on social, emotional and mental health, cognitive functioning, and observable behaviour. The chapter concludes with a summary of a systematic literature review by Felver et al (2016). This review identifies the current limitations in MBIs in schools; how these limitations will be addressed in the present study is outlined.

2.1 An introduction to mindfulness

2.1.1 Definitions of mindfulness and its origin

'Mindfulness' is a concept deriving from a Buddhist contemplative tradition over two and a half thousand years ago. The word originates from the Pali word 'sati', which can be defined as possessing awareness, attention, and remembering (Bodhi, 2000). The overarching aim of mindfulness is to provide relief from the distress caused by "the dysfunctional ways people habitually tend to respond to their experience" (Weare, 2013, p 142).

Mindfulness has many definitions in the literature with examples such as:

a state of consciousness in which there is an enhanced attention to moment-to-moment experience (Brown and Ryan, 2003).

the awareness that emerges through paying attention on purpose, in the present moment and non-judgementally (Kabat-Zinn, 2003).

the self-regulation of attention so that it is maintained on immediate experience…characterised by curiousity, openness and acceptance (Bishop et al, 2004)

More recently, Costello and Lawler (2014) have described mindfulness as a practice whereby people skillfully respond to the present moment as opposed to going through life's experiences mindlessly, with the mind focused on rumination and anxiety about the past or future. The process of being "mindful" has been described in the literature as constituting three integral factors : attitude, attention and intention (Shapiro et al, 2006). In order to successfully engage in mindfulness, an individual must hold a specific attitude. It is essential to practise non-judgement, for example an individual would view a thought not as "bad" or "good" but simply as a thought. An individual must also practise acceptance, patience, trust, curiousity and non-striving. Finally, an individual must practise kindliness, not only to others but to themselves (Shapiro et al, 2006). For example, an act of self-kindness may be to recognise not what one has not done, but what one has achieved so far. Attention is needed to practise mindfulness; this involves both the ability to remain focused for a prolonged period of time, as well as being able to switch attention from one element to another.

The third factor 'intention' refers to the explicit choice to engage in mindfulness, as well as the conscious decisions which are made to shift or maintain attention. Bishop et al (2004) use the term 'intentional attention' to describe the process whereby an individual self-regulates their attention, or as described by Kabat-Zinn (2003), an individual "pays attention on purpose". Shapiro et al (2006) states that in order to "be mindful", attitudes, attention and intention must cocurrently occur. When an individual engages in this process, they can consider their experiences from a more dissociated viewpoint and thus their thoughts, sensations and emotions can be viewed as transient phenomena. This ability to perceive thoughts, sensations and emotions in this way may lead to a positive change in the

individual's response to negative stimuli/experiences, with responses decreasing in reactivity and increasing in reflectivity (Baer, 2003; Segal et al, 2002).

2.2 The rise of mindfulness

In 2011, Williams and Kabat-Zinn, pioneers in the field of mindfulness research, discussed the origins of mindfulness and highlighted that the number of publications on mindfulness increased exponentially from approximately five publications in 1983 to approximately 350 in 2010. Williams and Kabat-Zinn (2011) stated that from the 1980s onwards, mindfulness-based therapies were beginning to be implemented in the area of behavioural medicine and in the late 1990s, there was an increase in the application of mindfulness-based therapies in fields such as "clinical and health psychology, cognitive therapy, and neuroscience, and increasingly, there is growing interest, although presently at a lower level, in primary and secondary education, higher education, the law, business, and leadership". The popularity of mindfulness-based research has continued to grow at a rapid rate since 2010; a literature search using the term "mindfulness" on the 'Web of Science' database wielded a total of 1,136 research articles which were published during the course of the year 2016.

2.3 Current therapies incorporating mindfulness-based techniques

There are currently four main therapies which incorporate mindfulness: Mindfulness-based stress reduction (MBSR), Mindfulness-based cognitive therapy (MBCT), Dialectical behaviour therapy (DBT), and Acceptance and commitment therapy (ACT). The two most common MBIs will be outlined below: MBSR and MBCT. MBSR was originally developed by Kabat-Zinn (1982) for patients who were experiencing chronic pain, but MBSR is now an intervention that is widely used for individuals who are experiencing psychological distress. The programme is an eight to ten week group intervention which includes two and a half hours a week of mindfulness meditation and training. In addition, individuals engaging with the programme are encouraged to attend a one day intensive mindfulness retreat, and engage

in mindfulness practice at home (Keng et al, 2011). The primary aim of MBSR is to encourage individuals to respond to their thoughts in a less judgemental and reactive manner and to break "maladaptive patterns of thinking and behaviour" (Keng et al, 2011, p 7).

MBCT is an adaptation of MBSR (Segal et al, 2002) which combines both mindfulness and cognitive therapy techniques to target psychological distress caused by negative thoughts. MBCT is an eight-week manualised group intervention which is aimed to prevent relapses in individuals who have experienced depression (Keng et al, 2011). The rationale for combining mindfulness and cognitive therapy techniques is to help the individual to view their thoughts not as fact, but as thoughts only, as well as to recognise automatic thoughts (NAT), and to weaken the association between their NAT and negative psychological effects (Barnhofer et al, 2009). Both MBSR and MBCT are represented in the literature as effective therapies to treat depression and anxiety (Hofmann et al, 2010).

2.4 How do we think mindfulness works?

Hölzel et al (2011) discuss four components that they believe are integral for mindfulness to wield its positive effects, namely attention regulation, body awareness, emotion regulation and a change in self-perception. This paper proposes that when they work interdependently, an individual achieves an enhanced level of self-regulation. The authors provide self-report, behavioural and neuroscientific evidence in support of their theory; the four components and the accompanying evidence will be summarised below.

2.4.1 Attention regulation

Executive attention is defined as the ability to concentrate on a meditative object without being distracted by internal or external factors. Jha et al (2007) and van den Hurk et al (2010) found that meditators scored better on executive attention tasks in comparison to controls. The brain area implicated in executive attention is thought to be the anterior cingulate cortex

(ACC). When conducting MRI scans during an executive attention task, Hölzel et al (2007) found increased activation in the rostral ACC in meditators, in comparison to controls. In addition, neuro-structural evidence has revealed that cortical thickness in the dorsal ACC is greater in experienced meditators, in comparison to a non-meditating control group (Grant et al, 2011), and as little as eleven hours of 'Integrative Body-Mind Training' led to an increase in white matter in the ACC (Tang et al, 2010). Attention regulation is a necessary part of mindfulness; one must be able to filter-out incoming thoughts and/or external stimuli in order to stay focused and engage in mindfulness practices.

2.4.2 Body awareness

Body awareness is the ability to pay attention to and recognise sensory experiences such as breathing, emotions or other physical experiences such as muscle movement. Self-report data from a study by Carmody and Baer (2008) provided evidence for an increase in body awareness as a result of a mindfulness-based stress reduction (MBSR) intervention, documented through an increase in scores on the 'Five Facet Mindfulness Questionnaire'. Neuroscientific data revealed that participants who had completed a MBSR course displayed increased neural activity in the insula, a brain area implicated in the awareness of body sensations (Singer et al, 2004), in comparison to controls when focusing on the present moment (Farb et al, 2007). Additionally, neuroimaging of experienced meditators has revealed greater cortical thickness (Lazar et al., 2005) and greater grey matter concentration in the right anterior insula (Hölzel et al, 2008). Furthermore, increases in grey matter concentration in the temporo-parietal junction, a further brain area implicated in body awareness (Singer et al, 2004), were found in participants who had completed eight weeks of mindfulness (Hölzel et al, 2011a).

A link between bodily sensations and empathy has been suggested in the literature; the ability to recognise and appreciate our own thoughts, feelings and physical sensations is suggested

by Hölzel et al (2011b) as a prerequisite skill in order to empathise with others. In support of this, a positive correlation was found between mindful observation and empathy by Dekeyser et al (2008). Interestingly, both the insula and the temporo-parietal junction are areas associated with empathy, as well as physical body awareness (Singer et al, 2004). Empathy may be an important aspect of mindfulness when considering the need for "kindliness" to ourselves and to others, as identified by Shapiro et al (2006).

2.4.3 Emotion regulation

Mindfulness has been found to improve emotional regulation and physiological internal state. Participants who practise mindfulness report a reduction in negative mood and an increase in positive mood (Jha et al, 2010), as well as a decrease in ruminative thinking (Jain et al, 2007). In addition, participants in mindfulness and relaxation/meditation groups were found to display less physiological reactivity than controls when presented with affective pictures (Ortner et al, 2007). Research indicates that it is not only the act of practising mindfulness that ameliorates emotional regulation, but how "mindful" an individual is in their daily life. Individuals who did not practise mindfulness techniques but who were high in trait mindfulness, were found to show an increase in prefrontal cortex activity and a decrease in amygdala activity (Creswell et al, 2007). This is an important finding as the prefrontal cortex is identified in the literature as the area which regulates brain systems associated with emotions, such as the amygdala (Ochsner & Gross, 2005).

Additionally, increase in prefrontal cortex activity has been found in individuals during "reappraisal" of negative stimuli (Eippert et al, 2007). Reappraisal is a way in which we self-regulate our emotions during mindfulness which involves reframing a stressful experience as something more positive, for example viewing the experience as something that conveys meaning or as an experience that we can learn from. Similarities can be drawn here to

Cognitive Behavioural Therapy techniques, where an individual is encouraged to identify their negative automatic thoughts and to challenge and reframe them.

Hölzel et al (2011b) raise an interesting discussion point around whether being truly mindful involves "reappraisal" or "non-appraisal". Links can be drawn between the notion of "non-appraisal" and "acceptance" and "non-judgement", key features of mindfulness as defined in the literature (Bishop et al, 2004; Kabat-Zinn, 2003; Shapiro et al, 2006). The evidence above suggests that an increase in cognitive control (indicated by increased prefrontal cortex activity) occurs when effectively engaging in mindfulness practices. However, experienced meditators have been found to display a decrease in prefrontal cortex activity when presented with negative or painful stimuli during a state of mindfulness (Gard et al, 2012). The authors attempt to explain this contradiction in findings; an individual's engagement in reappraisal or non-appraisal during mindfulness may be dependent on the level of mindfulness experience. Mindfulness novices may engage in an increase in cognitive control in order to self-regulate their emotions, whereas experienced mindfulness practitioners may adopt a more accepting and automatic state where an increase in cognitive control is unnecessary to achieve emotional regulation (Hölzel et al, 2011b).

Finally, in regards to emotion regulation, the concepts of exposure, extinction and reconsolidation are introduced as integral parts of the mindfulness process. They are described by the authors as "exposing oneself to whatever is present in the field of awareness; letting oneself be affected by it; refraining from internal reactivity". Hölzel et al (2011b) present evidence for a potential mechanism of emotional regulation as a result of mindfulness. There appears to be an overlap between the neural processes involved in both extinguishing fear responses and in regular mindfulness practice, with a reduction in amygdala activity and activation of the prefrontal cortex and hippocampus occurring in both instances. This indicates that perhaps the benefits of mindfulness are similar to extinguishing

a fear-conditioned response, which can be achieved through other forms of therapeutic intervention such as exposure therapy (Hölzel et al, 2011b).

2.4.4 Changes in self-perception

It is a Buddhist belief that there is no such thing as a static "self" and that viewing yourself in this way is the cause of unhappiness (Olendzki, 2010). By non-judgementally observing thoughts, feelings, sensations, and events as they occur, we take on a more objective perspective which has been defined in the literature as the process of "de-centring" (Carmody, 2009). Changes in self-perception as a result of mindfulness have been established in the literature, with participants who completed a seven-day mindfulness retreat reporting higher self-esteem, higher self-acceptance and a more positive representation of the self (Emavardhana and Tori, 1997). Individuals more experienced in mindfulness have been found to display self-concepts with characteristics that have been linked to less mental-health difficulties (Haimerl and Valentine, 2001).

Mindfulness has been found to mediate activity in the neurological areas which have been linked to the "self" such as the posterior cingulate cortex and preceneus (active when assessing how relevant a stimuli is to you) and the medial prefrontal cortex (the area implicated in storing memories of self-traits). These areas are highly active during rest states and when the mind is wandering (Northoff et al, 2006). When comparing the results of Magnetic Resonance Imaging (MRI) of individuals in a mindfulness versus resting state, decreased activity in these areas was found when individuals were engaging in mindfulness (Ott et al, 2010). The results suggest that through the action of mindfulness, one can decrease activity in the brain areas linked to the self, thus taking a step back from the "self" and engaging what is considered by Carmody (2009) as "de-centring". Lastly, as aforementioned, changes in grey matter concentration in the hippocampus, posterior cortex, and the temporo-parietal junction can occur after a period of engaging in mindfulness (Hölzel et al, 2011b).

These brain areas have been implicated in the processes involved in thinking about past and future events as well as theory of mind (Saxe and Kanwisher, 2003). Therefore, changes in grey matter concentration in these areas (post-mindfulness) can potentially have an impact on an individual's self-perception.

In conclusion, in order to reach an enhanced level of self-regulation, Hölzel et al (2011b) proposes that to effectively practise mindfulness, an individual must engage in the inter-related processes described above: attention regulation, body awareness, emotion regulation and changes in self-perception. When an emotional reaction is triggered as a result of an external or internal stimuli (perhaps a feared object in the environment or a sad memory), the executive attention system identifies that the mind is distressed and not in a state of "mindfulness". The increased body awareness allows detection of physiological changes such as a fastening of heart-rate, and an emotional response is identified. The emotion is observed with non-reactivity, and the meditator recognises this feeling as transitory. The initial importance of the external/internal stimuli is reduced and a change in self-perception occurs. As a result of this process, the external/internal stimuli no longer causes the individual any distress.

2.5 Areas of application

Mindfulness interventions have been used in a wide variety of contexts and settings in the healthy population, the psychiatric population, and the forensic population, with both adults and children. Mindfulness has been effectively applied in educational settings (which will be discussed at length in Chapter Three), the workplace, forensic/correctional settings, psychiatric settings and health settings. Positive applications of mindfulness in the workplace include: completion of '.b foundation course' from the 'Mindfulness in Schools Project' for teaching staff, where a reduction in work-related stress and an improvement in well-being was reported (Beshai et al, 2016), improvement in teaching self-efficacy and life satisfaction

in trainee teachers after completing a 'Mindfulness-based Wellness Education programme' and improvements in "emotional exhaustion" in nursing staff after a brief mindfulness-based intervention (Poulin et al, 2008).

Forensic settings' use of mindfulness has become increasingly popular for improving emotion regulation (Gillespie et al, 2012). For example, Singh et al (2010) discuss the use of mindful observation of thought practice, alongside techniques from "Meditation on the soles of the feet" (a programme which focuses on centring your attention to a neutral part of the body thus away from stimuli triggering an emotional response) with convicted sex-offenders with special educational needs. Use of mindfulness with this population was found to increase the offenders' ability to self-regulate in relation to their inappropriate sexual arousal. Further to this, mindfulness interventions have been used in forensic settings with offenders with drug-related convictions to improve mood, self-efficacy, and self-esteem and to reduce hostile behaviour (Samuelson et al, 2007; Lee et al 2011). Mindfulness practices are also incorporated into Dialectical Behaviour Therapy, a therapeutic intervention used with individuals with Borderline Personality Disorder (Williams and Swales, 2004).

Mindfulness applications in the psychiatric population are well documented in the literature, both with adults and young people, and include mindfulness-based interventions with individuals experiencing psychological distress in settings such as adolescent community mental health clinics/outpatient psychiatric clinics (Bogels et al, 2008; Biegel et al, 2009) and inpatient facilities for individuals experiencing psychosis (Jacobsen et al, 2011). In addition, a mindfulness-based stress reduction programme was effectively used with staff members of an acute psychiatric unit to decrease staff stress-levels, increase staff self-care and indirectly impact on positive patient outcomes (Brady et al, 2012). Similarly, the concept of "teaching self-care to caregivers" through mindfulness-based stress reduction programmes has been

highlighted as beneficial for trainee therapists in terms of the therapists' social and emotional well-being (Shapiro et al, 2007).

Moreover, mindfulness has been used in the context of physical health, for example, MacKenzie et al (2007) found a mindfulness-based stress reduction programme to improve the quality of life and decrease symptoms of depression and stress in patients with cancer. Mindfulness-based programmes have also been found to be effective in self-efficacy relating to pain management (Cusens et al, 2010) and to improve quality of life in individuals following a mild to moderate traumatic brain injury (Bédard et al, 2003).

As the evidence above indicates, mindfulness has been used in a variety of contexts to achieve a plethora of positive outcomes such as: to decrease stress levels, increase self-efficacy, and increase self-regulation. The specific benefits of mindfulness for both adults and children will be discussed in more detail in Section 2.6.

2.6 The benefits of mindfulness according to international research

2.6.1 Social, emotional and mental health benefits

Many social, emotional and mental health benefits have been established as a result of mindfulness, for example, mindfulness decreases rumination (Chambers et al, 2008) and experience in mindfulness practice has been found to be negatively correlated with scores on self-report rumination measures (Ramel et al, 2004). Rumination plays a key role in the maintenance of mental health conditions such as anxiety and depression, perhaps then it is not surprising that mindfulness has a positive impact on mood. A meta-analysis of thirty-nine studies reporting the efficacy of mindfulness-based interventions found a reduction in anxiety and depressive symptoms in all studies, with effect sizes largest for the clinical population (Hofmann et al, 2010). Similar results have been found in the child and adolescent population with reduced levels of anxiety, rumination and depression post-mindfulness (Sibinga et al,

2013; Liehr and Diaz, 2010; Kuyken et al, 2013), a reduction in self-reported suicidal ideation in comparison to controls (Britton et al, 2014), and an increase in reported positive mood post-mindfulness intervention (Broderick and Metz, 2009).

In addition, mindfulness has been found to promote therapists' empathy for their clients (Wang, 2007) and self-compassion in healthcare professionals and therapists in training (Shapiro et al, 2005; Shapiro et al, 2007). Individuals who are considered to be more "mindful" are thought to experience less emotional stress in regards to relationship difficulties and are thought to tackle relationship conflict with less anxiety and anger (Barnes et al, 2007).

As mentioned in Section 2.4.3, mindfulness has been found to improve emotional regulation (Hölzel et al, 2011b), for example, individuals who completed a MBSR programme were shown sad film clips and their neural reactivity was measured using functional Magnetic Resonance Imaging (fMRI). Participants who had completed the MBSR programme displayed less neural activity than they had before the MBSR, as well as in comparison to controls, indicating enhanced emotion regulation when subjected to emotion-eliciting stimuli (Farb et al, 2010). Further to this, MBSR has been found to reduce anxiety in patients with Social Anxiety Disorder, with the authors suggesting that the underlying mechanism for the reduction in symptoms is due to a decrease in emotional reactivity and an increase in emotion regulation (Goldin and Gross, 2010). Emotion regulation has been found to improve in adolescents post-intervention, with participants of the 'Learning to BREATHE' programme experiencing increased emotional awareness and acquisition of emotional regulation strategies (Metz et al, 2013).

