**Optimising the potential of mindfulness programs in schools:
Learning from implementation science**

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Abstract

There is a growing need for the provision of mental health services for young people in schools. A number of evidence-based practices (EBPs) now exist for schools to choose from to address their pupils' mental health needs. However, when such EBPs are introduced into schools, their effectiveness can be lacking and weakened. Implementation science suggests that without effective implementation strategies, the success of EBPs in schools may be limited. The transfer of knowledge into practice is a difficult and challenging process, often referred to as the 'science to service gap'. To support the mental health of young people, there is a need not just for EBPs but also for evidence-based implementation.

Mindfulness training (MT) is a promising intervention for young people that is currently being introduced to a number of schools across the UK, and internationally. The primary aim of this doctoral work was to understand and examine MT implementation experiences in order to identify the determinants of, and potential ways to promote, the early implementation stages of MT in schools. The first study in this doctoral work examined how far a knowledge broker, sharing implementation related knowledge, could impact the implementation decisions made by a steering group (SG) responsible for implementing a mindfulness program across schools in Cumbria, UK. SG meetings were attended for 14 months and meeting minutes, notes and audio recordings were recorded and analysed for "key moments" and "key outcomes". A second related analysis of this SG activity explored, via interviews and thematic analysis, the perceived opportunities and barriers for the SG to act as an implementation team. Study 3 aimed to identify the determinants of MT early implementation success in five secondary schools by using the Consolidated Framework for Implementation Research (CFIR). Interviews were conducted with school staff responsible for implementing MT at two time points across 6 months. The schools' implementation progress was recorded, and the CFIR was used to code the data for 38 implementation constructs. Usefulness of the CFIR was assessed. Finally, in Study 4 the findings of the previous studies were synthesised with the implementation science literature to inform the development of a preliminary implementation framework to promotes the successful implementation of MT in (secondary) schools in order to improve their usefulness in such complex settings.

Findings from Study 1 and 2 suggested that SGs responsible for implementing school public health programs can learn about implementation and then apply this new

knowledge to their program. Sharing knowledge with stakeholders responsible for implementing public health programs may be a viable and effective implementation promotion strategy. Having a strong engagement strategy and good relationships with schools can facilitate this process. SGs influence over general school capacity and external funding may be limited and hinder their ability to impact overall implementation. More work is needed to understand how SGs may be empowered to influence general capacity, funding, and have better linkages to other stakeholders involved in their program's overall provision.

Findings from Study 3 indicated that there are a number of implementation related constructs which seem to distinguish between schools which implement MT well and schools which do not. The CFIR was a useful tool for identifying the barriers and facilitator to EBPs in schools and which barriers and facilitators seem to distinguish implementation success between schools the most. School leadership plays a pivotal role in ensuring implementation success. Who should be solely responsible for the successful implementation of EBPs in schools is less clear but it may be that a concerted effort on the part of program designers, program funders and school leadership might be required to ensure programs are implemented well. Study 4 indicated that implementation frameworks designed specifically for school leaders are likely to be useful but what motivates school leaders to use them is less clear. Further research into ways of promoting the use of implementation guidance by school leaders is needed.

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Chapter 1 **- Introduction to thesis**

Poor mental health among young people is a significant concern internationally. In their systematic review of worldwide mental health disorder prevalence, which included 41 studies conducted in every region in the world, Polanczyk, Salum, Sugaya, Caye, and Rohde (2015) found that the worldwide pooled prevalence of mental disorders among children and adolescents was 13.4% (CI 95% 11.3–15.9). The World Health Organization (2017) reported that 10 to 20% of children and adolescents are affected by mental ill-health worldwide and that mental illness can affect a child's development, educational attainment, quality of life and can lead to stigma, isolation and discrimination.

Prevention and early intervention are proposed in both policy and research to address poor mental health in adolescents (Department of Health, 2015; Jacka et al., 2013; Reynolds et al., 2007; World Health Organization, 2017). Over the last decade, research has focused on developing evidence-based prevention and early intervention programs for use with young people (European Commission, 2016), especially for anxiety (Neil & Christensen, 2009) and depression (Calear & Christensen, 2010). This research has led to the development of preventative and early intervent evidence-based practices (EBPs) to prevent the onset and escalation of mental health difficulties. In the domain of adolescent and child mental health, such programs are often delivered to whole groups or in complex settings, e.g. schools. Delivering EBPs in these settings requires more resources and planning than delivering an EBP to just one person in a controlled environment, e.g. a therapy room. The field of implementation science recommends that EBPs must be combined with evidence-based implementation strategies in order to be effective, i.e. to benefit end-users and be cost-effective (Blase, Fixsen, Sims, & Ward, 2015; Kelly & Perkins, 2012; Wallace, Blasé, Fixsen, & Naoom, 2008). If intervention designers are interested in having their interventions adopted and used, then it will be necessary for them to do more than just produce produce EBPs to promote young people's mental health, but also to understand, and then guide, how to implement EBPs in complex settings effectively. Robust evidence indicates that only producing and publishing evidence for an intervention's effectiveness is insufficient to secure the

planned outcomes. However, to date, this approach dominates in the field of health intervention design.

Schools are a key setting in which to understand implementation because they are increasingly a common delivery site of evidence-based prevention and early intervention strategies (National Institute for Health and Care Excellence, 2009; Department of Health, 2013). Schools are particularly complex environments in which to implement EBPs. Every school environment is different, always changing and unpredictable. Barriers to implementation can exist at the individual (i.e. stigma, parental risk factors), community (i.e. geographic, social) and system level (i.e. funding, government policy; Fazel et al., 2015). Schools can be stressful contexts, and the introduction of an EBP may increase teacher stress as they struggle to cope with competing demands (Thomas & Aggleton, 2016). In general, schools either do not adopt EBPs at all, or if they do, most are not effective or are not sustained (Blase et al., 2015; Domitrovich & Greenberg, 2000; Durlak & DuPre, 2008; Lendrum, Humphrey, & Wigelsworth, 2013). It has been argued that the lack of clear, compelling and tested implementation guidance is one of the factors that contributes to the mediocre success of EBPs in schools (Blase et al., 2015; Fazel, Hoagwood, Stephan, & Ford, 2014) and numerous large-scale school EBPs have failed to be implemented well (Durlak & DuPre, 2008; Moss et al., 2008; Vernez, Karam, Mariano, & DeMartini, 2006).

Current implementation guidance for health promotion in school advocates a whole school approach (WSA (Thomas & Aggleton, 2016). A WSA is an approach to health promotion in schools where, as well as ensuring the delivery of health promotion to students in classrooms, the school structures, culture, procedures, ethos and the broader community are utilised to promote and deliver the intervention (Oddrun & Louise, 2011). However, despite being advocated in research literature (Weare & Nind, 2011) and policy (World Health Organization, 1998), the evidence base for WSA's is still in its infancy, and full, practical advice on just how to apply a WSA for a specific intervention is rare. Previous mental health promoting programs taking a WSA have varied dramatically in their implementation success and relative outcomes (Banerjee, 2010; Durlak & DuPre, 2008; Lendrum et al., 2013; Wandersman et al., 2008). If schools are to receive practical information on implementing a whole school approach for health promotion, further research is needed into what the facilitators and barriers to

implementation are, and our understanding of implementing school-based mental health programs needs to grow.

1.1   Purpose of Doctoral Work

The primary aim of this doctoral work was to understand what factors determine the early implementation success of a particular whole-school mental health intervention, namely mindfulness training (MT). It also looked at possible ways to promote its implementation. There were a number of sub-aims. A first sub-aim (Study 1) was to understand whether decisions around the implementation of MT could be informed, and thus strengthened, by the sharing of implementation related knowledge to a steering group (SG). In addition, we collected and analysed the experiences of SG members and school staff involved in school-based MT intervention (Study 2 and 3). The outcome of this work was the development of an implementation framework (Study 4) which can be used by individuals involved in implementing whole school MT. In order to develop the framework, we drew from implementation research and education, the wider implementation science literature; from stakeholders involved in the implementation of mindfulness, from the findings of the qualitative studies we conducted and from the previous implementation framework designed to guide the implementation of social and emotional learning programs in schools.