2.6.2 Effects on cognitive functioning

Alongside improvements in psychological well-being, enhancement in cognitive functioning has also been reported in the literature, such as an increased ability to focus attention and suppress distracting stimuli (Moore and Malinowski, 2009), and increased retrieval of specific autobiographical memories (Heeren et al, 2009). Further benefits for working memory capacity are discussed by Jha et al (2010). The authors compared the working memory of military soldiers, who engaged in an eight-week mindfulness programme (in what was considered a stressful deployment period), with military soldiers under the same level of stress who did not participate in the programme. The working memory of the soldiers who completed the mindfulness intervention remained stable over time, whereas the working memory of soldiers in the same environment who had not completed the intervention decreased over the course of the deployment. Further to this, the amount of mindfulness practice that the soldier engaged in, positively correlated with working memory performance. These results suggest a protective effect of mindfulness on working memory capacity when individuals are experiencing a time of extreme stress.

Positive effects of mindfulness on cognition have also been found in children and adolescents. Executive functioning in eight and nine-year old children was measured by Flook et al (2010) before and after completing a 'Mindful Awareness Practices' intervention and scores were compared to controls'. Participants who started with a low baseline executive functioning score displayed significant improvement in regulating their behaviour, their metacognitive skills, and global executive control. The impact of mindfulness on attention is also often referred to in the literature, for example, Napoli et al (2005) and Schonert-Reichl and Lawlor (2010) provide teacher report data which evidences an increase in attention after children have completed a mindfulness-based intervention.

2.6.3 Differences in observable behaviour

Alongside self-report data evidencing changes in internal thoughts and feelings, external behavioural changes have been observed after children and adolescents have engaged in mindfulness practices. Examples of behavioural change include: an improvement in children's classroom behaviour as reported by a class teacher (Black and Fernando, 2014), a reduction in behaviours associated with Attention Deficit Hyperactivity Disorder (ADHD) as reported by parents and teachers (Carboni et al, 2013; Klatt et al, 2013), increased engagement in academic work (Carboni et al, 2013), reduction in aggressive behaviour (Singh et al, 2007a; Singh et al, 2007b) and a decrease in disruptive behaviour in school alongside an increase in social and emotional competence (Schonert-Reichl and Lawlor, 2010). Mindfulness has been linked to improvements in social skills (Napoli et al, 2005); this may be explained by a direct correlation between individuals engaging in mindfulness practices and acting with increased awareness and clarity of expression in social interactions (Dekeyser et al, 2008).

2.7 International research on MBIs in educational settings

Felver et al (2016) conducted a systematic literature review identifying the existing published literature on MBIs in schools. The systematic review highlighted limitations in the pre-existing literature and provided recommendations for future research. In summary, the review identified twenty-eight papers which:

- were from peer-reviewed journals
- involved mindfulness as the primary intervention component
- were conducted in school settings;
- and involved children and young people under eighteen years of age.

It is important to highlight that the majority of the studies took place in the United States of America (n=22) and only two of the twenty-eight studies were based in the United Kingdom (Huppert and Johnson, 2010 and Kuyken et al, 2013); these two studies are discussed in more detail in the section titled 'Systematic literature review of mindfulness-based interventions in UK schools' (3.2). Amongst the twenty-eight studies, a range of positive effects were reported, such as: reductions in blood pressure and heart rate (Barnes et al, 2008), teacher-reported improvements in classroom behaviour (Black and Fernando, 2014), parent and teacher-reported improvements in executive functioning (Flook et al, 2010), self-reported decrease in depressive symptoms and social and emotional difficulties (Joyce et al, 2010), self-reported reductions in anxiety (Lagor et al, 2013), self-reported increase in levels of mindfulness (Viafora et al, 2015), and teacher-reported decreases in disruptive behaviour (Schonert-Reichl and Lawlor, 2010).

Felver et al (2016) outlined multiple limitations with the existing literature, for example: the majority of studies used self-report data as the only dependent variable; few studies collected follow-up data; few studies used a multi-method and multi-informant approach to data collection, and few studies collected data on academic achievement and behavioural outcomes. The present study aimed to address some of the limitations in the literature by: collecting both child and class teacher self-report data, collecting both quantitative and qualitative data, and briefly exploring post-intervention outcomes in relation to the children's behaviour, as well as their social and emotional well-being and level of mindfulness.

As aforementioned, only two of the studies included in the meta-analysis (Felver et al, 2016) were based in the UK. Chapter Three provides a detailed summary of six MBIs which have been conducted in educational settings in the UK. The purpose of focusing in detail on the six UK-based studies was to inform the present study's design, based on the strengths and limitations of the existing research.

CHAPTER THREE: LITERATURE REVIEW OF UK-BASED RESEARCH

Chapter Three outlines the current climate in the UK, including policy and future research projects, in relation to mindfulness in educational settings. Following this, a systematic literature review which describes six UK MBI studies in schools will be presented (Section 3.2). Section 3.3 outlines the ways in which the studies from the systematic literature review have influenced the current research's methods/design. Finally, Chapter Three concludes with the aims, hypotheses and research questions for the present study.

3.1 Policy and the current climate in relation to mindfulness in the United Kingdom (UK)

The Department of Health's guidance document, named "No Health without Mental Health" (DoH, 2010), outlines the need for early intervention and prevention in relation to promoting positive mental health, particularly in regards to children and young people:

"By promoting good mental health and intervening early, particularly in the crucial childhood and teenage years, we can help to prevent mental illness from developing and mitigate the effects when it does" (DoH, 2010, p 2)

It is particularly important to consider preventative approaches to mental health difficulties when considering statistics such as the following: 75% of mental health difficulties begin before the age of 24 years, and 50% of mental health difficulties begin by the age of 15 years (Kessler et al, 2005).

A paper by Weare (2013) discusses the evidence and policy context of mindfulness in relation to children and young people and why it is a popular approach, making reference to how mindfulness interventions relate to the government's significant concerns regarding the cost that mental health has on the UK economy. Mindfulness interventions target the "widespread concern" of the continuous increase in mental health difficulties in adults, children and young people. The author states that mindfulness-based interventions can be

preventative, low-cost, universal, with a positive focus on happiness and well-being. Weare (2013, p 150) concludes that there is "an urgent need to fund more robust studies" as research to date primarily involves studies with limitations such as: small samples (with a high proportion of these consisting of volunteer participants), no use of standardised measures, and use of self-report measures.

Since the publication of Weare (2013), a report has been compiled by the 'Mindfulness All-Party Parliamentary Group' (MAPPG) (2015) - 'Mindful Nation UK'- based on over a year's worth of research and inquiry. After outlining the research and parliament hearings that are considered by the MAPPG, the document makes recommendations in regards to four areas of society: health, the workplace, the criminal justice system and education. The MAPPG made two recommendations for education. Firstly, the Department for Education should recruit three teaching schools "to pioneer mindfulness teaching, co-ordinate and develop innovation, test models of replicability and scalability and disseminate best practice" (p 8). Secondly, they propose that there should be a budget of one million pounds a year that schools can bid for from the 'Challenge Fund' which will pay for teacher training in mindfulness. Positively, since the publication of the document by MAPPG, a large amount of money and resources has been invested in to the 'MYRIAD' project, highlighting the current climate's positive attitude to mindfulness-based interventions in both parliament activity and cutting-edge research.

The 'MYRIAD' project is a large-scale project worth 6.4 million pounds which has been launched by the Oxford Mindfulness Centre (OMC). The OMC, founded in 2008, are a branch of the department of Psychiatry at the University of Oxford, with a self-proclaimed mission "to reduce suffering, promote resilience, and realise human potential across the lifespan" (http://oxfordmindfulness.org/business-homepage/about/). 'MYRIAD' refers to the 'Mindfulness and resilience in adolescence programme' and will be run by the following

Principal Investigators who are known pioneers in the field of mindfulness research: Mark Williams, Willem Kuyken, Sarah-Jayne Blakemore and Tim Dalgleish. MYRIAD involves training teachers to deliver mindfulness practices using the '.b' intervention (developed by the 'Mindfulness in Schools Project': Burnett, 2009) to 5700 young people across 76 schools, between the ages of eleven and fourteen years. There are three aims of the project:

1) To explore the effects of the mindfulness training in relation to resilience, thoughts and feelings, different developmental stages, and mental health.

2) To explore the best way of training the participating teachers in the '.b' mindfulness programme.

3) To conduct a randomised control trial to establish the overall efficacy of the mindfulness project, and to consider the outcomes in relation to the cost of the implementation.

As can be seen from the high level of time and economic investment from the Oxford Mindfulness Centre, MBIs in schools are becoming increasingly popular. However, to date, there is limited published research on MBIs in UK school settings.

3.2 Systematic literature review of mindfulness-based interventions in UK schools

The origins and potential mechanisms of mindfulness, as well as its application in a variety of contexts, and the benefits of mindfulness for adults, children and young people, have been summarised. This section focuses on the current published literature on mindfulness-based interventions in educational settings in the United Kingdom (UK). A systematic literature review identified six studies which will be outlined in Section 3.2. Firstly, the systematic literature review process is summarised. Table 1 summarises the six key studies, and the study characteristics, participant characteristics and intervention characteristics are discussed.

Finally, conclusions are drawn from the UK research and its impact on the design of the present study is discussed.

3.2.1 The systematic literature review process

The systematic literature review was conducted using the 'finditbham' search tool. 'Finditbham' was initially searched in January 2016 and was then searched again, to check for any additional published studies, in December 2016. The methodology used for the systematic review was loosely based on the guidelines described by Meade and Richardson (1997) and Jones (2004).

The inclusion criteria for the search included:

- Published articles written between 2000-2016
- Articles which outline and discuss the efficacy of mindfulness-based interventions in a UK school setting

The search terms used were: "mindfulness" AND "school*" and "intervention". This search produced 5,782 results. However, only the first 150 articles were considered; the articles after this point were not relevant and did not meet the inclusion criteria. Two papers which matched the inclusion criteria were found in the 150 articles considered: Ardern (2016) and Thomas and Atkinson (2016). Further to this, the following four papers were found after consideration of both the original papers' references, and research associated with the 'Mindfulness in Schools Project' (Burnett, 2009): Huppert and Johnson (2010), Kuyken et al (2013) , Vickery and Dorjee (2016) and Sanger and Dorjee (2016).

Table 1: Overview of the mindfulness-based interventions in educational settings in the UK

Study	**Number of pts**	**Participant characteristics**	**Intervention details**	**MBI length**	**Measures**	**General outcomes**
Ardern (2016)	5 participated in intervention, 2 males interviewed post-intervention	11-14 years, attending a mainstream secondary, identified as having SEMH	'Mindfulness for Schools' intervention included: teaching of mindfulness principles, mindfulness exercises and promotion of reflection.	12 x 1 hour sessions (twice weekly)	Semi-structured interviews using a 'qualitative narrative approach'	Emergent themes: change in sense of self, increase in self-compassion, optimism regarding future, use of mindfulness-related language, difficulty with non-judgemental awareness in one of the pts.
Thomas & Atkinson (2016)	30 male and female (one wait-list control group)	8-9 years from 2 classes in same school,	'Paws .b' programme (Mindfulness in Schools programme)	6x 1 hour sessions (once a week)	Attention checklist reported by teacher, attention test administered by researcher	Significant positive impact upon attentional functioning (post-intervention and at follow-up) in comparison to wait-list control group Follow-up effects were stronger than initial post- intervention effects (in experimental group)
Huppert & Johnson (2010)	173 male pupils (including control groups)	14-15 years, from 2 fee-paying schools,	MBI based on intervention by Kabat-Zinn (2003) and included: teaching of mindfulness concepts, mindfulness practices e.g. bodily awareness and mindful breathing.	4x 40 min classes once a week 3x 8 min audio files for home practice	Questionnaires administered to measure: mindfulness, well-being, and personality traits. Follow-up interview to measure sustainability	Practice was positively related to mindfulness and well-being, but not resilience. The higher an individual was in agreeableness, emotional stability and openness to experience, the more positive their well-being. 74% of pts said they would continue mindfulness and 43% thought the intervention should have been longer

Kuyken et al (2013)	522 males and females (including control group)	12-16 years from 12 secondary schools	'Mindfulness in Schools' programme included: mindfulness-based stress reduction practices, MBCT practices and contemplative mindfulness traditions	9 scripted lessons	Questionnaires administered to measure: well-being, stress levels, and depressive symptoms. Follow-up interview to assess mindfulness practice.	Fewer depressive symptoms, lower stress and greater well-being were found post-intervention and at follow-up. Higher mindfulness practice was related to better well-being and lower stress at follow-up.
Vickery & Dorjee (2016)	71 males and females (including control group)	7-9 years from three primary schools	'Paws .b' programme (Mindfulness in Schools Project)- see themes described above in Thomas and Atkinson (2016)	12 x 30 mins Optional home practice given 5-10 mins per week of practice during follow-up period	Questionnaires administered to measure: mindfulness, emotional expression, well-being, positive and negative affect, and executive function behaviours (rated by teachers and parents). Non-standardised acceptability questionnaire to assess likeability of the programme.	76% of children reported enjoying the programme Significant decreases in negative affect at follow-up (in comparison to controls) Improvements in meta-cognition reported by teachers at follow-up No significant evidence of: changes in mindfulness, positive affect, expressive reluctance and emotional awareness.
Sanger & Dorjee (2016)	47 male and female pupils (including control group)	16-18 years, from four 6th forms	'.b Foundations' programme (Mindfulness in Schools programme) is based on Williams and Penman (2011): a practical guide to finding peace in a frantic world	9x 50 min sessions (once a week)	Questionnaires administered to measure: mindfulness, perceptions of meta-cognition, and acceptability and enjoyment. Computerised task to measure attention and measurement of EEG*	Average of 65% enjoyment rating In comparison to controls: positive impact on attention processing, self-reported improvements in mind-wandering and metacognitive beliefs, evidence of inhibiting responses to irrelevant stimuli post-intervention and a reduction in self-punishing thoughts.

3.2.2 Study characteristics

Five of the six studies used quantitative measures to assess post-intervention outcomes in a variety of areas such as: attention, stress, mindfulness, and positive and negative affect (Thomas and Atkinson, 2016; Huppert and Johnson, 2010; Kuyken et al, 2013; Vickery and Dorjee, 2016; Sanger and Dorjee, 2016). These studies compared the data collected from the experimental group to a control group/waiting-list control group, with a comparison of six experimental to five control groups in Huppert and Johnson (2010). Ardern (2016) did not use quantitative measures or a control group, but instead focused on the individual experiences of the participants through a qualitative narrative approach.

The six studies varied in their collection of follow-up data; two studies did not collect follow-up data (Sanger and Dorjee, 2016; Ardern, 2016), and one study collected feedback which included participant views on the intervention and the sustainability of mindfulness practice post-intervention (Huppert and Johnson, 2010). Kuyken et al (2013) and Vickery and Dorjee (2016) collected data at three months follow-up and Thomas and Atkinson (2016) collected follow-up data both at eight weeks and fourteen weeks post-intervention. In three of the studies, teacher data were not collected at any point during or after the intervention: Ardern (2016), Huppert and Johnson (2010) and Sanger and Dorjee (2016). Kuyken et al (2013) collected data which explored the teacher's experience of delivering the mindfulness intervention, but no data were collected in relation to the dimensions being measured through the children's self-report measures (well-being, stress and depressive symptoms). Teacher data were collected in Thomas and Atkinson (2016); teachers completed an attention check-list which corresponded to the cognitive assessment administered to measure the children's attention skills. Finally, in Vickery and Dorjee (2016), both teacher and parental data were collected to measure their perception of the children's behaviours related to executive

function, in addition to the children's self-report measures focused around well-being and mindfulness.

3.2.3 Participant characteristics

The age range of participants across the six studies was large, with the youngest participants aged seven years and the oldest participants aged eighteen years. Only two of the six studies implemented mindfulness-based interventions aimed at primary-aged pupils in mainstream environments (Thomas and Atkinson, 2016; Vickery and Dorjee, 2016). Two of the six studies included participants in mainstream secondary schools, aged between eleven and sixteen years (Ardern, 2016; Kuyken et al, 2013), with a third in a mainstream fee-paying secondary school (Huppert and Johnson, 2010). One study included an intervention aimed at sixth form pupils, aged between sixteen and eighteen years (Sanger and Dorjee, 2016).

3.2.4 Intervention characteristics

All six of the studies named a pre-existing mindfulness programme which either solely formed, or was the basis for, the studies' mindfulness intervention. Four of the six mindfulness interventions were programmes designed by the 'Mindfulness in Schools Project' (MiSP) (Burnett, 2009). More specifically, the primary aged participants completed the 'Paws .b' programme (Thomas and Atkinson, 2016; Vickery and Dorjee, 2016); the secondary aged participants completed an unspecified programme based on the MiSP curriculum in Kuyken et al (2013); and the sixth form students in Sanger and Dorjee (2016) completed '.b foundations', a programme designed for adults and educators. The intervention implemented in Ardern (2016) was named 'Mindfulness for Schools' (Cattley and Lavelle, 2009) and a very brief description of the intervention was given. Huppert and Johnson (2010) did not name a specific programme, but described the intervention as a mindfulness meditation

intervention based on the programme by Kabat-Zinn (2003), with a focus on awareness and acceptance.

The studies varied in the amount of detail given on the intervention content and implementation. For example, Kuyken et al (2013) and Sanger and Dorjee (2016) did not give any examples of session content, whereas Thomas and Atkinson (2016) and Vickery and Dorjee (2016) gave an overview of the intervention curriculum including the six themes that the intervention encompassed. Ardern (2016) provided a summary of the intervention's focus, with the description as brief as "sessions involved teaching of mindfulness principles, mindfulness exercises, and poems aimed at promoting reflection and reinforcement of mindfulness concepts" (p 6). Huppert and Johnson (2010) "covered the concepts of awareness and acceptance, and the mindfulness practices included bodily awareness of contact points, mindfulness of breathing and finding an anchor point, awareness of sounds, understanding the transient nature of thoughts, and walking meditation" (p 267) . Four of the six studies reported giving the participants homework in between sessions (Huppert and Johnson, 2010; Ardern, 2016; Thomas and Atkinson, 2016; Vickery and Dorjee, 2016) and none of the studies reported scheduled mindfulness practice in school between intervention sessions.

There was a variation between studies in regards to whether the MBIs were delivered by class teachers, or mindfulness practitioners. Two of the studies (Sanger and Dorjee, 2016; Vickery and Dorjee, 2016) stated that the MBIs were delivered by class teachers. The MBIs in Kuyken et al (2016) and Thomas and Atkinson (2016) were both delivered by trained mindfulness practitioners, however in Kuyken et al (2016), the mindfulness practitioners were individuals who already taught at the participating schools. Huppert and Johnson (2010) and Ardern (2016) do not explicitly state who the MBIs were delivered by, however, the acknowledgments section in Huppert and Johnson (2010) suggest that the class teachers

delivered the interventions. The expertise of the intervention facilitator (the researcher/s, class teachers with support from the researcher/s, or independent mindfulness practitioners) is likely to vary dependent on their role and their previous experience of practising and delivering MBIs. Expertise and previous experience is likely to affect the delivery and fidelity of the intervention and in turn, may have an impact on the effectiveness of the intervention.

3.3 The present study

After consideration of the six articles published in the United Kingdom on mindfulness-based school interventions, the following conclusions have informed the current study's methods:

- There is a narrow range of intervention programmes which are included in the studies; they are based on either the 'Mindfulness in Schools Project', the 'Mindfulness for Schools' programme, or around the work of Kabat-Zinn (2003). The current study includes an intervention, "60 mindful minutes" (The Nurture Group Network, 2014), for which there is currently no published research.

- There has been no pre-intervention, post-intervention or follow-up teacher or parental data collected in regards to participants' social and emotional well-being, prosocial behaviour and peer relationships. The current study aimed to address this gap through the collection of multi-method multi-informant data. This will be outlined in detail in the method section (Chapter 4).

- Aside from the use of a Likert scale in Kuyken et al (2013), there has been no in-depth exploration of teacher views, on either the delivery of a mindfulness intervention or the observable effects (if any) on the pupils. This study collected class teacher views, both pre and post-intervention (quantitatively), and at follow-up (qualitatively). Further information can be found in Chapter 4.

- There are no reported attempts to provide psychoeducation to parents on the concepts and benefits of mindfulness, and how mindfulness might be practised in the home environment. Psychoeducation was offered to the parents of the participating pupils. Further details can be found in Chapter 4.

- Although homework was given in four of the six UK-based studies, there is no mention in the UK literature of whole-class/group mindfulness practice between sessions. Practising mindfulness outside of the sessions, but as a part of the school day, is easier to monitor than homework tasks where pupils are likely to access varying degrees of practice. The current study requested that the teacher and pupils engage in mindfulness practice together, outside of the sessions. Exercises completed by the class can be seen in Appendix 15.

The primary aim of the present study was to establish the effectiveness of a classroom-based mindfulness intervention facilitated by a Trainee Educational Psychologist (TEP) and a class teacher with children in a Year 4 class (aged 7 and 8). The secondary aim of the study was to add to the sparse published literature on MBIs conducted in schools in the UK. Based on previous research, the following was predicted:

- The children's level of anxiety and experience of phenomena associated with depression (such as low mood, difficulties with sleeping, difficulties with eating, and a loss of interest in previously enjoyed activities) would be lower post-MBI, according to the children's self-report measures.

- The children would show higher levels of mindfulness post-MBI, according to the children's self-report measures.

- The children would show higher levels of prosocial behaviour, lower levels of hyperactivity/inattention, and lower levels of and peer relationship difficulties, according to the class teacher self-report measure.
- The children would show a high level of acceptability of the MBI, based on qualitative feedback from the children and the semi-structured interview data from the class teacher.
- The positive changes expected, in relation to social and emotional well-being, levels of mindfulness, prosocial behaviour, hyperactivity/inattention and peer relationships, would be significantly larger between time point 2 and 3 (pre and post MBI) and 3 and 4 (post-MBI and follow-up) than 1 and 2 (pre and post PSHE/normal school).
- It was predicted that positive effects would be maintained at follow-up.

It was intended that the results would provide support that this brief, low-cost, MBI could be effectively conducted in a mainstream primary classroom environment with facilitation from a class teacher. The research was conducted in a West Midlands Local Authority (LA). Participants were pupils from one Year 4 class (aged 7 and 8), alongside their class teacher, from a Catholic mainstream primary school within this West Midlands LA.

3.4 Research questions (RQs)

1. Does the MBI lead to improvements beyond PSHE/normal school in the children's ability to be "mindful"?
2. Does the MBI lead to improvements beyond PSHE/normal school in the children's levels of social and emotional (SE) well-being/prosocial behaviour/hyperactivity/inattention/peer relationship difficulties?

3. Is the MBI well-accepted by the pupils and class teacher and if so, what factors contribute to this?

4. Is there evidence of maintenance and durability of mindfulness according to the pupils and class teacher and if so, what factors contribute to this?

In order to provide transparency around the formation of the RQs in the current study, Table 2 lists the four RQs with examples of supporting literature alongside each question. The examples of literature which have been provided in Table 2 have measured the same (or very similar) domain/s as the current research.

Table 2: The current study's RQs with examples of supporting research

Research question	**Examples of supporting literature**
Does the MBI lead to improvements beyond PSHE/normal school in the children's ability to be "mindful"?	Ardern (2016), Huppert and Johnson (2010), Sanger and Dorjee (2016), Vickery and Dorjee (2016)
Does the MBI lead to improvements beyond PSHE/normal school in the children's levels of:	
- social and emotional (SE) well-being	Hofmann et al (2010), Huppert and Johnson (2010), Kuyken et al (2013), Liehr and Diaz (2010), Sibinga et al (2013)
- prosocial behaviour	Black and Fernando (2014), Schonert-Reichl and Lawlor (2010), Napoli et al (2005)
- hyperactivity/inattention	Carboni et al (2013), Klatt et al (2013), Thomas and Atkinson (2016)
- peer relationship difficulties	Dekeyser et al (2008), Napoli et al (2005), Singh et al (2007a), Singh et al (2007b)
Is the MBI well-accepted by the pupils and class teacher and if so, what factors contribute to this?	Huppert and Johnson (2010), Sanger and Johnson (2010), Vickery and Dorjee (2016)
Is there evidence of maintenance and durability of mindfulness according to the pupils and class teacher and if so, what factors contribute to this?	Huppert and Johnson (2010), Kuyken et al (2013)

CHAPTER FOUR: METHODOLOGY

3.1 Epistemology and study design

The methodology of this study reflects a pragmatist approach. Pragmatism rejects traditional dualisms, such as subjective versus objective and positivism versus constructionism, and instead "prefers more moderate and common-sense versions of philosophical dualisms based on how they work in solving problems" (Johnson and Onwuegbuzie, 2004, p 18). Knowledge is believed to be formed through both an individual's constructions and the reality of their experiences, with the "truth" viewed as something that is changeable (Johnson and Onwuegbuzie, 2004). A pragmatist approach to research is primarily focused on "what works", using both qualitative and quantitative methods to answer the research question, whilst considering both subjective and objective "truth" (Morgan, 2007). The overarching aim of the study was to establish whether the MBI "worked" therefore, pragmatism best fits with my beliefs; using a combination of quantitative and qualitative methods was the best way to gain a holistic picture in regards to the present study's aims/research questions.

The use of quantitative measures could be viewed as taking a positivist approach; positivism is conceptualised by Robson (2011) as establishing 'reality' by objectively measuring human behaviour. Alternatively, the collection of qualitative data may be viewed as taking a constructionist approach, whereby each participant's interpretation of questions and answers may differ from individual to individual (Robson, 2011). However, the present study took a mixed methods approach (MMA) to research within a single case study design (see section 3.1.1 for fuller discussion of case study design). A MMA has been conceptualised in the literature as choosing a combination of qualitative and quantitative methods which have different strengths and weaknesses (Johnson et al, 2007) to answer research question/s. It has been termed the third research paradigm in education research, with the quantitative and

qualitative paradigm being the first and second (Johnson and Onwuegbuzie, 2004). Tashakkori and Teddlie (1998) have described using a MMA as going beyond the triangulation of data and stated that a deeper understanding of research findings can be gained by using a combination of qualitative and quantitative methods. This "comprehension" of data can ameliorate a researcher's understanding of a particular phenomenon (Morse, 2003).

There are many strengths and limitations of a MMA, such as:

✓ The use of more than one method can increase the researcher's confidence in their results (Dunning et al, 2008).

✓ A MMA can be used to "discover new perspectives or develop new measurement tools" (Tashakkori and Teddlie, 1998, p 43).

× Data collection and analyses when using both quantitative and qualitative methods can be timelier and more costly than using either qualitative or quantitative methods alone (Dunning et al, 2008).

× There has been debate around the consideration of qualitative and quantitative data simultaneously to explore the same phenomenon as they both have different epistemological and ontological underpinnings (Dunning et al, 2008).

A MMA is suited to the present study for a number of reasons. Firstly, as well as establishing whether there had been any changes in the children's thoughts, feelings and behaviours through the use of quantitative measures, it was important to explore using qualitative methods what these changes actually looked like for the children and the class teacher (CT). In addition, the present study aimed to explore what it was about the mindfulness sessions that may have contributed to any changes in outcomes. The use of qualitative methods could be used to further explore domains/constructs that were being measured through quantitative

measures, and either confirm or contradict the quantitative data. Finally, when considering future implementation of the intervention in educational settings, it was necessary to explore what aspects of the intervention were well-accepted by the children and class teacher, as well as identify any barriers to implementation.

3.1.1 Case study design

The present study's design is conceptualised as a single case study. A case study can be defined as "a strategy for doing research which involves an empirical investigation of a particular contemporary phenomenon within its real life context using multiple sources of evidence" (Robson, 2002, p 178). A case study is "in-depth research into one case or a small set of cases" with a "case" referring to both an individual and a group (Thomas, 2009, p 115). The present study is a single case study of one Year Four class in a mainstream primary school (including their class teacher). This single case design meets the criteria for what Thomas (2009) terms an 'instrumental study' whereby the study has been conducted "for the purpose of helping to understand or illustrate something in relation to a research question" (p 116). Similarly, Yin (2009) proposed five potential reasons for completing a case study, with the current study matching what Yin (2009) terms as a 'critical case': a case that aims to test pre-existing theories.

Arthur et al (2012) stated that multiple methods of data collection and different sources of information can be used in a case study design to gain an in-depth view of the case being studied. It was deemed appropriate to use a single case study design as the children's social, emotional well-being and behaviour was investigated in detail, using a multi- method and multi-informant approach. In order to answer the research questions, it was felt that both qualitative and quantitative methods were suitable. The aim of this study was not to generalise the findings to the wider population, but to establish any positive outcomes for the children

and class teacher in this particular case and to begin to explore what may have contributed to these outcomes. Ethical considerations associated with the current research can be found in section 3.5 (Table 4).

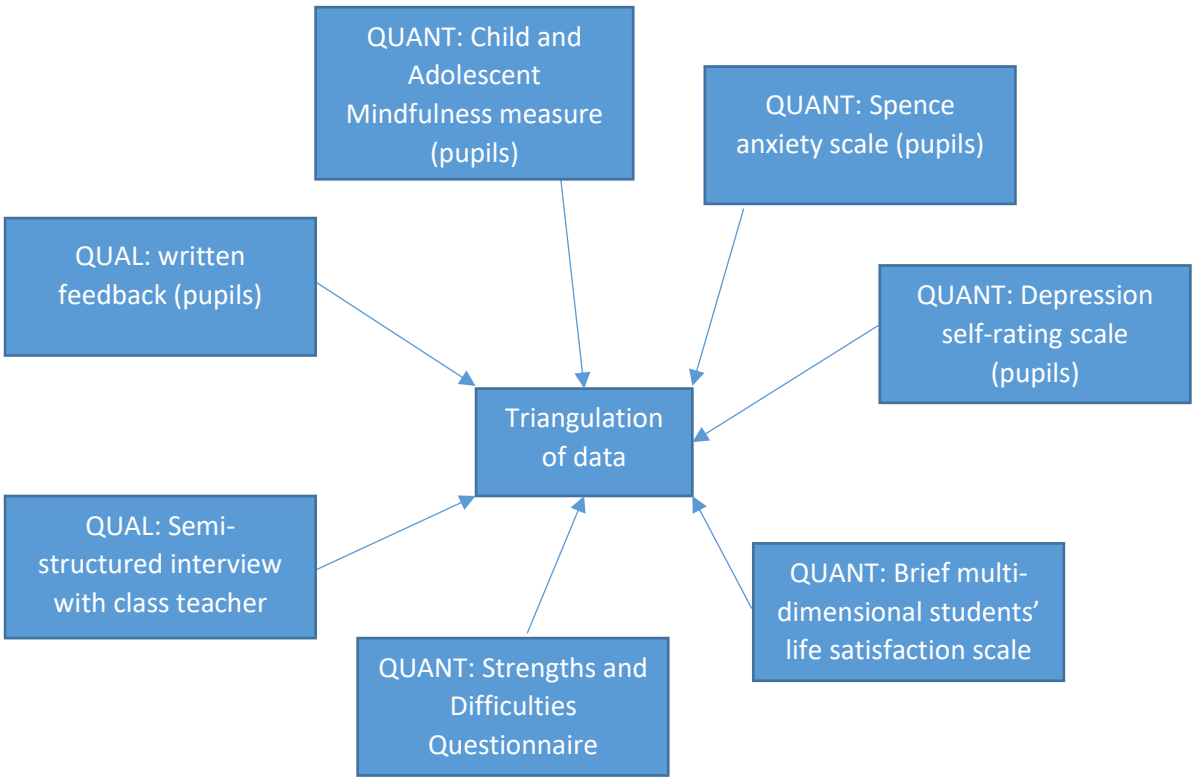

Figure 1: Summary of qualitative (QUAL) and quantitative (QUANT) data collection methods

3.2.1 School characteristics

The research was conducted in an inner-city Catholic primary school in the West Midlands. This was a school that the researcher (Melissa Carey) was already conducting work in as part of the local authority placement. School staff had previously expressed an interest in targeting social, emotional and mental health difficulties in school and so were considered an appropriate school to ask to participate in the present study.

The school is a smaller than average primary school which became an academy in 2013. An academy is a state-funded school, with funding received by the Department for Education, and is independent of local authority control. The school received a rating of "good" in their most recent Ofsted inspection in January 2015. As reported in the 2015 Ofsted report, the majority of the pupils are from a minority ethnic background and the school has a higher than average proportion of children with English as an additional language. The number of children with a special educational need or disability is described as "broadly in line with the national average", at just under one in five pupils. The level of Pupil Premium, funding provided by the government for pupils who are looked after children (a child who is looked after by their local authority) or receive free school meals (an indicator of social deprivation), is higher than the national average at one pupil in three.

3.2.2 Class characteristics

For the purposes of running the intervention, a Key Stage 2 class was recruited; the class were a Year 4 class sample of 28 children (15 females, 13 males), aged 7 and 8 years old. Specific demographics were not collected due to the universal nature of the intervention. The female class teacher also took part in the research, completing questionnaires, completing activities in class between the intervention sessions, co-delivering the intervention sessions, and participating in a semi-structured interview after the final follow-up session.

3.2.3 Overview of the intervention

The intervention which was used in the study was named '60 mindful minutes: developing mindful behaviour in the nurture group' and was developed by Tina Rae, The Nurture Group Network (2014). The intervention comprises 60 cards which outline simple mindfulness activities. The activities are designed so that they can be completed in a group and/or on an individual level. The mindfulness practices can be categorised as: 'thinking and breathing'

(introducing basic mindfulness concepts involving observing, thinking and regulation of thoughts and emotions), 'thinking and moving' (activities which include movement and physical control) or 'thinking and recording' (activities which involve recording mindful behaviours both verbally and pictorially).

The order of activities is designed so that the level of difficulty increases as the activity number increases. The activities are accompanied by a brief user guide which outlines mindfulness and its benefits and then provides the reader with information on nurture groups. The lesson plans for the six sessions, which can be seen in full in Appendix 11, were developed by the researcher. They consist of activities from the '60 mindful minutes' intervention package that were a) felt best suited to the age group b) appropriate for the classroom/hall environment and c) required little/no planning by the class teacher (for ease of implementation). The lessons were planned week-by-week by the researcher, following each session. This was to ensure that the activities which were chosen: were suited to the children's needs identified during sessions, incorporated the children's interests based on their enjoyment of specific activities, and complimented (but did not overlap with) the activities which the class teacher had completed with the children during the week. The activities were delivered as recommended on the activity cards ('60 mindful minutes': The Nurture Group Network, 2014), however in addition to the activities, discussions were facilitated by the researcher in relation to the skills being practised during the sessions and how they relate to the concepts of mindfulness, and the applicability of mindfulness in other contexts. Questions asked by the researcher included:

- What skills are we practising in this activity?
- How are we practising mindfulness here?
- When can we use mindfulness?

The class teacher was encouraged to complete activities with the class between the intervention sessions. The class teacher handbook containing these activities can be seen in Appendix 7. Table 2 below provides a brief overview of the session content, including the activities completed (further details on these activities can be found in Appendix 11), and the skills which the activities aimed to develop.

Table 3: Details of the MBI sessions

Session number	**Activities completed**	**Skills practised**
1	a) Introduction to mindfulness (including 'Kung Fu Panda' clip)	
	b) My still place	Relaxation and meditation, visualisation and breathing
	c) Drawing meditation activity	Focusing on the present moment, attention and concentration
	d) Breathe out the tension on your mountain	Relaxation and meditation, mindful breathing
2	a) Stand up and be counted	Mindful movements, attention and concentration, focusing on the movements of others, awareness and recognition of non-verbal language
	b) Mindful movements game	Mindful movements, attention and concentration, focusing on the movement of others
	c) A relaxing river	Visualisation, relaxation and meditation
3	a) Three mindful breaths	Mindful breathing
	b) Peaceful place	Relaxation, visualisation
	c) The game of five	Gratitude, attention to detail, recognition of the senses
4	a) Practising stillness	Relaxation, paying attention to/awareness of bodily sensations
	b) A mindful walk	Mindful movement, focusing on the present moment, paying attention to/awareness of bodily sensations
	c) The 'Hi game' version 2	Awareness of bodily sensations, non-judgment of thoughts, positive peer interaction
	d) Seaweed	Visualisation, awareness of physical sensations, thoughts and feelings
5	a) Parade thought watching	Awareness and non-judgement of thoughts
	b) Pass the drawing game	Attention and concentration, attention to detail, focusing on the present moment
	c) Manage uncomfortable feelings	Paying attention to/awareness of negative bodily sensations, breathing, management of the bodily sensation through touch
6	a) My still place (repeated)	Relaxation and meditation, visualisation and breathing
	b) Pass the drawing game (repeated)	Attention and concentration, attention to detail, focusing on the present moment
	c) See and be free	Noticing details without passing judgment, attention and concentration, positive peer interaction
	d) Three mindful breaths (repeat)	Mindful breathing

There were six sessions, lasting approximately 50 minutes each. The sessions were consistently held from 10.10-11am on a Wednesday morning. Before delivering the sessions, the researcher undertook extensive reading and independent practice in mindfulness-based practices to familiarise herself with both the underlying concepts and the practical applications. For sustainability and maintenance purposes, the researcher delivered the first two sessions with the class teacher observing and then the remaining four sessions were co-delivered. The class teacher was encouraged to complete mindfulness-based activities with the children between sessions. Each week, the class teacher would provide the researcher with a record of the activities that they had completed that week (examples can be seen in Appendix 15).

3.3 Measures

See Appendix 8 for further details on the quantitative measures.

3.3.1 Strengths and Difficulties Questionnaire (Goodman, 1997)

The Strengths and Difficulties Questionnaire (SDQ) is a short questionnaire for children and young people aged from 3-16 years, as well as parents and teachers, and focuses on reporting observable behaviour. It consists of twenty-five items which are divided into five subscales: emotional symptoms, conduct problems, hyperactivity/inattention, peer relationship problems and prosocial behaviour. The Cronbach's alpha, a measure of reliability of psychometric measures, was found to be 0.77 for the parental SDQ and 0.81 for the teacher SDQ for the total difficulties scores (Mieloo et al, 2012). Palmieri and Smith (2007) found the SDQ to have "moderate to strong internal reliability" across the questionnaire's five subscales.

There are multiple versions of the questionnaire, intended for differing audiences such as educationalists, researchers and clinicians. Parents, teachers and children aged eleven years or over are frequently asked to complete the SDQ to contribute to clinical assessment of an

individual child. Due to the age of the participating children (8-9 years old), and their completion of four alternative measures, the SDQ was only filled out by the children's parents and class teacher. The SDQ was sent out to the parents via school at four time points: before the PSHE only term began ('Pre PSHE'), at the end of the PSHE only term ('Post PSHE'), after the children had completed the MBI ('Post MBI') and at follow-up ('Follow-up). The children's class teacher also completed an SDQ for each child at these four time points. The aim of using the SDQ was to obtain a general overview of the participants' social and emotional well-being and behaviour (as reported by teachers and parents).