By studying the implementation of MT into schools, I was able to examine the implementation of a current, popular and complex mental health EBP into complex settings and shine a light on how to improve the implementation, and therefore outcomes, of MT programs in schools. Some of the factors responsible for the early implementation success of MT are likely to be applicable to the early implementation success of many other whole-school mental health interventions in general.

1.2   Origins of this Thesis: The Mindfulness Training in Cumbria HeadStart Project (MTCHP)

In 2014, 12 areas in the UK were awarded up to £900,000 as part of the National Lottery-funded HeadStart program to build the resilience of young people to mental health difficulties; Cumbria, a county in North West England, was one of these. A public health

consultant employed by Cumbria county council to co-lead the HeadStart project wrote a service specification of possible interventions. Mindfulness was one of the key interventions introduced into 20 Cumbrian schools during the initial phase of the project, and the Mindfulness Training in Cumbria HeadStart Project was formed (MTCHP). The public health consultant who wrote the MT service specification felt that mindfulness was a particularly complex intervention and therefore included a SG to guide the programs design. As well as awarding a grant to a MT trainer, the project also engaged with a clinical lead (a local general practitioner) and wrote into the specification that this person should convene a multiagency group to oversee the project, and hence the MTCHP SG was formed. Both the clinical lead and the public health consultant were the SG's founding members, and they felt that the group needed people with backgrounds in MT, or experience in teaching or school leadership. It was hoped that such people could bridge connections to school communities and support the delivery of a challenging project. As well as the MT trainer, a representative from HeadStart and two local headteachers, whose schools were receiving the offer of MT, also joined the group. Its core members, therefore, included a local GP (general practitioner), an experienced MT trainer, a public health consultant, two local head teachers, and a HeadStart representative.

The MTCHP steering group aimed to introduce MT across an initial 20 schools in Cumbria with the final aim of offering it to all 300+ schools in the county. They started offering MT to the initial 20 schools between January 2015 and September 2017 (plans to introduce MT to 80% of Cumbria's 300+ schools were abandoned when Cumbria was unsuccessful in securing ongoing HeadStart funding). The SG was responsible for overseeing the delivery of the mindfulness offer, engaging with relevant stakeholders (e.g. schools, commissioners), executing the offer across Cumbria and evaluating and monitoring the success of the project as it unfolded.

The SG's MT offer was designed to train school teachers first, and for them to go on to train their students. Teachers who accepted the offer received 8 weeks training in mindfulness-based stress reduction (Gold et al., 2010), after which they are expected to engage in 6 months of mindful self-practice, before receiving an additional 4 days of training on how to deliver a school-based mindfulness training program known as .b for secondary age children,

or Paws B for primary age children (Hennelly, 2011). After learning .b, they could then start teaching mindfulness to students in their school.

MTCHP agreed to partly fund a PhD with the University of Leeds who negotiated with Cumbria that the focus of the PhD would be implementation, executed via a knowledge broker. It was agreed that the PhD student would join the SG as a fully-fledged member and attend SG meetings with the main aim of sharing implementation related knowledge with the group over the course of the project.

1.3   Thesis chapter outline

There are seven chapters in this thesis. Chapter 1 (the current chapter) is an introduction to the thesis and includes the thesis aims along with a description of the studies conducted to achieve these aims. Chapter 2 explains the mental health crisis among young people in the United Kingdom (UK) and traditional approaches to treating them. Current mental health programs in schools are examined, and the importance of effective implementation is argued. Whole school universal interventions are explored in particular detail as these are currently the most popular, effective and encouraged approaches to promote the mental well-being of school children and adolescents. Difficulties around implementing whole school programs are examined. Example whole school EBPs which have struggled to lead to sustained real-world practices are discussed. Implementation science is introduced, and its relevance and potential application to schools is highlighted. MT in schools is then examined. MT in schools has become an increasingly popular school-based mental health program over the last few years in the UK, USA and Europe. It is an excellent example of a complex EBP being introduced into complex school settings. It has been suggested that getting the best outcomes from mindfulness based interventions (MBIs) requires taking a WSA (Kielty, Gilligan, & Staton, 2017) and mindfulness providers in the UK (https://mindfulnessinschools.org/), and Australia (https://www.smilingmind.com.au) advocate taking this approach. Studying the implementation of MT enabled me to examine the implementation of a current and popular school-based mental health EBP and allowed me to address the aims of this PhD; i.e. to identify the determinants of early implementation success of whole school MT programs in complex school settings, identify if knowledge sharing was useful, and inform the

development and testing of a preliminary implementation framework to promote the success of MT in schools.

Chapter 3 reports on study 1, **"Knowledge brokering in a countywide mental health program: does sharing knowledge derived from implementation science help?"**, which aimed to understand how far a knowledge broker sharing implementation knowledge, could influence the degree of evidence informed decision making made by a SG responsible for implementing a widescale school-based MT initiative. I attended all SG group meetings (n=11) over a 14 month period and recorded meeting minutes and notes of each meeting. Audio recordings of some of the meetings were also created. The meeting minutes, notes and audio recordings were converted into half-page summaries and analysed for "key moments," i.e. when implementation knowledge was shared with the group and "key outcomes," i.e. when shared implementation knowledge seemed to lead to the SG making evidence informed implementation decisions in regards to the project.

Chapter 4 reports on study 2, **"Implementing a whole school mental health program: How far can a SG influence implementation ".** This study explored what were the perceived opportunities and barriers for the SG to act as an implementation team (supported by a knowledge broker (KB)), i.e. a team of people who actively support the implementation of a new EBP and ensure it moves through all the stages of implementation. Interviews were conducted with SG members at two time points across six months. Per participant and group thematic analysis of the data was conducted resulting in three core themes. SG actions and progress in regards to implementing the MT program were recorded, and the degree to which the SG felt it was able to act as an implementation team was examined.

Chapter 5 reports on study 3, **"Factors affecting the implementation of a whole school mindfulness program: A qualitative study using the Consolidated Framework for Implementation Research"** whereby concepts and challenges around successful implementation of a school-based mental health program were studied. Interviews were conducted at two time points across six months with school staff at five secondary schools who were in the process of attempting to implement MT. Schools' implementation progress was recorded, and the CFIR was used to code the data for 38 implementation constructs. The usefulness of the CFIR to analyse qualitative data in this way was assessed.

Finally, the findings of these studies were synthesised to inform the development of a preliminary implementation framework which promotes the successful implementation of MT in (secondary) schools in order to improve their usefulness in such complex settings. The development of the framework is presented in chapter 6, **"The development of an implementation framework for implementing whole school mindfulness programs in secondary schools"**. Implementation research within education, the wider implementation science literature, the results from studies one, two and three in this thesis, as well as a previous implementation framework developed by the Collaborative For Academic, Social, And Emotional Learning (CASEL) were synthesised to create the Mindfulness Implementation Framework For Schools (MIFS). The MIFS framework was briefly evaluated and a critique of it is offered. Below, in Figure 1, a flow diagram of the thesis studies completed is presented and Figure 2 shows a timeline of when the thesis studies began and finished.