3.3.2 Child and Adolescent Mindfulness Measure (Greco, Baer & Smith, 2011)

The Child and Adolescent Mindfulness Measure (CAMM) is a self-report questionnaire, developed in the United States of America, which measures mindfulness skills in school-aged children and adolescents. More specifically, the CAMM is used to "assess present-moment awareness and non-judgmental, non-avoidant responses to thoughts and feelings" (Greco et al, 2011). The questionnaire includes ten statements such as '*At school, I walk from class to class without realising what I'm doing'*. Participants must choose an answer out of the following*: 'never true', 'rarely true', sometimes true', 'often true' or 'always true'*. To compute a total mindfulness score, all scores are reversed and then added together; a higher score represents a higher level of mindfulness. Greco et al (2011) conclude that the measures "appears to be a developmentally appropriate measure with adequate preliminary evidence for the reliability and validity of its scores". The measure has a Cronbach's alpha of 0.81.

Once again, the CAMM was given to the participants at four time points: before the PSHE term began ('Pre PSHE'), at the end of the PSHE only term ('Post PSHE'), after the children had completed the MBI ('Post MBI') and at follow-up ('Follow up'). The aim of using the CAMM was to measure the children's level of mindfulness.

3.3.3 Depression Self-Rating Scale for Children (DSRS-C) (Birleson, 1981)

The Depression Self-Rating Scale for Children (DSRS-C) is an 18-item standardised questionnaire aimed to assess symptoms of depression in children aged between 8-14 years. The measure cannot be used alone to make a psychiatric diagnosis, rather it provides an indication of whether a child may need further assessment and/or additional support. The measure covers the three domains of depression: negative thinking, low mood and reduced activity. The measure includes statements such as *'I enjoy things as much as I used to'* and *'I feel like crying'.* Participants must then circle either *'mostly', 'sometimes', or 'never'.* In a school sample in Ivarsson and Gillberg (1997), a high internal consistency was established with a Cronbach's alpha of 0.88.

This questionnaire was given to the participants at the same four time points: 'Pre PSHE', 'Post PSHE', 'Post-MBI' and 'Follow-up'. The aim of using the DSRS-C was to establish whether the children were experiencing any phenomena associated with depression such as low mood, difficulties with sleeping, difficulties with eating, and a loss of interest in previously enjoyed activities.

3.3.4 The Brief Multi-dimensional Students' Life Satisfaction Scale (BMLSS) (Seligson et al, 2003)

The brief multi-dimensional students' life satisfaction scale (BMSLSS) is a brief measure with only 6 items and assesses life satisfaction in children aged 8-18 years. Participants are asked to rate their satisfaction across six different areas: family, friends, school, living environment, self and global life satisfaction. Example statements included: *'I would describe my satisfaction with my family life as..'* and *'I would describe my satisfaction with my school experiences as…'* and participants then select one of the following options: *'very dissatisfied', 'dissatisfied, 'quite dissatisfied', 'dissatisfied', 'mixed'*, '*quite satisfied,' 'satisfied', or* '*very*

satisfied'. Seligson et al (2003) established a strong internal consistency for the measure, with a Cronbach's alpha score of 0.75 for the BMSLSS total score when tested on an early-adolescent sample.

This questionnaire was given to the participants at four time points: 'Pre PSHE', 'Post PSHE', 'Post MBI' and 'Follow-up'. The aim of using the BMLSS was to gain a broad overview of the children's life-satisfaction.

3.3.5 The Spence Children's Anxiety Scale (SCAS) (Spence, 1998)

The Spence Children's Anxiety Scale (SCAS) consists of 44 items which assesses six domains of anxiety including generalized anxiety, panic/agoraphobia, social phobia, separation anxiety, obsessive compulsive disorder and physical injury fears. The SCAS is a measure is intended for use with children aged seven upwards. Participants are asked to rate the extent to which they experience each symptom on a four-point scale, choosing from *'never', 'sometimes', 'often'* or *'always'.* SCAS items include statements such as: *'I worry about being away from my parents', 'I suddenly feel as if I can't breathe when there is no reason for this'* and *'I can't seem to get bad or silly thoughts out of my head'.* Internal consistency was reported as high in Spence (1998) with a co-efficient alpha of 0.92. Further to this, test-retest reliability after a six month period was moderate, with a correlation coefficient of 0.60.

Once again, this questionnaire was given to the participants at four time points: 'Pre PSHE', 'Post PSHE', 'Post MBI' and 'Follow-up'. The aim of using the SCAS was to establish the children's levels of anxiety, and more specifically, to gain a detailed insight into the children's anxiety through analysis of scores by sub-scale.

3.3.6 Semi-structured interview with the class teacher

After the follow-up session, a semi-structured interview with the Year 4 class teacher was conducted. The interview was devised to be brief and the questions explored her perception of the children's behaviour, social and emotional well-being, life-satisfaction, and mindfulness ability on completion of the intervention. A semi-structured interview with open-ended questions was used to gather class teacher views in a systematic and comprehensive manner and to make greatest use of interview time and to retain a focus on the topic of mindfulness-based practice (DiCicco-Bloom, 2006; Jamshed, 2014) .The questions correspond to the quantitative measures described above. The aim of the interview was to explore the extent to which the teacher had incorporated mindfulness-based practices into her personal life, and whether she intended to continue using these practices in the classroom (see Appendix 9). A semi-structured interview allowed for follow-up on interesting points, whilst following a pre-determined list of points to be covered which corresponded to the quantitative measures and research aims/questions. The questions and prompts used in the semi-structured interview are summarised in Table 3 below, alongside the question rationale.

Table 4: Class teacher interview schedule

Question number	**Question**	**Prompts**	**Question rationale**
1.	Thinking back to during the sessions, can you tell me how you think the children found the sessions?	Anything they found particularly difficult? Anything they found particularly easy? Anything they particularly enjoyed?	Introductory question to initiate discussion and to establish acceptability of the intervention by the children
2.	Have you noticed any change (positive or negative) in the children's thoughts, feelings and behaviours since they began mindfulness?	Any difference in levels of anxiety? Any difference in mood? Any difference in life satisfaction? Any difference in behaviour inside/outside the classroom?	Question and specific prompts correspond to domains measured by quantitative measures on social and emotional well-being (SCAS, DSRS-C, BMLSS, SDQ) Addresses RQ 2

3.	Have you noticed any change in the children's ability to be mindful? E.g. paying attention to one thing at a time, allowing themselves to have certain thoughts, noticing their surroundings	During mindfulness activities During everyday life at school	Question and prompts correspond to the quantitative measure of mindfulness (CAMM) Addresses RQ 1
4.	Have you noticed any difference in the children's attention and concentration?	During mindfulness activities During everyday life at school	Corresponds to a subscale on the SDQ Addresses RQ 2 Explore the teacher's perceptions of observable behaviour in the classroom after the MBI
5.	Have you continued to use any mindfulness during class since the sessions ended?	Which activities in particular? Do you think that this has had any effect on the children's thoughts, feelings and behaviour?	Explores the sustainability and maintenance of MB practices Important to establish when considering whether any positive effects found at follow-up could be related to continued mindfulness practice
6.	How easy or difficult have you found facilitating the mindfulness activities and why?	Anything you've found hard? Anything you've found easy?	Explores the CT's acceptability of the programme and to what extent they are likely to continue MB practices
7.	Have you practised any mindfulness yourself outside of the classroom environment?	N/A	Explores the CT's views on mindfulness and to what extent they have found the programme useful and worthwhile

3.3.7 Qualitative feedback from the children

In order to collect qualitative feedback from the children, they were asked to write down something that they had enjoyed after Session One. This was to inform future lesson planning and to gauge early levels of enjoyment of the intervention. At follow-up, the children were asked to write down something that they had learned and something that they had enjoyed during the mindfulness sessions/classroom practice. The aim of the collecting the follow-up written feedback from the children was to explore the children's understanding of

mindfulness and how well-accepted the activities were. This method of data collection was chosen as qualitative data could be collected in an anonymous and time-effective way, avoiding any further ethical and consent considerations related to interviews and/or focus-groups.

3.4 Procedure, study logistics and time line

In May 2016, the Humanities and Social Sciences Ethical Review Committee at the University of Birmingham granted the research project full ethical approval. In June 2016, the researcher sent an email invitation to the primary school to participate and to organise a meeting, if the school expressed interest, with the Executive Head teacher. In July 2016, the researcher met with the Head teacher, sharing information on the study (see Appendix 5 for school/teacher fact sheet). When the Head teacher had granted approval for the study to be conducted in school during the following term, the researcher met with the class teacher of the participating class (Year 4). The class teacher was given an overview of the benefits of mindfulness for children, as reported in the literature and a brief of the study. The class teacher was provided with an information sheet and an opt-out consent form (see Appendix 6). They were informed that if they did not wish to participate in the study then they could complete the opt-out consent form. Before the academic year ended in July 2016, all children who were going to enter into the Year 4 class in September 2016 were given the following: information sheets detailing the study, opt-out consent forms, and SDQs for parents to fill-out.

During the second week of term in September 2016, the researcher introduced the project to the participating class and completed the first round of data collection ('Pre PSHE' condition). This involved the completion of: consent form, SCAS, CAMM, BMLSS, DSRS-C. The class teacher was given the SDQs to complete for each child and instructed that these needed to be completed during that same week. In November 2016, (6 weeks of term plus 1

week half-term holiday later), the researcher returned to the school and completed the second round of data collection ('Post PSHE/Pre MBI'). Once again, this involved collecting questionnaire data from both the children and the class teacher. After this data collection, but on the same day, the researcher delivered mindfulness session one. SDQs were also sent home to parents for their completion.

Six intervention sessions were completed between November 2nd 2016 and 7th December 2016. After session one, brief written feedback was collected from the children in relation to their enjoyment of the first session. After session six, the third set of children and class teacher questionnaire data was collected ('Post MBI') and the third set of SDQs were sent home for parents to complete. The children were then informed that over the course of the next half-term, the researcher would not be completing any further mindfulness sessions with them but would make a final visit in February 2017 to collect a final set of data ('Follow-up'), as well as to see whether mindfulness is something that they have continued inside and outside of the classroom. The week after the final mindfulness session (14th December 2016), the researcher ran a short parental workshop, with the support of the class teacher, which included an introduction to mindfulness and its benefits, activities that the children had completed during the intervention sessions, and how parents could support their children in maintaining mindfulness practice at home.

In February 2017, the final set of quantitative data was collected from the children, class teacher and parents. In addition, qualitative written data was collected from the children and a semi-structured interview was conducted with the class teacher. As a reward, and to bring the intervention to a positive close, the researcher completed a final mindfulness session with the children, incorporating activities that they had previously enjoyed during the intervention sessions. The children and class teacher were thanked for their participation and the

researcher informed the class teacher and the Head teacher that they would be provided with written feedback once the data had been analysed.

Figure 2 provides a visual representation of the timeline of events, in regard to the data collection and intervention phases. The data collection phases are represented by a rectangular-shaped text box and the intervention phases are represented by an oval-shaped text box. It must be noted that the parental session was conducted a week after the third data collection point (December 2016), before the end of the Autumn Term. For purposes of clarity, this is not represented on Figure 2.

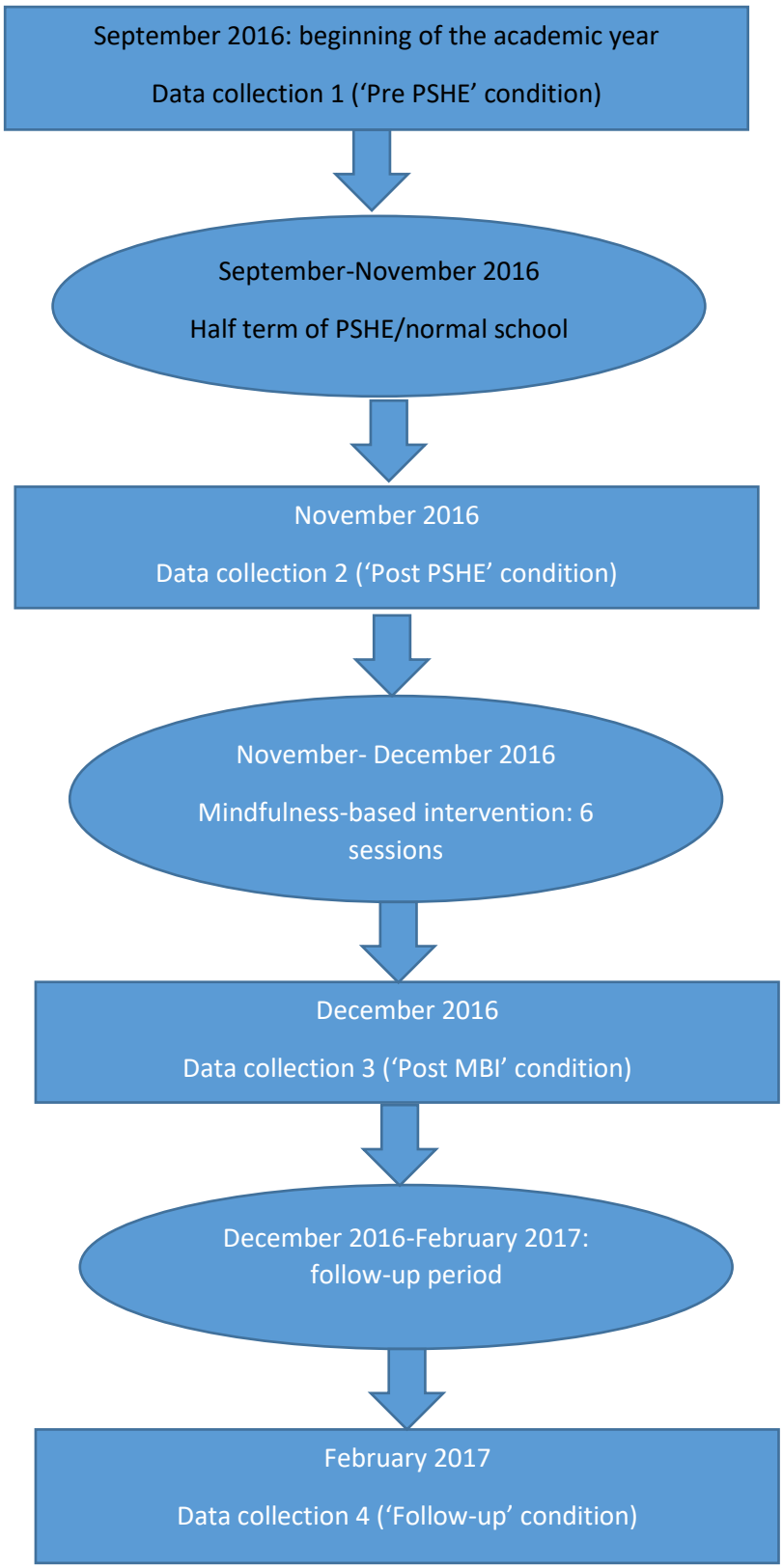

Figure 2: Data collection and intervention timeline

3.5 Ethical considerations

The research was carefully designed and implemented to ensure that it was conducted in line with the following guidelines: British Psychological Society (BPS) (2009). In addition, the research was reviewed by the Humanities and Social Sciences Ethical Review Committee at the University of Birmingham and approval for the study was granted in May 2016 (see Appendix 10 for Application for ethical review).

Table 5: Ethical considerations of the research

Ethical concern	**Summary**
Informed consent: class teacher (CT)	• As described in the procedure, the researcher met with the CT to provide them with information, including a teacher information sheet (Appendix 5) on the MBI. • An opt-out consent form was given to the CT.
Informed consent: children	• The children were provided with an information sheet (Appendix 1) which the researcher read aloud to them to eliminate any literacy difficulties. The children then had an opportunity to ask the researcher any questions. • The information sheet provided the children with the researcher's supervisors' contact details, should they want to ask any further questions. • The children completed a consent form which included statements related to ethical issues such as confidentiality, safeguarding and study withdrawal (see Appendix 2). This was completed at all four time points.
Informed consent: parents	• An information sheet (Appendix 4) was sent home to parents in advance of the data collection and intervention sessions. • An opt-out consent form was sent to parents. An opt-out consent form was considered appropriate for the following reasons: the MBI was being conducted as part of the children's normal PSHE curriculum, data collection occurred in a supervised educational setting, and an opt-out format was considered to be less demanding for busy parents. • The use of an opt-out consent form was reviewed and approved by the Humanities and Social Sciences Ethical Review Committee at the University of Birmingham.
Confidentiality	• A numbered system was used to record the children's data electronically. • The raw questionnaire data was not anonymised so that individual children could be identified if there was a serious cause for concern, based on their responses to the questionnaires. • A pseudonym was used for the participating school to protect their identity. The Local Authority within which the research occurred is unnamed and referred to as 'LA'.

	• Raw questionnaire data was stored in a locked filing cabinet in a secure location in the Local Authority office.
Risk of harm	• Prior to the study, the researcher familiarised themselves with a protocol that would be followed, should the questionnaire data raise any serious concerns. The Designated Safeguarding Lead (DSL) at the school would be informed of any such concerns, alongside the researcher's placement supervisor. • The following policy documents would be referred to (if needed): Children Act (2004) and Working Together to Safeguard Children (DfE, 2015). • If either the completion of the questionnaires or the MBI were thought to be causing any harm/distress to the participants, then they would be advised to discontinue their involvement and all of their pre-existing data would be destroyed.
Dissemination of findings	• Hand-outs were given to the children and their parents detailing the findings and thanking them for their participation. • A hand-out summarising the findings (was sent to the Head Teacher and CT ahead of a meeting. The researcher, the school's Head Teacher and the CT met to discuss the findings and for the researcher to thank the staff members for their participation.

3.6 Data analysis

3.6.1 Quantitative analysis

A statistical software package 'IBM SPSS' was used to statistically analyse all quantitative data. When analysing the change in scores on the CAMM, BMLSS, DSRS-C and SCAS (total), an 'ANOVA' was conducted. An analysis of variance (ANOVA) tests the differences between two or more means, when there is one dependent variable. In addition, data from the SCAS and the SDQ were analysed using a 'MANOVA'. A multivariate analysis of variance (MANOVA) looks for differences in means where there is more than one dependent variable. A MANOVA was suited to the SDQ and SCAS due to the measures' multiple sub-scales. 'Mauchly's Test of Sphericity' was considered on all ANOVA and MANOVAs to check whether the data deviated from normality. If the p value was significant ($p<0.5$) then the Greenhouse-Geisser value was instead considered.

It must be noted that the parental SDQ data was not included in the final analysis due to the low response rate. Only seven questionnaires were returned at time point one and ten were

returned at time point two. No questionnaires were received at time point 3 (post MBI). As no data had been collected after the mindfulness intervention, questionnaires were not sent out to parents at time point 4 as follow-up data was deemed redundant. It is unknown whether the return rate of zero at time point three was due to distribution issues. Difficulties surrounding the response rates of the SDQs and how this could be improved in future research will be explored in the discussion chapter.

3.6.2 Qualitative analysis

The decision was made not to use a software programme such as Nvivo, but to code the data by hand. Despite the researcher having received introductory lectures on Nvivo as part of their social research methods training, it was felt that lack of experience of using Nvivo may affect the ability to group the data and create visual representations such as form trees or families of nodes. Further to this, use of the traditional method maintained a sense of control of the analysis with the ability to view the data as a whole (Wilson, 2009). Thus, Braun and Clarke's (2006) qualitative analytic method, 'Thematic Analysis' (TA), was used to analyse the class teacher interview data and the pupils' written feedback (See Appendix 13 and 14). The authors propose a six-staged process for "identifying, analysing, and reporting patterns (themes) within data" (Braun and Clarke, 2006, p 6). TA was deemed appropriate for the present study because it is a flexible method which is easy and quick to both learn, and to complete, with little or no prior experience of qualitative research needed (Braun and Clarke, 2006). Although Braun and Clarke (2006) consider TA as a simple method of qualitative analysis, they also consider it as "insightful" (p 28) and a method "that can be used across a range of epistemologies and research questions" (p 28).The potential use of TA across a range of epistemologies was compatible with the current study's pragmatist epistemological stance.

The six stages of TA will be outlined and briefly described in relation to this study in Figure 3.

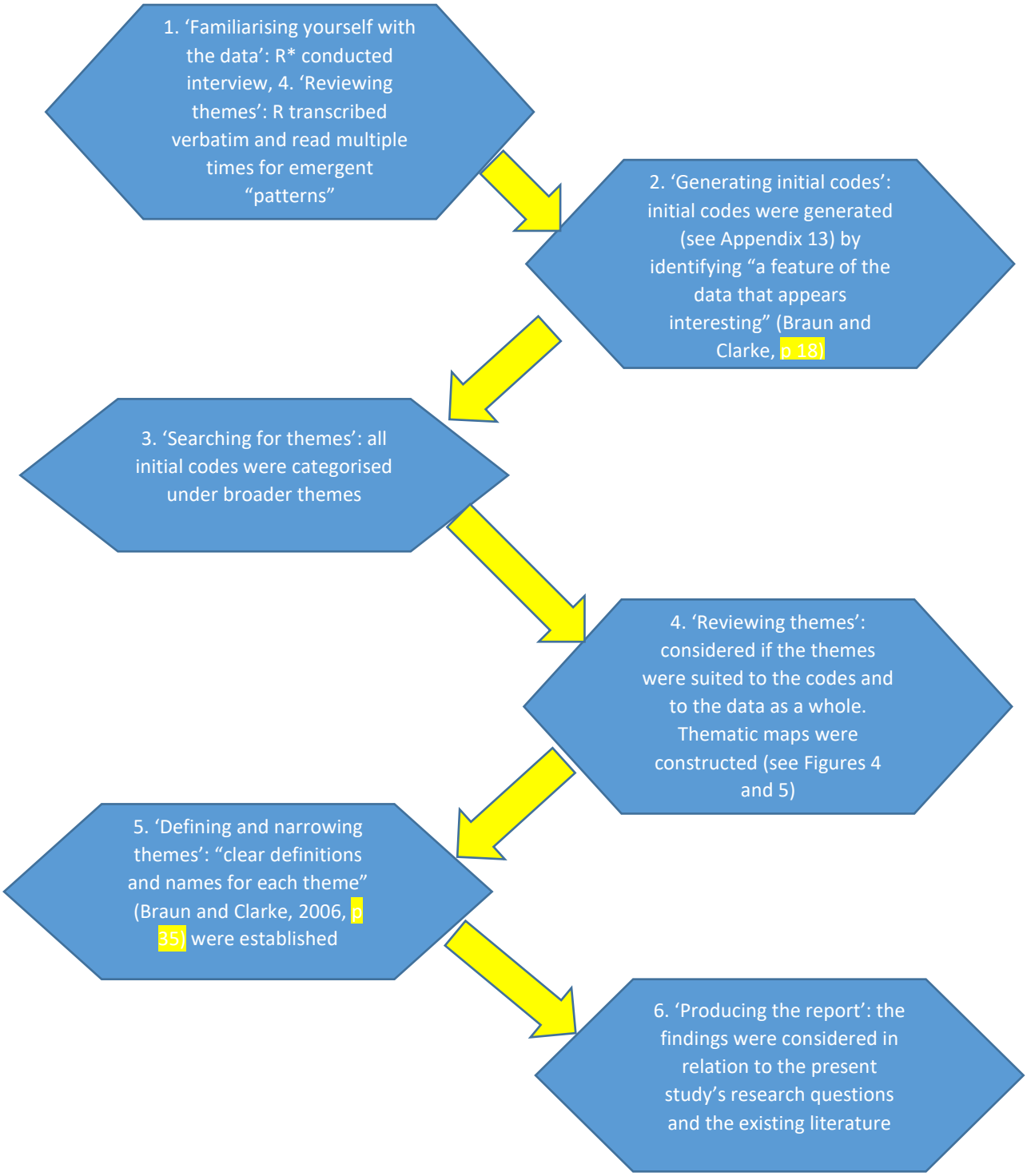

Figure 3: Stages of thematic analysis for qualitative data analysis (based on Braun and Clarke, 2006)

CHAPTER FIVE: RESULTS

In Chapter Five, both the quantitative and the qualitative results are outlined. Firstly, the quantitative results are presented by measure, outlining both the descriptive statistics and the results from the ANOVAs/MANOVAs. Secondly, the qualitative data will be presented, with emergent themes outlined. Thirdly, the results will be summarised as a whole in relation to the research questions and hypotheses.

4.1 Quantitative findings

NB: Values are rounded to two decimal places (excluding p values which are reported as an exact figure)

4.1.1 Levels of mindfulness (CAMM)

Table 6 shows the mean levels of mindfulness, as measured by the CAMM, over the course of the academic year (with higher scores indicating greater levels of mindfulness). An Analysis of Variance (ANOVA) revealed a significant effect of time on scores on the CAMM, Pillai's Trace= .488, $F(3, 17)= 5.39$, p=.009, $p\eta^2 =.488$. Scores on the CAMM did not significantly differ between males and females $F(1, 13)= 1.73$, p = .204, $p\eta^2 = .08$, and there was a non-significant interaction of gender with time, Pillai's Trace= .112, $F(3, 17)= .71$, p = .557, $p\eta^2 = .112$.

Bonferroni adjusted pairwise comparisons showed a significant increase in mindfulness scores from pre PSHE to follow-up (p=.020) and from post PSHE to follow-up (p=.035). Although mean mindfulness scores increased between all time-points, the increase between all other time-points was non-significant (all > .462).

Table 6: Mean and standard deviations for the CAMM at all time-points

	Pre PSHE	Post PSHE	Post MBI	Follow-up
	M (SD)			
CAMM	23.33 (6.85)	24.81 (7.44)	28.23 (8.95)	28.84 (9.03)

4.1.2 Levels of anxiety (SCAS)

Table 7 shows mean scores and standard deviations for the separation anxiety, social phobia, obsessive compulsive, panic agoraphobia, physical injury fears and generalised anxiety subscales on the SCAS. It was not possible to run a MANOVA including gender as a between subjects variable; the residual degrees of freedom could not be calculated due to incomplete data sets, thus there was a small number of participants in each group (n = 6 male and n = 7 female). However, a MANOVA excluding gender revealed a significant main effect of time on SCAS scores, Pillai's Trace = .692, $F(18, 108) = 1.80$, $p = .034$.

Univariate tests showed that there was a significant effect of time on the obsessive compulsive $F(3, 39) = 6.97$, $p = .001$, $p\eta^2 = .35$, and generalised anxiety $F(3, 39) = 4.35$, $p = .010$, $p\eta^2 = .25$ subscales. The effect of time was not significant on the separation anxiety $F(3, 39) = 1.58$, $p = .210$, $p\eta^2 = .11$, social phobia $F(3, 39) = 2.48$, $p = .076$, $p\eta^2 = .16$, panic agoraphobia $F(1.84, 23.92) = 2.20$, $p = .136$, $p\eta^2 = .15$, and physical injury fears $F(2.08, 26.98) = .66$, $p = .53$, $p\eta^2 = .05$ subscales. The results of Bonferroni adjusted pairwise comparisons showed that obsessive compulsive scores were significantly reduced at follow-up compared to pre PSHE ($p = .02$), differences between all other time-points were non-significant ($p > .062$). Generalised anxiety scores were also significantly reduced at follow-up in comparison to pre PSHE ($p = .012$), differences between all other time-points were non-significant ($p > .059$).

In order to check for effects of gender on SCAS scores, separate univariate ANOVAs were run for each subscale. These analyses showed no significant time and gender interaction on separation anxiety $F(3, 51) = .44$, $p = .0725$, $p\eta^2 = .03$, social phobia $F(3, 51) = 2.43$, $p = .076$, $p\eta^2 = .13$, obsessive compulsive symptoms $F(3, 48) = .98$, $p = .409$, $p\eta^2 = .06$, physical injury fears $F(1.99, 35{,}84) =$, $p = .32$, $p\eta^2 = .02$, and generalised anxiety $F(1.81, 28.91) = .45$, $p = .0620$, $p\eta^2 = .03$. A significant effect of time and gender interaction was found for panic agoraphobia $F(1.83, 29.23) = 3.43$, $p = .050$, $p\eta^2 = .18$. To investigate this effect, separate ANOVAs were run for females and males: there was no significant effect of time on panic agoraphobia scores for males, $F(1.46, 11.69) = .40$, $p = .618$, $p\eta^2 = .05$), however there was a significant effect of time on panic agoraphobia scores and females, $F(3, 24) = 6.90$, $p = .002$, $p\eta^2 = .463$. Bonferroni pairwise comparisons showed that there was a significant effect of time for females between pre PSHE and follow-up ($p = .030$).

Table 7: Mean and standard deviations for the SCAS at all time-points

Time-point	**SA mean *(SD)***	**SP mean *(SD)***	**OC mean *(SD)***	**PA mean *(SD)***	**PI mean *(SD)***	**GA mean *(SD)***	**Total mean *(SD)***
1.Pre PSHE	5.95 *(4.45)*	7.17 *(4.98)*	8.14 *(4.05)*	7.45 *(4.66)*	4.39 *(3.23)*	8.13 *(3.54)*	38.06 *(18.79)*
2.Post PSHE	6.41 *(4.37)*	6.04 *(3.95)*	6.85 *(4.08)*	4.76 *(3.24)*	3.85 *(2.89)*	7.42 *(3.67)*	35.35 *(16.45)*
3.Post MBI	6.6 *(3.81)*	5.54 *(4.02)*	5.92 *(3.67)*	4.08 *(3.90)*	4.5 *(3.10)*	4.96 *(3.08)*	32 *(16.20)*
4.Follow-up	5.46 *(4.67)*	5.15 *(3.70)*	5.08 *(3.84)*	4.46 *(4.22)*	3.88 *(3.30)*	5.32 *(4.03)*	27.48 *(17.63)*

NB: SA= separation anxiety, SP= social phobia, OC= obsessive compulsive, PA= panic and agoraphobia, PI=physical injury fears, GA= generalised anxiety

NB: values are rounded to 2 decimal places

4.1.3 Levels of depressive symptoms (DSRS-C)

Table 8 shows the mean scores and standard deviations for the pupils' DSRS-C scores across the four time-points. An ANOVA revealed no significant main effect of time on scores on the DSRS-C, Pillai's Trace= .038, $F(3, 17)= .22$, $p=.879$, $p\eta^2 = .038$, with scores remaining relatively constant across the four time-points. Scores on the DSRS-C did not significantly differ between males and females $F(1, 19)=1.77$, $p =.199$, $p\eta^2 = .09$, and there was a non-significant interaction of gender with time, Pillai's Trace= .168, $F(3, 17)=1.14$, $p = .361$, $p\eta^2 = .168$.

Table 8: Mean and standard deviations for the DSRC-C at all time-points

	Pre PSHE	Post PSHE	Post MBI	Follow-up
	M (SD)			
DSRS-C	11.63 (5.96)	11.56 (6.33)	12.00 (6.72)	11.62 (6.55)

4.1.4 Changes in observable behaviour (SDQ)

Table 9 shows the means and standard deviations for the emotional symptoms, conduct problems, hyperactivity and inattention, peer relationship problems and prosocial behaviour subscales on the SDQ. A MANOVA revealed a significant effect of time on scores on the SDQ, Pillai's Trace = .95, $F(15, 201) = 4.23$, $p < .001$, $p\eta^2 =.24$.

Univariate tests revealed a significant effect of time on hyperactivity and inattention scores $F(3,69) =6.30$, $p = .001$, $p\eta^2 =.22$, peer relationship problems $F(3,69) =14.28$, $p < .001$, $p\eta^2 =.38$ and prosocial behaviour $F(2.06, 139.30) =13.55$, $p < .001$, $p\eta^2 =.37$, The effect of time was not significant for the emotional symptoms $F(3,69) = 1.64$, $p =. 189$, $p\eta^2 =.07$, and conduct problems $F(2.23,51.19) =1.50$, $p =.232$, $p\eta^2 =.06$ subscales. Bonferroni adjusted pairwise comparisons revealed that there was a significant decrease in hyperactivity and inattention scores between pre and post PSHE (p = .037). There was a further reduction in scores between pre PSHE and post MBI (p = .003), although there was no significant decrease

in scores between post PSHE (pre MBI) and post MBI (p = .930). There was also a significant decrease in scores on the peer relationship problems subscale between pre PSHE and post MBI (p = .006) and pre PSHE and follow-up (p <.001). Finally, there was a significant increase in prosocial behaviour scores between pre PSHE and post MBI (p = .003), and pre PSHE and follow-up (p < .001).

Scores on the SDQ significantly differed between males and females, Pillai's Trace= .45, $F(5,19)=3.12$, p =.032 , $p\eta^2$ =.45, Univariate (between subjects) tests revealed a significant effect of gender on the prosocial behaviour subscale $F(1, 23)= 8.16$, p =.009 , $p\eta^2$ =.26. To investigate this effect, separate ANOVAs were run for females and males: a significant effect of time was found for females ($F(3, 30)=7.31$, p =.001, $p\eta^2$ =.42) and for males ($F(2.04, 20.39)=5.72$, p =.010, $p\eta^2$ =.36). Bonferroni pairwise comparisons showed that there was a significant effect of time on females' scores on the prosocial subscale of the SDQ between multiple time-points: pre PSHE and post MBI (p=.017), pre PSHE and follow-up (p=.000), post PSHE and post MBI (p=.034) and post PSHE and follow-up (p-.002). There was only one significant effect of time on males' scores: from pre PSHE to follow-up (p=.027). Table 9 below clearly shows that both the male and female prosocial behaviour mean scores increased over the course of the academic year, with females' scores increasing more than males.

Table 9: Scores for prosocial behaviour at all time-points by gender

	Pre PSHE	Post PSHE	Post MBI	Follow-up
	Mean			
Males	4.34	4.47	5.76	6.00
Females	5.44	5.65	7.40	7.82

Scores on the following subscales of the SDQ did not significantly differ between males and females: emotional symptoms $F(1, 23)= .67$, p = .422, $p\eta^2$ =.03, conduct problems $F(1, 23)=$

.17, p = .683, $p\eta^2$ =.01, hyperactivity and inattention $F(1, 23)= 3.96$, p = .059, $p\eta^2$ =.15, and peer relationship problems $F(1, 23)= .22$, p =.645 , $p\eta^2$ =.01.

There was a significant interaction of gender with time, Pillai's Trace=.85, $F(9, 15)=3.51$, p = .031, $p\eta^2$ = .85. However, univariate (within subjects) tests revealed no significant interaction of gender with time when broken down by subscale: emotional symptoms $F(3, 69)= .51$, p =.678 , $p\eta^2$ =.02, conduct problems $F(2.23, 51.19)= .42$, p =.682, $p\eta^2$ =.02, hyperactivity and inattention $F(3, 69)= .170$, p =.175 , $p\eta^2$ =.07, peer relationship problems $F(3,69)= .57$, p =.636 , $p\eta^2$ =.02, and prosocial behaviour $F(2.06, 139.30)= .35$, p =.710 , $p\eta^2$ =.02.

Table 10: Means and standard deviations for the SDQ at all time-points

Time-point	**ES mean *(SD)***	**CP mean *(SD)***	**HI mean *(SD)***	**PRP mean *(SD)***	**PB mean *(SD)***	**Total mean *(SD)***
1. Pre PSHE	0.93 *(1.46)*	0.93 *(1.46)*	2.75 *(2.08)*	2.36 *(1.65)*	4.79 *(1.11)*	7.14 *(4.63)*
2. Post PSHE	0.64 *(1.17)*	0.68 *(1.49)*	2.07 *(1.62)*	1.89 *(1.18)*	5.14 *(1.36)*	5.71 *(4.49)*
3. Post MBI	0.57 *(0.86)*	0.5 *(0.94)*	1.79 *(1.50)*	1.33 *(1.63)*	6.39 *(2.18)*	3.96 *(3.16)*
4. Follow-up	0.58 *(1.18)*	0.69 *(0.95)*	2.35 *(1.54)*	0.81 *(1.21)*	7.04 *(2.28)*	4.42 *(3.59)*

ES= emotional symptoms, CP= conduct problems, HI= hyperactivity/inattention, PRP= peer relationship problems, PB= prosocial behaviour

4.1.5 Level of life-satisfaction (BMLSS)

Table 11 shows the mean scores and standard deviations for the BMLSS. An ANOVA revealed no significant main effect of time on scores on the BMLSS, Pillai's Trace= .038, $F(3, 14)= .18$, $p= .907$, $p\eta^2$ =.04. Thus, scores remained relatively constant across all four time-points. Scores on the BMLSS did not significantly differ between males and females $F(1, 16)=1.33$, p = .266, $p\eta^2$ = .08, and there was a non-significant interaction of gender with time, Pillai's Trace=.07 , $F(3, 14)=.35$, p = .792, $p\eta^2$ =.07.

Table 11: Means and standard deviations for the BMLSS at all time-points

	Pre PSHE	Post PSHE	Post MBI	Follow-up
	M (SD)			
BMLSS	31.67 (7.05)	30.5 (8.34)	30.65 (9.36)	33.54 (8.02)

4.2 Qualitative findings

A thematic analysis (Braun and Clark, 2006) was conducted on the pupils' written feedback and the class teacher interview data to establish themes. The thematic maps below (Figure 4 and Figure 5) provide a visual representation of the themes and the sub-themes. Supporting quotations for the themes can be seen in Table 12 and Table 13, and finally, brief descriptions of the themes are provided.

4.2.1 Themes established from pupil feedback

A number of themes were identified from the pupils' written feedback, for example, there were multiple references to positive impact on social, emotional and mental health. The feeling of "calm" was particularly prevalent: see supporting quotations in Table 12. In addition, the pupils made reference to positive impact on their learning, for example, that mindfulness helped with their focus/concentration. The pupils showed an understanding of the basic premise of mindfulness- to focus on the present moment and not be concerned with events of the past. They also made reference to breathing and meditation alongside activities completed during the sessions such as drawing.

Examples were given of when the children could or have used mindfulness practices to regulate their emotions, as well as made reference to its flexibility, for example "you can use it whenever you want". Positive comments were made in relation to the intervention and facilitator; the pupils named activities that they particularly enjoyed, such as the drawing activities. Finally, the children made non-specific positive comments about mindfulness such as "I love mindfulness". Overall, the feedback was extremely positive. The written feedback

provided evidence that the children not only enjoyed the activities but understood mindfulness as a concept and when it could be used in everyday life.