Study 1: Knowledge brokered to a steering group

Study 2: Interviews conducted with a steering group

Study 3: Interviews conducted with school staff

Study 4: Initial framework development

Completed implementation framework ready for acceptability and feasibility testing
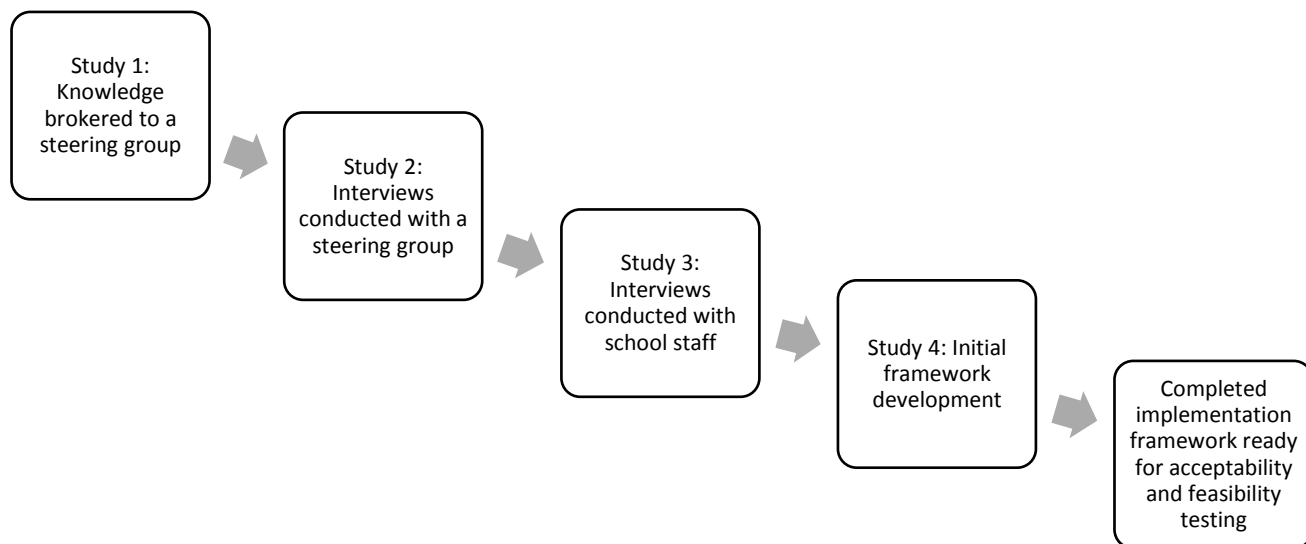
Figure 1 - Flow diagram of thesis studies completed

Figure 2 - Timeline of thesis studies

Study Timeline (Studies 1-4)

Initial meeting of PhD student with steering group
Sep 5

Study 4: Begins with exploration of useable implementation frameworks
Nov 17

Tracking of school implementation progress ends
Sep 21

Study 1: Begins with first knowlege broker meeting
Sep 18

Study 2: Interviews end
Sep 1

Study 4: Work on first draft of framework starts
Nov 3

Study 1: Ends with last knowledge broker meeting
Nov 3

Study 3: Interviews begin
Feb 3

Study 4: Final implementation framework produced
Jul 16

Steering group formed and tracking of school implementation begins
Sep 11

Study 2: Interviews begin
Feb 4

Study 3: Interviews end
Nov 9

2014   Sep   2015   May   Sep   2016   May   Sep   2017   May   Sep   2018   May   2018

Chapter 2 **- Literature review**

This chapter explains the mental health crisis among young people in the UK and traditional approaches to treating them. I examine current mental health programs in schools and argue the importance of their implementation. I then explore whole school universal interventions as these are currently the most popular, effective and encouraged approaches to promote the mental well-being of school children and adolescents. I also explore difficulties around implementing whole school programs and give examples. I then present the limited evidence on implementing mindfulness programs in schools. I follow this by introducing the reader to implementation science and highlight its relevance and potential application to schools. I then examine MT in schools in more detail.

2.1   **Children and Young Peoples Mental Health**

Internationally, 10 - 20% of children and adolescents experience mental health difficulties (World Health Organization, 2017). Over half of all lifetime psychiatric disorders originate in childhood and adolescence (Kessler et al., 2007), and the onset of many disorders is thought to be from 12 to 24 years (Patel, Flisher, Hetrick, & McGorry, 2007). Disorders can include depression, anxiety, post-traumatic stress, eating disorders and hyperactivity disorders (Meltzer, Gatward, Goodman, & Ford, 2003; Mental Health Foundation, 2017). Last surveyed in the UK in 2004, 1 in 10 young people (aged 5-16) reported a clinically diagnosed mental disorder (Green et al., 2004). More recent national survey data is lacking, but referrals to the NHS based Child and Adolescent Mental Health Service (CAMHS) increased by 64% between 2012 and 2015 (Association for Young Peoples Health, 2017).