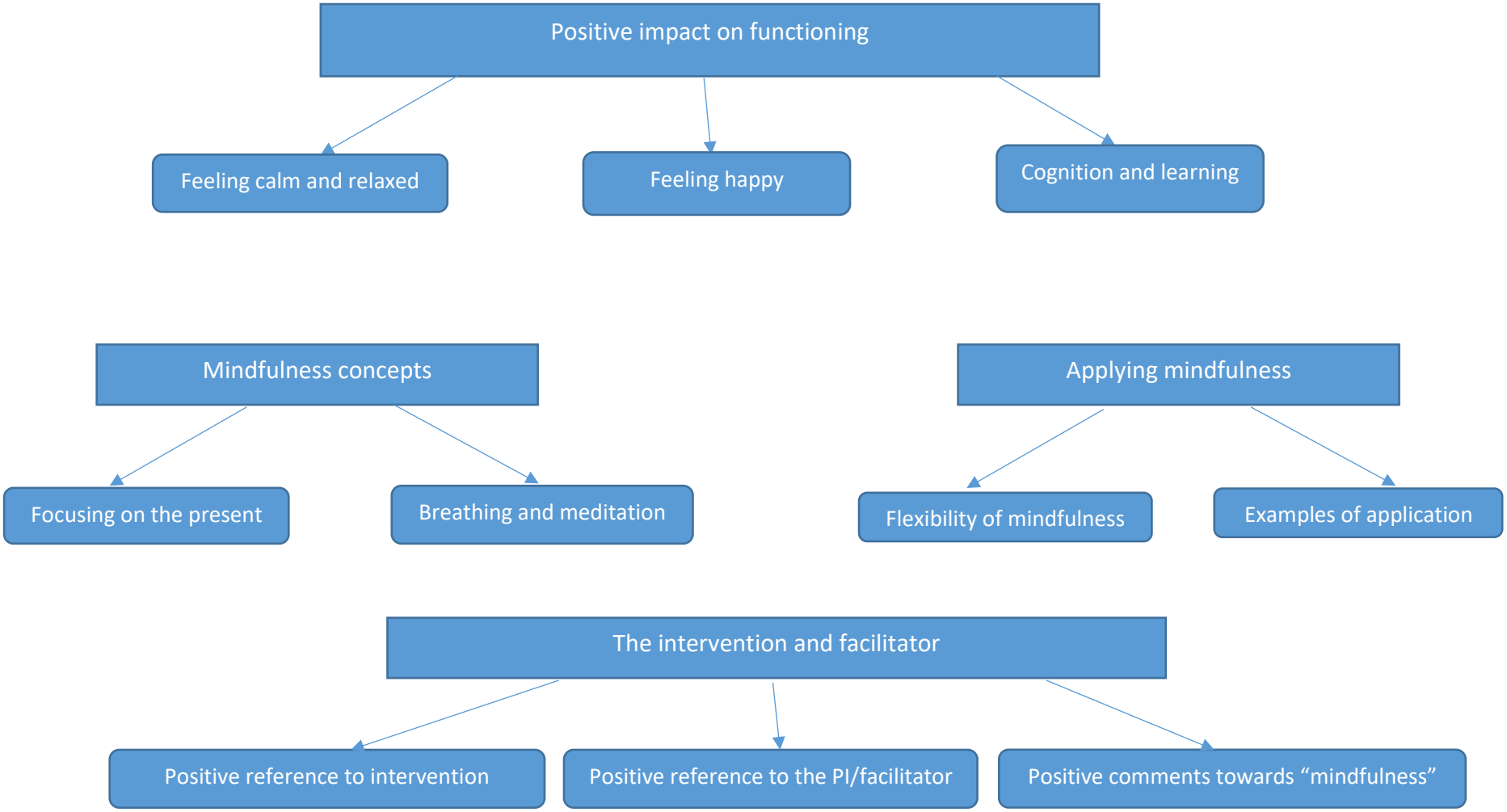

Figure 4: A thematic map demonstrating the themes from the pupils' written feedback (n=27)

Table 12: Supporting quotations for the identified themes, taken from the pupils' written feedback

Overarching theme	**Theme**	**Examples of quotations**
Mindfulness concepts	1. Focusing on the present	- Melissa helps us to think about today because today is a special day. - I have learnt that mindfulness helps you to realise that you shouldn't waste time thinking about the past. Yesterday's history, tomorrow's a mystery, today's the gift. - I learnt in mindfulness that you should think about today, don't think about yesterday, think about now.
Positive impact on functioning	2. Feeling calm and relaxed	- I learnt about mindfulness so I can keep calm. - Calm, peaceful, lovely. - I learned that mindfulness makes you more relaxed.
Positive impact on functioning	3. Feeling happy	- I've learnt how to enter my happy place. - Mindfulness is really good, it's a way to be calm and feel happy.
Mindfulness concepts	4. Breathing and meditation	- I've learnt that when you are upset you can have a breath. - I thought that it's good to meditate. - I like breathing in and out.
The intervention and facilitator	5. Positive comments towards "mindfulness"	- I love mindfulness. - To be mindful is always good. - Mindfulness will help you in many ways.
Positive impact on functioning	6. Cognition and learning	- I have learnt how to focus and listen. - I have learnt that it's not all about rushing it's all about concentration. - Mindfulness helps me to learn more.
The intervention and facilitator	7. Positive reference to intervention activities	- My best activity was the drawing when the 1st person draws something and the 2nd person puts so many details into it and tries to guess it. - I like breathing in and out, drawing and everything.
The intervention and facilitator	8. Positive reference to the researcher/facilitator	- I thank you Melissa - Melissa is a child psychologist and she helps and teaches children mindfulness. - I like mindfulness because of Melissa.
Applying mindfulness	9. Flexibility of mindfulness	- You can use it whenever you want - You can help other people do it too - You could go to your peaceful place or breathing anything that will calm you down

Applying mindfulness	10. Applications of mindfulness	- I learnt that mindfulness can help other people when they are stressed or had a fight with a brother or sister - If I was sad I would shut my eyes and go to my peaceful place

4.2.2 Themes established from the class teacher interview

During the semi-structured interview, the class teacher made many references to how they felt that the mindfulness-based intervention had a positive impact on the pupils' social and emotional and cognitive functioning. For example, the class teacher discussed how there had been an observed difference in the children's attention and concentration, as well as their ability to emotionally regulate. These two themes are markedly similar to themes which emerged from the pupil feedback: feeling calm and relaxed, feeling happy and cognition and learning. In addition to positive impact on the children's emotional regulation and attention and concentration, the class teacher also reported that the children were better able to: recognise and understand their feelings, better express their feelings, be more "mindful" and show more consideration of others.

The class teacher specified examples of both formal and informal mindfulness practice that had occurred since the intervention had ended, providing evidence for the maintenance of mindfulness. Furthermore, the class teacher expressed her intent to continue mindfulness practice, not only with her current Year Four class, but also with future classes. The commitment of the class teacher to the intervention and to mindfulness as a concept was evident from these themes. The class teacher outlined what the children found difficult as well as what they enjoyed, for example, it was felt that the children found the activities that required silence more difficult and in the beginning they would "giggle". Moreover, reference was made to how the children's ability to focus and concentrate during the activities improved over time. An unexpected theme that emerged was the difficulties that the children had with generalising the skills that they had learned in the mindfulness when working with other adults. The class teacher shared how she felt that the children associated the researcher/facilitator and herself with the feeling of "calm" and "being mindful" and that the

children had experienced difficulties maintaining this outlook when they had been taught by a cover teacher.

Overall, the class teacher was extremely positive about the MBI and the benefits that she felt it had for the children, both in terms of their social and emotional well-being and for their attention and concentration skills. Finally, the class teacher showed further positivity towards mindfulness by revealing that she had "definitely tried" to practise mindfulness herself in times of stress, for example, she reported that she "sometimes had to stop and think well that's gone, it doesn't really matter, I am just going to focus on the now". Interestingly, she stated that "I think it has proven hard for me" but that "teaching it has been quite easy…".

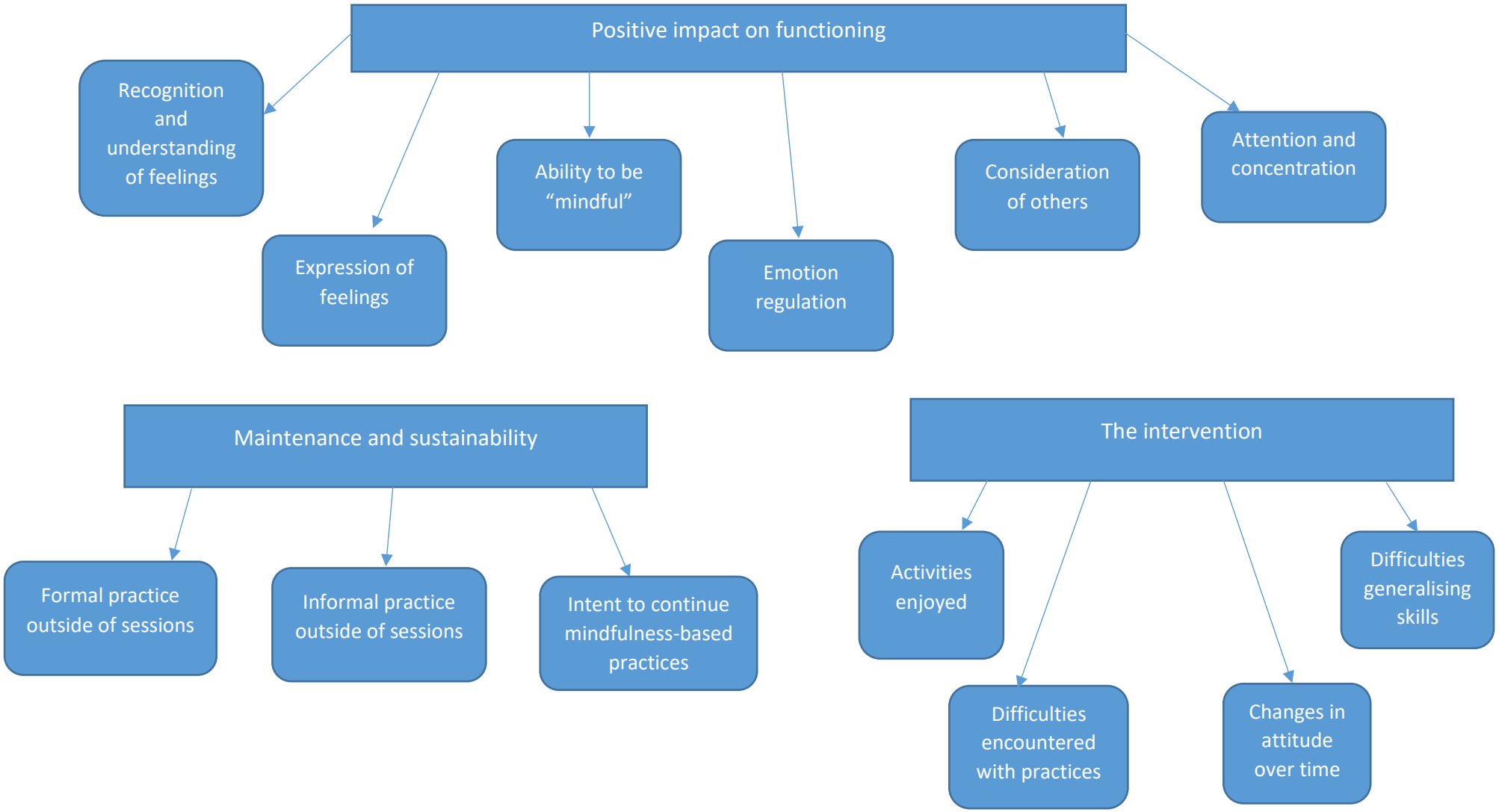

Figure 5: A thematic map demonstrating the themes from the class teacher interview (n=1)

Table 13: Supporting quotations for the identified themes, taken from the class teacher interview

Overarching theme	**Sub-theme**	**Supporting quotations**
The intervention	1. Activities enjoyed	- I think the drawing activities they liked and they enjoyed - They definitely like the wishing well 'cause I think, they, they are excited for after break for when we do it or after lunch for what people have said and who they've said it about - They definitely like the peaceful place and they like the music one actually
The intervention	2. Difficulties encountered	- I think some of them probably struggled more with the silence - Tended to fidget a lot or maybe look across the table and giggle
Maintenance and sustainability	3. Formal practice outside of sessions	- We did the wishing well activity - We did a meditation session the other day - I think we've used it actually, um when they have to almost see what's going on in front of them…yeah, thought parade
The intervention	4. Changes in attitude over time	- I think they are getting more used to actually doing things and having to concentrate on particular things - I can remember the first time we did meditation there were lots of giggles and silliness but the amount of them that were able to sit there
Positive impact on functioning	5. Expression of feelings	- I think they're able to express how they feel more - They're able to sort of think more about, in PSHE sessions, um the words they use, the vocabulary they're using - He's able to talk a little bit more about how he feels and why he feels like that
The intervention	6. Difficulties generalising skills	- They can be really calm and really quiet but when there's any sort of change… - Because you've done the mindfulness then I've done those activities with them, if someone else is in there, then you know I think they found it maybe a bit hard
Positive impact on functioning	7. Attention and concentration	- I think they are able to concentrate and focus a lot more - They were really really concentrating - I don't think they would have been able to concentrate like that before in a session like that

Positive impact on functioning	8. Ability to be "mindful"	- I think they're more able to pick up on their surroundings and what's around them - They are definitely aware of mindfulness and definitely without thinking about it - It's something they are able to use
Maintenance and sustainability	9. Informal practice outside of sessions	- If I just said to them, you know, "be mindful about, maybe, other people's feelings or the way you feel", I think that has made them think a little bit more about how they deal with certain things especially in the classroom - One of them might say something like "we can use our mindfulness" - I think it's almost become the norm so say if something's happened outside, we'll come in and sometimes I don't even have to tell them, I'll say well you know at that moment, what should you have been thinking, or that's happened outside, what are we thinking about now
Positive impact on functioning	10. Consideration of others	- They are a lot more able to compliment - They're able to think more about others
Positive impact on functioning	11. Recognition and understanding of feelings	- They're able to link the fact that if you're nervous it might mean that your hands are sweaty - I think they're just more able to understand where their feelings are coming from and why they feel like that - They understand it a bit more about their feelings
Positive impact on functioning	12. Emotion regulation	- I think they're more aware of how to control them - I think that has made them think a little bit more about how they deal with certain things
Maintenance and sustainability	13. Intent to continue mindfulness-based practices	- It's definitely something I would encourage - I think it is definitely something use and definitely carry on using with this class and classes that come up and try my best to do it myself

4.3 Summary of main findings in relation to the RQs

Does the MBI lead to improvements beyond PSHE/normal school in the children's ability to be "mindful"?

- According to the class teacher, the children are now more "mindful".
- According to the CAMM, the children were found to be significantly more mindful post MBI and at follow-up, than they had been at points 1 and 2 (pre and post PSHE).

Does the MBI lead to improvements beyond PSHE/normal school in the children's levels of social and emotional (SE) well-being/prosocial behaviour/hyperactivity/inattention/peer relationship difficulties?

- During the semi-structured interview, the class teacher reported improvements in the children's: recognition and understanding of feelings, expression of feelings, emotion regulation, consideration of others and attention and concentration post MBI.
- The questionnaires completed by the class teacher (SDQ) highlighted significant improvements in peer relationship difficulties both post MBI and at follow-up.
- The SDQs highlighted significant improvements in hyperactivity and inattention post PSHE and post MBI. The significant improvement found post MBI was higher than that found between pre and post PSHE.
- The SDQs highlighted a significant increase in prosocial behaviour post MBI, and at follow-up. When this was broken down by gender, it was found that there was only a significant increase in males' prosocial behaviour scores between pre PSHE and follow-up. Females' prosocial behaviour scores were significantly different between: pre PSHE and post MBI, pre PSHE and follow-up, post PSHE and post MBI, and post PSHE and follow-up.

- The children reported a significant reduction in obsessive compulsive symptoms and generalised anxiety at follow-up, as measured by the SCAS.
- There was a significant reduction in scores on the 'panic agoraphobia' subscale of the SCAS for females between pre PSHE (time-point 1) and follow-up (time-point 4).
- The children's written feedback reported a positive impact of mindfulness on social and emotional well-being as well as attention and concentration.

Is the MBI well-accepted by the pupils and class teacher and if so, what factors contribute to this?

- The children's written feedback includes many positive statements related to mindfulness and they make reference to particular activities that they enjoyed.
- The children made positive comments in relation to the facilitator.
- The class teacher stated activities that she felt the children had enjoyed.
- There was evidence in the children's feedback that they understand the concept of mindfulness and how it could be applied in everyday life.
- The class teacher expressed self-enjoyment and reported that she could see multiple benefits for the children.

Is there evidence of maintenance and durability of mindfulness according to the pupils and class teacher and if so, what factors contribute to this?

- During the semi-structured interview, the class teacher discussed informal and formal mindfulness practice that she has completed with the children since the MBI ceased.
- The children made reference to how mindfulness could help them and provided examples of when they have or could use mindfulness, suggesting maintenance of mindfulness-based practices.

- The class teacher reported that she wished to continue mindfulness with her current class and with future classes as she had observed many benefits for the children.

Figure 6 provides a visual representation of the main findings in the form of a Venn diagram. The intersection where the circles overlap represents where the findings emerged from both pupil and class teacher data. Table 14 directly relates the study's findings to the original hypotheses.

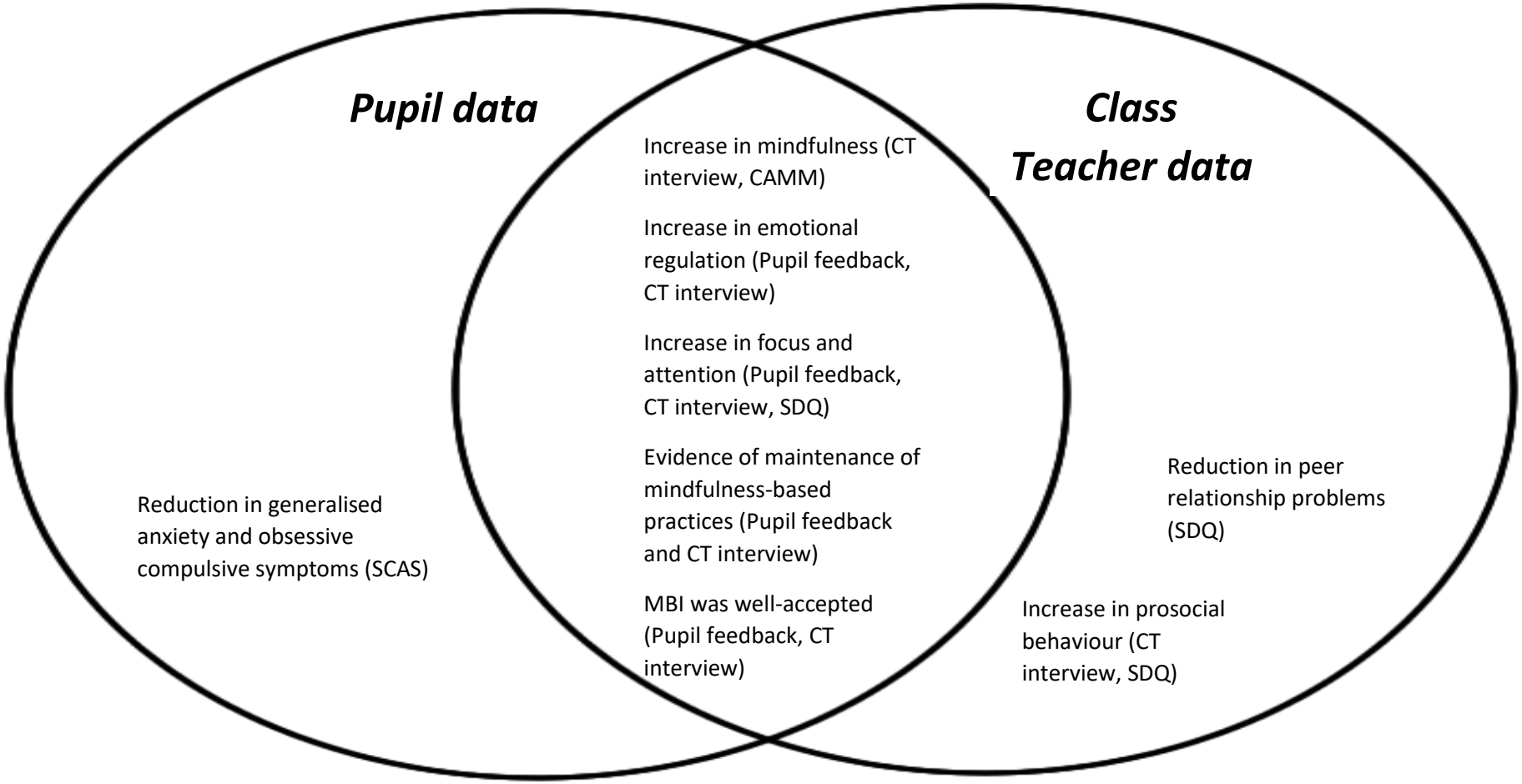

Figure 6: Summary of the main findings from pupil and class teacher (CT) data which directly relate to the research questions

Table 14: Findings in relation to original hypotheses

Hypothesis	**Confirmed?**	**Findings**	**Supporting evidence**
The children's level of anxiety and depressive symptoms would be lower post-MBI, according to the children's self-report measures.	Anxiety: partially Depressive symptoms: no	Levels of generalised anxiety and obsessed compulsive symptoms significantly reduced at follow-up.	SCAS
The children would show higher levels of mindfulness post-MBI, according to the children's self-report measures.	Yes	Significant increase in mindfulness was found between pre PSHE and follow-up. CT reported increased mindfulness	CAMM, CT interview
The children would show higher levels of prosocial behaviour, lower levels of hyperactivity/inattention and peer relationship difficulties, according to the class teacher self-report measure.	Yes	Significant reduction in peer relationship problems and higher levels of prosocial behaviour was reported post MBI. Hyperactivity/inattention reduced between pre PSHE and post PSHE and post MBI. CT reported improved attention and concentration.	SDQ, CT interview
The children would show a high level of acceptability of the MBI, based on informal qualitative feedback from the children and semi-structured interview data from the class teacher.	Yes	Both the children and the CT reported enjoyment of the intervention. The children appeared to understand the basic concept of mindfulness and its value.	Children's written feedback, CT interview
The positive changes expected, in relation to social and emotional well-being, levels of mindfulness, prosocial behaviour, hyperactivity/inattention and	Partially	Significant increase in mindfulness was found at follow-up (time-point 4) when compared to time-point 1. Significant decrease in hyperactivity/inattention was found between pre and post PSHE as well as post MBI.	CAMM, SDQ, SCAS

peer relationships, would be significantly larger between time point 2 and 3 (pre and post MBI) and 3 and 4 (post-MBI and follow-up) than 1 and 2 (pre and post PSHE/normal school).		Significant increase in prosocial behaviour was found post MBI and at follow-up. Significant decrease in peer relationship problems was found post MBI and at follow-up. Significant decrease in generalised anxiety was found at follow-up only. Significant decrease in obsessive compulsive symptoms was found at follow-up only.	
It is predicted that positive effects will be maintained at follow-up.	Partially	Significant positive effects in relation to mindfulness, prosocial behaviour, peer relationship problems, generalised anxiety and obsessive compulsive were found at follow-up. Significant positive effects for hyperactivity/inattention were not maintained at follow-up.	CAMM, SDQ, SCAS

CHAPTER SIX: DISCUSSION AND PERSONAL REFLECTIONS

This discussion chapter begins by outlining the original aims, research questions and hypotheses of the study. The key findings of the study will be summarised and considered in relation to the pre-existing literature. Methodological considerations are discussed, in regards to both the strengths and weaknesses of the multiple methods of data collection and analysis, and the study design. Furthermore, potential implications are acknowledged in relation to both educational settings and educational psychology services. Future directions are described with regards to the methodological limitations of the present study, and how these may be addressed in future research. Finally, the chapter concludes with a brief section reflecting on the researcher's use of mindfulness in educational psychology practice and in the management of well-being.

6.1 Summary of thesis findings

6.1.1 Aims and hypotheses

The aim of this research was to establish the effectiveness of a classroom-based mindfulness intervention, facilitated by a trainee educational psychologist (TEP) and a class teacher, with children in a Year 4 class (aged 7 and 8), and to add to the sparse literature on MBIs conducted in schools in the UK. Within this overarching aim, the research aimed to investigate the following research questions:

1. Does the MBI lead to improvements beyond PSHE/normal school in the children's ability to be "mindful"?
2. Does the MBI lead to improvements beyond PSHE/normal school in the children's levels of social and emotional (SE) well-being/prosocial behaviour/hyperactivity/inattention/peer relationship difficulties?

3. Is the MBI well-accepted by the pupils and class teacher and if so, what factors contribute to this?

4. Is there evidence of maintenance and durability of mindfulness according to the pupils and class teacher and if so, what factors contribute to this?

Based on previous research, numerous hypotheses were made. It was predicted that the children's level of anxiety, depressive symptoms, hyperactivity/inattention and peer relationship difficulties would be lower post-MBI, both according to the children and the class teacher questionnaire data. In addition, the children would show higher levels of prosocial behaviour and mindfulness post-MBI, according to the children and class teacher quantitative data. The MBI would be highly accepted by the children based on the qualitative feedback from the children and semi-structured interview data from the class teacher. The positive changes that were expected, in relation to social and emotional well-being, levels of mindfulness, prosocial behaviour, hyperactivity/inattention and peer relationships, would be significantly larger between time point 2 and 3 (pre and post MBI) and 3 and 4 (post-MBI and follow-up) than between time point 1 and 2 (pre and post PSHE/normal school).

6.2.2 Key findings

The results of this study have illustrated that there were improvements in the children's level of mindfulness, social and emotional well-being, attention and concentration, and prosocial behaviour. In addition, the intervention was deemed well-accepted by the participating children and class teacher, and evidence was provided for the maintenance of mindfulness practices after the MBI had ceased. These findings imitate those found in the literature, with numerous benefits established for children and young people after they have completed a MBI

(Huppert and Johnson, 2010; Napoli et al, 2005; Sanger and Dorjee, 2016; Vickery and Dorjee, 2016).

The children were found to be significantly more "mindful" at follow-up; this did not differ according to gender. It is difficult to establish whether these positive findings were directly as a result of the MBI, or whether there was a cumulative effect of the three PSHE sessions (see Appendix 12), six MBI sessions, and the mindfulness activities completed in class. However, there was no significant difference in the children's levels of mindfulness between pre and post PSHE. Thus, whilst PSHE/normal school may have positively contributed to the significant effect of time on mindfulness, it was not sufficient in isolation to significantly increase the children's level of mindfulness. These findings are in support of previous UK-based research, where an increase in mindfulness either post-intervention or at follow up was found (Ardern, 2016; Huppert and Johnson, 2010; Vickery and Dorjee, 2016).

The children's levels of anxiety were examined using the SCAS and the following positive effects were found: scores on the generalised anxiety and the obsessive compulsive subscales were significantly reduced at follow-up in males and females, and females displayed a significant reduction in panic agoraphobia scores at follow-up. A potential explanation for the reduction in scores may be related to the underlying concepts of mindfulness and how they relate to different aspects of anxiety. For example, obsessive compulsive thoughts can be intrusive but through engaging in mindfulness and focusing on the present moment, they can be replaced with alternative thoughts such as stimuli in the environment, or attention to the task one is engaging in. Moreover, the reduction in panic agoraphobia scores in females may have been due to the fact that many of the MBI activities were focused on breathing and meditation. The children had practised strategies that they could use when experiencing feelings of panic to assist them with emotional regulation. However, it appears that it was not

a strategy which was used by (or if used was particularly helpful for) the males in the class. A reduction in anxiety after completing a MBI has also been documented in the literature (Liehr and Diaz, 2010; Kuyken et al, 2013; Sibinga et al, 2013).

Levels of depressive symptoms did not significantly differ across the four time-points, for either males or females. This was an unanticipated finding; research preceding this study has illustrated a significant reduction in depressive symptoms for adults, children and young people post-MBI (Britton et al, 2014; Broderick and Metz, 2009; Hoffman et al, 2010; Kuyken et al, 2013; Vickery and Dorjee, 2016). When reflecting on the possible explanations for this finding, three working hypotheses were considered at length. Firstly, as aforementioned, many of the activities were centred on relaxation and meditation and focus and concentration, as opposed to aspects of mindfulness which you might associate with positive affect such as practising self-kindness and reducing rumination. It is possible that depressive symptoms were not directly targeted by the activities which were chosen for the MBI, thus a change in depressive symptoms would not be expected. Thirdly, it is possible that the children viewed the mindfulness practices as strategies that they should use primarily for anxiety management. Fodor and Hooker (2008) state that it is a "misperception (by children) that meditation is just used for relaxation" (p 83).

Thirdly, it is possible that the children found the concept of mindfulness particularly difficult to fully understand. Mindfulness is an abstract concept and according to Piaget's theory of cognitive development (1952), the development of abstract thinking and understanding of abstract concepts begins when a young person is aged 11-12 years old. Piaget proposed that children pass through four stages of cognitive development: sensorimotor stage (0-2 years, pre-operational stage (2-7 years), concrete operational stage (7-11 years) and formal operational stage (11 years-adulthood). Whilst Piaget's theory provides a guideline as to when

abstract thought develops, neo-Piagetian theorists such as Pascual-Leone (1970), Fischer, (1980), Case (1985), and Demetriou (1988), have since proposed alternative theories of cognitive development. These theorists have built upon and extended Piaget's theory, taking into consideration perceived weaknesses of Piaget's theory such as the lack of consideration for individual differences (such as the differing speed with which a child moves from stage to stage), and the fact that a child's functioning and development can differ depending on the domain (thus a child cannot be easily categorised under one "stage" of development). The children in the present study were aged 7 and 8 years old, a time when Piaget would argue that they are in the 'concrete operational stage' of cognitive development. This stage is characterised by the development of logical thought or application of rules, but only to concrete objects. Perhaps the concept of mindfulness was not wholly accessible to the children at this stage in their cognitive development, and results may have differed with an older sample of participants. However, neo-Piagetian theorists may argue that entering the 'formal operational stage' of development (or equivalent) is domain specific and so it is possible for a young person to access the concept of 'mindfulness' without having developed abstract thought in all areas.

There was a significant decrease in scores on the hyperactivity/inattention subscale of the SDQ (completed by the class teacher) between pre PSHE and post PSHE, and pre PSHE and post MBI. These findings could conceivably be explained by the time of academic year. The children's levels of hyperactivity and inattention was at its highest in September of the academic year; this is a time when they have returned from a six week school holiday and are adapting to a new classroom with a new class teacher. However, the hyperactivity/inattention scores continued to decrease after the MBI, although this positive effect was not maintained at follow-up. The class teacher reported that the children's levels of hyperactivity/inattention

increased at follow-up (mean score of 2.35), although they did not reach the original level of perceived hyperactivity/inattention (mean score of 2.75). Although it cannot be concluded from the quantitative data that the MBI (and not just the time of academic year) had a positive impact on the children's attentional functioning, the qualitative data from both the class teacher and the children indicated an increase in focus/attention at follow-up. Themes from the qualitative data include 'positive impact on functioning: cognition and learning' (class teacher interview) and 'positive impact on functioning: attention and concentration' (children's written feedback). An increase in attentional functioning, thus a decrease in hyperactivity/inattention scores, was expected based on pre-existing literature (Moore and Malinowski, 2009; Thomas and Atkinson, 2016; Sanger and Dorjee, 2016).

According to class teacher questionnaire data, peer relationship difficulties were found to significantly decrease post MBI and at follow-up. In addition, a significant effect of time was found for females on the prosocial behaviour subscale; scores increased between pre PSHE and post MBI, pre PSHE and follow-up, post PSHE and post MBI and post PSHE and follow-up. In essence, the only time-points where there had been no significant increase in scores for females was between pre and post PSHE. This indicates that PSHE/normal school alone did not have a significant positive effect on prosocial behaviour. Interestingly, a significant increase in prosocial behaviour scores was not found in males until follow-up. The difference in results in relation to gender could be explained by 'Social Learning Theory' (Bandura, 1977) whereby individuals learn from observation, imitation and modelling. It may have taken the male pupils longer than the female pupils to engage in prosocial behaviours because they firstly observed the female pupils engaging in prosocial behaviour, and subsequently receive positive reinforcement, and then decided to imitate the females' behaviours. The present study's discovery of positive effects in relation to prosocial behaviour and peer

relationship difficulties is similar to findings in the literature, for example, reductions in aggressive behaviour (Singh et al, 2007a; Singh et al, 2007b) and increased awareness and clarity of expression in social interactions (Dekeyser et al, 2008) have been found post MBI.

The MBI may have had positive effects on the children's prosocial behaviour due to the nature of the intervention activities; many of the activities provided structured opportunities to develop social skills through paired or group working, with some activity content focused around "well-wishing" for others and social communication skills. In addition to the increase in prosocial behaviour, the children may have experienced less peer relationship difficulties due to an increase in emotional regulation, thus responding to social disagreements with less reactivity and an increase in reflectivity (Baer, 2003; Segal et al, 2002).

Scores on the BMLSS, measuring life-satisfaction, did not significantly increase at any time-point for males and females. On reflection, this may be due to the content that the BMLSS measures. The questionnaire asks participants to rate how satisfied they are with their school, home and community. Whilst an individual may have experienced a positive change post MBI in regards to, for example, anxiety and hyperactivity/inattention, this does not necessarily have a direct impact on perceived life-satisfaction in regards to external aspects of an individual's life, such as their school or home. Therefore, 'life satisfaction' may be more resistant to change in comparison to internal processes such as anxiety, mindfulness, and attention.

The children's written feedback revealed four main themes: 'positive impact on functioning', 'mindfulness concepts', 'applying mindfulness' and 'the intervention and facilitator'. The sub-themes in regards to positive impact on functioning included 'feeling calm and relaxed', 'feeling happy', and 'cognition and learning'. The reference to feeling calm and relaxed was

supported by the decrease in SCAS scores for obsessive compulsive and generalised anxiety for males and females, and panic agoraphobia for females at follow-up. The theme 'feeling happy' was not supported by the quantitative data, with scores on the DSRS-C remaining relatively constant across all four time-points. It is a possibility that whilst the children made reference to mindfulness "as a way to feel calm and be happy", they did not directly experience a decrease in negative affect or an increase in positive affect following the MBI. The children made reference to a positive impact on their cognition and learning which included an increase in focus/attention; this was supported by the reduction in scores on the hyperactivity/inattention subscale of the SDQ post MBI. However, when the written feedback was collected from the children at follow-up, the corresponding hyperactivity/inattention scores on the SDQ (from the class teacher) were elevated in comparison to the post MBI scores, indicating a decrease in focus and attention at this time-point. The contradiction in findings may be due to a social desirability bias (further discussed in 'methodological considerations'), whereby the children reported a false benefit of the MBI to placate the researcher and/or class teacher.

An awareness and understanding of the basic concept underlying mindfulness of "present-moment awareness" was reflected in the written responses that the children provided and class teacher reports of increased mindfulness post MBI, indicating that mindfulness was indeed an accessible construct for the children. This is inconsistent with Piaget's theory of cognitive development (1952) which proposes (as stated earlier in this discussion) that children find it difficult to understand abstract concepts before they reach 11-12 years old and are entering the 'formal operational' stage of cognitive development. The increase in mindfulness scores at follow-up can be viewed as further supporting evidence for the children's understanding of mindfulness. A potential explanation for the significant increase in mindfulness scores at

follow-up, and not at post MBI, may be due to the complex nature of the concept. It may have taken until follow-up, when the children had received exposure to the concept for approximately four months, for the children to fully understand mindfulness and to "be more mindful" in everyday life. 'Breathing and meditation' was a further subtheme under the broader theme of 'mindfulness concepts' and provided further support for the earlier discussion point that children may view mindfulness practices as solely relaxation strategies (Fodor and Hooker, 2008), with supporting quotations including "I've learnt that when you are upset you can have a breath".

The qualitative data associated with the 'applying mindfulness' theme evidenced the children's understanding that mindfulness was not a skill that was confined to the classroom context, but that it could be applied in multiple contexts ('flexibility of mindfulness'). Furthermore, the theme 'examples of application' highlighted that the children understood when using mindfulness practices could help them in everyday life. Whilst the class teacher provided a more critical analysis than the children, with themes including 'difficulties encountered with practices', 'changes in attitude over time' and 'difficulties generalising skills', she did conclude that the children's ability and attitude to engaging in the practices had improved over the course of the academic year.

Examples of application given by the children were suggestive of the maintenance of mindfulness, for example, "If I was sad I would shut my eyes and go to my peaceful place". However, this again indicated that the children applied mindfulness practices as reactive strategies in times of distress, as opposed to a more general way of viewing their internal processes and surrounding environment. On reflection, there was a particular focus during the sessions on using mindfulness practices reactively, with breathing and meditation activities described to the children as strategies they can use when experiencing emotional distress.

There was a strong theme of positivity towards the intervention activities, the facilitator, and "mindfulness" itself throughout the children's feedback. Additionally, the class teacher reported 'activities enjoyed' by the children during the MBI. This high level of acceptability to a MBI in school has also been found in the literature (Huppert and Johnson, 2010; Sanger and Dorjee, 2016; Vickery and Dorjee, 2016).

There was an overlap in content in the children's feedback and the interview with the class teacher in regards to the theme of 'positive impact on functioning', with both sources providing examples of perceived benefits of the MBI. Both the children and the class teacher highlighted themes associated with emotion regulation and attention/concentration. The class teacher highlighted further benefits for the children, with themes specific to the class teacher interview including: 'recognition and understanding of feelings', 'expression of feelings', 'ability to be mindful', and 'consideration of others'. It is difficult to conclude whether the children's ability to recognise, understand, and express their feelings increased as a direct result of the MBI, or if it was due to confounding variables such as the increase in social and emotional language used in the classroom. Whilst it is difficult to establish a causal link, the MBI provided a structured platform for dialogue around social and emotional well-being to occur and so directly or indirectly, it appears to have had a positive impact on the children's recognition, understanding and expression of feelings. Finally, the class teacher reported engaging in formal and informal mindfulness practice with the children outside of the sessions, alongside her intent to continue mindfulness based practices with her future classes ('maintenance and sustainability'). It is important to acknowledge that the class teacher's commitment to the MBI, openness to mindfulness as a concept, co-operation with the researcher, and her ability to facilitate the mindfulness activities, are factors which are likely to have contributed to any positive outcomes of the present study.

6.2 Methodological considerations

When considering the findings, it is important to consider both the strengths and weakness of the methods and measures which were utilised in the research.

6.2.1 Study design

The present study lacked a control group. The present study used an opportunity sample strategy; the school demonstrated interest in the intervention and were recruited out of convenience. The participating primary school are a one form-entry school; there is only one Year Four class thus there is no age-matched group that could be used for comparison purposes. The strengths and limitations associated with recruiting a control group from an additional primary school were considered. It was decided that the optimum choice, under the constraints of the present study, was to collect data with the absence of a control group but with data collection at four time-points during the academic year. The inclusion of a control group may have reduced confounding variables potentially affecting the children and class teacher's responses. For example, scores on the questionnaires may differ depending on the time-point; hyperactivity and inattention and anxiety scores are likely to be higher at the beginning of the academic year due to the return from an extended school holiday, and the challenges associated with settling into a new class and routine. However, the inclusion of a control group would mean that data would be collected at three time-points only: pre MBI, post MBI and follow-up, and therefore no hyperactivity/inattention data would have been collected at the time of year when scores are likely to be at their highest. The absence of data collection at this time-point may have produced different results to the present study, where a significant effect of time was found between time-points pre and post PSHE, pre PSHE and post MBI, and pre PSHE and follow-up.

It was felt that data sourced from two different schools could be affected by multiple confounding variables such as the following: socioeconomic status, school ethos, PSHE content, and exposure to additional social and emotional interventions. The present study aimed to address limitations associated with a lack of control group through the inclusion of a 'PSHE only/normal school' time-point. The statistical analyses highlights where the changes in the children's scores are significant and so comparisons between 'PSHE only' and 'Post MBI' can be made.

6.2.2 Self-report measures

Firstly, the validity of the self-report measures must be considered; the validity of a measure can be defined as whether what is being measured matches what is intended to be measured (Langdridge, 2004). Disadvantages of self-report measures are discussed in the literature, for example, social desirability effects may occur when collecting self-report questionnaire data. 'Social desirability effects' (or social desirability bias) are when a participant's answers are influenced by either portraying themselves in a positive light, or by choosing what they think the researcher wants them to (Langdridge, 2004). It is a possibility that the children, when completing their sets of questionnaires at each time-point, may have responded in a way that they deemed as desirable either by the researcher or in a way that they wished to portray themselves. Moreover, when the class teacher completed the SDQs for the children, she may have provided answers that she felt were needed for a positive outcome of the research, particularly as she played a significant role in the delivery and maintenance of the intervention.

In addition to 'social desirability effects', it is possible that participants displayed an 'acquiescence bias', whereby participants tend to agree to items without consideration of their

content (Podsakoff et al, 2003). For example, there was a risk that the children may have always selected the "agree" on the SCAS, DSRS-C, CAMM and the BMLSS; however, an acquiescence bias can be ruled out for three reasons. Firstly, from superficial inspection of the original questionnaires, there does not seem to be a particular pattern of responding which the children have followed (for example, all "agree" or all "disagree"), with responses varying statement to statement. Secondly, on two of the measures (SCAS and DSRS-C) there are statements that are worded both positively and negatively and a biased pattern of responding is not apparent. Thirdly, the findings from the children's questionnaires are in line with previous research (Lagor et al, 2013; Napoli et al, 2005; Schonert-Reichl and Lawlor, 2010), thus suggesting that the children responded to the statements on the questionnaires after reflecting on their current thoughts, feelings and behaviours. Counterbalancing the questionnaire items at each time-point would have established if the participants were responding to the items with an acquiescence bias. However, as an acquiescence bias was not suspected, and the time between completions of questionnaires was deemed long-enough not to produce order effects, counterbalancing of the items was not felt necessary by the researcher.

When using self-report questionnaires which measure clinical phenomena such as anxiety, depression and conduct behaviours, there is always a risk of pathologising participants' difficulties. Whilst the SDQ, SCAS and DSRS-C can be used for clinical purposes, the measures have also been used in alternative ways with non-clinical samples. For example, the SDQ has been used as a pre and post measure to evaluate the efficacy of interventions (http://www.sdqinfo.com), and to highlight strengths as well as difficulties in community samples (Goodman and Scott, 1999). Additionally, the DSRS-C was originally developed to assist in clinical diagnoses (Birleson, 1981) but its use has since been extended to survey

depressive symptoms in non-clinical samples (Charman, 1994; Ivarsson and Gillberg, 1997). Finally, the utility of the SCAS has been extended to community screening and prevention purposes (Spence et al, 2003), as a pre and post targeted intervention measure (Liddle and Macmillan, 2010), and as a pre and post universal intervention measure (Lock and Barrett, 2003).

The risk of pathologising participants can be considered minimal when using the BMLSS as the primary focus of the measure is on the participants' perception of their environment and relationships, as opposed to their internal processes. Whilst the measure is intended for non-clinical use, it is relevant in assessing social and emotional well-being as life satisfaction has been found to relate to a range of psychological difficulties (Frisch, 1998) and to be negatively correlated with mental health (Bray and Gunnell, 2006). Similarly, the CAMM was not developed for clinical use, with its aim to measure "present-moment awareness and non-judgmental, non-avoidant responses to thoughts and feelings in children and adolescents" (de Bruin et al, 2014, p 424). It was felt that amalgamating information from the SDQ, SCAS, DSRS-C, BMLSS and the CAMM provided a comprehensive overview of the children's social and emotional well-being, observable behaviour and their level of mindfulness, without a focus on "mental illness" or "disorders".

There were several limitations of the questionnaire data analysis. For example, when completing a number of the statistical analyses, the number of participants which were included in the analysis could be as little as fourteen out of a potential twenty-eight participants. This was due to incomplete response sets from the children at one or more of the time-points. After the first collection of questionnaire data, omissions in responses were noticed by the researcher. An intentional reminder was given to the children to check that their questionnaires were complete during all subsequent data collection. Consequently, the

children's rate of responses increased, however statistical analysis could still only be run on full sets of data (completion of entire questionnaires at all four time-points). Small sample size may have affected the power of statistical analyses, resulting in false positives or exaggerated effect sizes. In addition, the statistical power was further reduced by including gender as a variable. In one instance, incomplete data sets meant that it was not possible to run a MANOVA including gender as a between subjects variable (n = 6 male and n = 7 female).

6.2.3 Qualitative data collection

The semi-structured interview format with the class teacher allowed for a structure with questions directly relating to the study's research questions, but there were also opportunities for interesting points made by the class teacher to be further explored. The class teacher report was extremely positive in relation to the efficacy of the MBI; the investment and commitment of the class teacher to the MBI must be considered when considering the reliability and validity of the data. For example, the class teacher's positive view of the MBI may have been affected by a number of factors such as: her extensive input in the intervention, her enjoyment of the sessions/practices, her personal views on the concept of mindfulness itself, and the positive relationship between the researcher and the class teacher.

The children were asked at follow-up to write down one aspect of the sessions that they had enjoyed and one thing that they had learned from the intervention. The responses varied somewhat according to the children's literacy skills. A limitation of this method of data collection was that eliciting the children's views was dependent on them being able to express themselves in written form. However, the researcher and the class teacher were available to provide support and to scribe the children's responses, if necessary. A strength of the data collection method was the ability to collect the whole class' views on the MBI, anonymously,

in a timely manner, and themes from the children's written feedback could be efficiently generated.

6.3 Implications for practice

The results of this study suggest positive implications for schools, educational psychology services, and for the researcher's own practice and management of well-being. Foremost, the study's findings provide positive results for the implementation of a short MBI in a primary mainstream setting.

Evidence from the present study and pre-existing research indicates that MBIs could be implemented as a routine contribution to the primary school curriculum. They are likely to be highly acceptable by mainstream primary schools for the following reasons:

- A MBI can be conducted at a low cost.
- Mindfulness sessions could take place as part of the children's normal PSHE curriculum.
- The use of published mindfulness programmes, such as '60 mindful minutes', allow for minimal planning for school staff.
- The activities, by nature, do not require expensive resources and they are easy to implement.
- Interventions focused on mental health promotion in children and young people are in line with recent policy such as 'Promoting children and young people's emotional health and well-being: a whole school and college approach' (Public Health England, 2015).

- Universal interventions provide a strengths-based approach to mental health and well-being (Higgins and O'Sullivan, 2015) and can reduce stigma surrounding mental health (Kobau et al, 2011).

Fallon et al (2010) discuss the evolving role of educational psychologists' (EPs') within Children's services and proposed that it is within the role of the EP to work in a universal context with children without identified additional needs, as well as providing more targeted and specialised support. EPs' involvement in universal interventions is particularly important in the promotion of positive mental health and well-being and the prevention of mental health difficulties at a time when children with social, emotional and mental health difficulties constitute 19.3% of children with special educational needs in the United Kingdom (Department for Education, 2015b). In addition, universal interventions provide interim support for children and young people already experiencing mental distress, in a climate where wait-times for psychological therapy are an average of 32 weeks (Mental Health Taskforce, 2016).

According to Davis (2012), "there is currently sufficient evidence for educational psychologists to incorporate mindfulness based approaches within their work or with appropriate training to facilitate established mindfulness programmes with adults, such as teaching staff or parents" (p 42). The use of mindfulness based approaches appears to have become increasingly popular, with Thomas and Atkinson (2017) predicting that if a survey of EPs' therapeutic approaches were to be carried out, then "mindfulness may have emerged strongly within EPs' repertoire of therapeutic interventions" (p 13). Educational psychologists (EPs) are in a prime position to support with the implementation of MBIs in primary school settings in numerous ways. Firstly, EPs could directly deliver a MBI to a primary school class as part of their educational psychology service traded time. Or, rather than directly delivering

a MBI, EPs could provide training on the delivery of a MBI to school staff members. This will then support school staff members in developing their ability to deliver mindfulness-based practices and allow for wider reaching benefits across the school. Alternatively, there is a potential role for EPs to provide support with differentiation of MBIs and development of MBI resources for educational settings. Felver et al (2013) discuss the need for developmental consideration of the age-group participating in the MBI, with appropriate differentiation of resources. The following differentiation is recommended by the authors for younger age groups: a reduction in time for sustained practice, a multi-sensory curriculum, and the use of metaphors and additional time to describe complex concepts.

Felver et al (2013) highlight the need for personal mindfulness practice, as well as a high level of familiarity with the concepts underlying mindfulness, prior to delivering a MBI. This prior experience and understanding of mindfulness is an important quality for both the EP providing training to other professionals, and the professionals who are directly implementing the MBI. It has been suggested that the need for a certain level of personal mastery in mindfulness practices may be a significant barrier to EPs delivering MBIs (Thomas and Atkinson, 2017). EPs with sufficient experience in mindfulness practices can provide regular supervision during the implementation of a MBI to other professionals such as assistant psychologists, trainee educational psychologists, and teachers.

Moreover, EPs can also contribute to the limited literature base on MBIs in UK primary school settings which Thomas and Atkinson (2017) state is particularly sparse in regards to qualitative data. EPs have the prerequisite research skills, as "scientist-practitioners" (Fallon et al, 2010), needed to both evaluate a MBI and to nationally disseminate innovative research through publications and contribution to conferences. In addition to raising awareness of

mindfulness through published research, EPs can also promote mindfulness-based practices through recommendations made in written reports.

As well as universal interventions, EPs are well-placed to provide support with the implementation and evaluation of targeted mindfulness interventions for children and young people who have been identified as experiencing social, emotional and mental health difficulties. As the focus of this thesis is around universal interventions, this will not be discussed at length. However, it must be noted that, as outlined for universal interventions, EPs' skills allow for work within the five core functions of an EP (SEED, 2002): direct implementation of a MBI (intervention), the delivery of training and/or supervision to other professionals implementing a MBI (training, supervision and consultation), and the evaluation of a MBI (research).

6.4 Future directions

After considering the present study alongside its strengths and limitations, numerous ideas for future research emerged. For example, future research could entail a replication of the present study, with the inclusion of a control group. The inclusion of a control group would allow for a basis of comparison (Thomas, 2009). The research would need to be conducted in a two-form entry school, where there are two Year Four classes which are deemed by the researcher as similar in all other characteristics such as age, gender, and socioeconomic status. All variables would remain the same for the experimental and the control group, aside from the independent variable of intervention/no intervention. If significant effects are found in the experimental group, and not the control group, then this is a strong indicator that the independent variable (the intervention) has had a significant impact on the dependent variables (anxiety, depressive symptoms etc.). Within this study, well-being could be measured using positively-phrased quantitative measures such as the 'Warwick-Edinburgh

Mental Well-Being Scale' (Tennant et al, 2007), in contrast to the use of negatively-phrased measures such as the SCAS and DSRS-C. This may be considered more "child friendly", as well as more in line with the universal intervention's aim: to promote social and emotional well-being.

As aforementioned, the present study failed to capture parental views due to a low return-rate of questionnaires. Future studies may focus on triangulation of data; the perceived authenticity of any findings would be increased through the collection of parental data, alongside the children and class teacher data. A 'parental plenary session' was offered to parents of the participating children post MBI, with the intention of exploring whether the children whose parents attended the session a) displayed benefits exceeding the children whose parents did not attend and b) were more likely to maintain mindfulness practices at follow-up. Unfortunately, the parental session in the present study was not well attended (n=4). As well as the increase in likelihood that parents will assist their children with maintenance of practices if they have received brief training on mindfulness themselves, further benefits of parental mindfulness have been documented in the literature. For instance, fathers who reported being more mindful were found to have "more involvement in child-related parenting tasks and roles related to child socialization" (MacDonald and Hastings, 2010, p 236) and incorporating mindfulness into a strengthening families programme both enhanced and better maintained the positive effects of the programme (Coatsworth et al, 2015).

Holding focus groups with the children who appeared to benefit the most and least from the MBI (based on the quantitative data) would allow for further exploration of the children's views on the intervention and may provide an insight into why the intervention was effective/ineffective for those children. A focus group allows for "information to be collected

on *why* an issue is salient, as well as *how* it may be salient or in *what* ways it may be salient- all at the same time" (Arthur et al, 2012). Whilst considered a valuable addition to data collection, it was not feasible to conduct focus groups as part of the present study for two reasons. Firstly, the present study was conducted within strict time constraints and there were concerns around the possibility of eliciting "complex verbal and non-verbal responses from participants making analysis and interpretation a challenging task" (Arthur et al, 2012). Secondly, there were ethical concerns around requesting that the children who had "benefited the least" within a universal intervention context, and who may be experiencing social and emotional difficulties, participated in a focus group.

The present study was conducted with extensive input from the researcher who was a trainee educational psychologist on placement in the local authority educational psychology service (EPS). The considerable input of the researcher was only possible as the study formed volume one of their thesis, however, if other members of the EPS were tasked with the same level of involvement then difficulties would arise. It may be incredibly difficult, due to time and financial constraints, for an EPS member to deliver and evaluate a MBI similar to that in this thesis. Therefore, future research may be centred on the evaluation of MBIs delivered by class teachers in mainstream primary schools. Moreover, it would be interesting to see whether similar results are found in special schools and alternative provisions; the UK research identified in the systematic literature review (Chapter 2) details interventions conducted in mainstream educational settings only (Ardern, 2016; Thomas and Atkinson, 2016; Huppert and Johnson, 2010; Kuyken et al, 2013; Vickery and Dorjee, 2016; Sanger and Dorjee, 2016).

6.5 Concluding comments

This research has provided support for a mindfulness-based intervention in a Year Four class in a mainstream primary setting. The present study has highlighted that a short MBI,

facilitated by a TEP and class teacher, can be effective at reducing particular areas of anxiety, increasing levels of mindfulness, improving focus and concentration, reducing peer relationship difficulties, and increasing levels of prosocial behaviour. The intervention was deemed highly acceptable by the participating children, the class teacher and the researcher themselves. Moreover, the children and the class teacher provided examples of maintenance of mindfulness practices. The results of this research have a number of important implications for practice, such as the possibility of incorporating MBIs into a primary school's PSHE curriculum. Whilst there is a plethora of international literature on MBIs with children and young people, published research on MBIs in UK schools is currently limited. Therefore, further studies that are similar in nature to the present study should be implemented and evaluated in educational settings to further contribute to the UK literature base.

6.6 Personal reflections

This final section, written in the first person, is a brief reflective account of how my research has influenced my practice, alongside the impact that it has had on the management of my own well-being.

Since completing the MBI which forms Volume One of my thesis, I have incorporated mindfulness-based practices into my work in a variety of ways. For example, I have completed four one-to-one mindfulness sessions with a young person experiencing high levels of anxiety, with the aim of the sessions to equip her with emotion regulation strategies whilst she is awaiting specialist support from the Child and Adolescent Mental Health Services (CAMHS). I have also raised awareness of mindfulness within my local authority placement in the following ways: by providing supervision to an assistant psychologist who completed four mindfulness sessions with a young person experiencing anxiety related to secondary transition; through the sharing of resources and intervention lesson plans with colleagues, and

by delivering a presentation at the service development day on my research project and the implications for using mindfulness in schools. Lastly, I have delivered a lecture on using mindfulness in the classroom to the second year cohort on the Applied Educational and Child Psychology Doctorate at the University of Birmingham.

In terms of how the current research has shaped me as a practitioner, I feel that I have become increasingly aware of the importance of mental health promotion and prevention work, after having seen first-hand benefits of a 'universal' mindfulness-based intervention with primary-aged children. My experience of working as a trainee educational psychologist in a West Midlands local authority for the past two years, is that the majority of the referrals to the educational psychology service are for targeted support for children and young people with significant needs. Whilst I participated in mental health promotion and prevention work through the delivery of training, there were no requests for support with, or the delivery of, universal interventions. In my first qualified post as an educational psychologist, I intend to firstly, encourage educational settings to consider their mental health promotion and prevention strategy at the whole-school level. Secondly, I intend to offer support with the implementation and evaluation of universal interventions which are focused on positive social and emotional well-being, such as mindfulness-based interventions.

Positively, it has been suggested in the literature (Thomas and Atkinson, 2017) that trainee educational psychologists would benefit from training in MBIs as part of their professional doctorate programme, both for the management of their own well-being and "to address the low numbers of qualified EPs who are also mindfulness practitioners" (p 14). In regards to my own well-being, I feel an enhanced ability to regulate my emotions in times of high-stress and demand through the familiarisation of the concepts of mindfulness and mindfulness practices. Present moment awareness is a concept which I have tried to regularly apply in everyday life

as one can easily become caught up in worrying about the past or future, particularly during an extremely busy and challenging period of study. In practical terms, enhancing my present moment awareness has included activities such as listening to mindfulness podcasts with guided meditations, practising mindful breathing and mindful walking exercises, and reading key literature such as 'Mindfulness: a practical guide to finding peace in a frantic world' (Williams and Penman, 2011). I most definitely still consider myself a "beginner" in practising mindfulness and admittedly often use the strategies in a reactive manner in times of anxiety, much like the children in the present study. I hope to extend my knowledge of mindfulness over the course of my career as an educational psychologist and further my knowledge of MBIs so that I am able to deliver, support, and evaluate mindfulness-based interventions in schools.

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