Mental health problems in children and adolescents have been associated with self-harm, suicide, lower academic attainment and greater levels of risky health behaviours (Fergusson & Woodward, 2002; Patel et al., 2007) and they often face stigma, isolation and discrimination (World Health Organization, 2017). Many choose not to seek professional help due to stigma, access barriers, inconvenience, cost or confidentiality, a lack of belief in the treatment, or believe they do not need help (Gulliver, Griffiths, & Christensen, 2010). The effects of mental health problems can often continue into adulthood (Arnow, 2004; Kim-Cohen et al., 2003) and severely impact on young people's

personal development, and ability to achieve good positive life outcomes. The economic costs of mental illness amongst the young are substantial (Knapp et al., 2015).

2.1.1 Vulnerability in adolescence, responses to the need and early intervention

In the UK, CAMHS services are curative but highly variable (Department of Health, 2015) meaning access to and levels of care vary depending on where individuals are based. In some areas, resources are so stretched that CAMHS teams are struggling to provide adequate services for serious, emergency presentations. Despite efforts to increase access to psychological services (amongst children as well as adults (Clark, 2011; Murphy & Fonagy, 2012), the burden of mental health on children and young people seems to have increased (Association for Young Peoples Health, 2017) suggesting that current psychological services are not sufficient or that more young people are developing mental health problems over time.

Investing in mostly reactive, curative approaches to address mental health problems in young people is no longer economically viable (Zechmeister, Kilian, & McDaid, 2008) and preventative approaches need to be fostered (Law, J., & Laffan, 2015; McGorry, Bates, & Birchwood, 2013). (Department of Health, 2015; Jacka et al., 2013; Reynolds et al., 2007; World Health Organization, 2017). After encouraging more systematic attention to public mental health prevention for some time (Department of health, 2011), the UK government now officially supports a preventative and health promoting approach to mental health as shown by its 2015 'Future in Mind' report (Department of Health, 2015). There are plans over the next five years for funding into prevention and promotion to increase substantially (The Mental Health Taskforce, 2016). There is a growing presence and call for evidence-based prevention and early intervention programs for young people experiencing mental health difficulties (Calear & Christensen, 2010; Neil & Christensen, 2009) (Patel et al., 2007). Evidence suggests prevention can limit the onset and progression of clinical disorder (Jacka et al., 2013, Mercy and Saul, 2009, Reynolds et al., 2007) and help young people stay well (Allen, 2011; Department for Education, 2016). Prevention strategies have been shown to be effective for mental health needs such as depression, anxiety and suicide amongst young people (Mihalopoulos, Vos, Pirkis, & Carter, 2011) . One such evidence-based practice is MT on which the studies of this PhD focus.

2.1.2   Schools as intervention sites

As the demand for mental health services has outgrown current NHS provisions for young people (Department of Health, 2015, Houses of Parliament, 2014; Young Minds, 2014), the support burden is being increasingly transferred to schools (National Institute for Health and Care Excellence, 2009; Department of Health, 2013). The Department for Public Health in England recommends that schools have in place prevention strategies to foster the mental wellbeing of their students. These strategies are now recorded by OFSTED (Public Health England, 2014) and can exist on all levels of the triangle shown in Figure 3 except the top 'treatment' level. Treatment is not a prevention strategy, and not something schools provide. A number of preventative behavioural and mental health interventions have been successfully integrated into schools (Baker-Henningham, Walker, Powell, & Gardner, 2009; Mishara & Ystgaard, 2006; Wang, Liu, & Wang, 2007).

Figure 3 - **Types of School interventions**
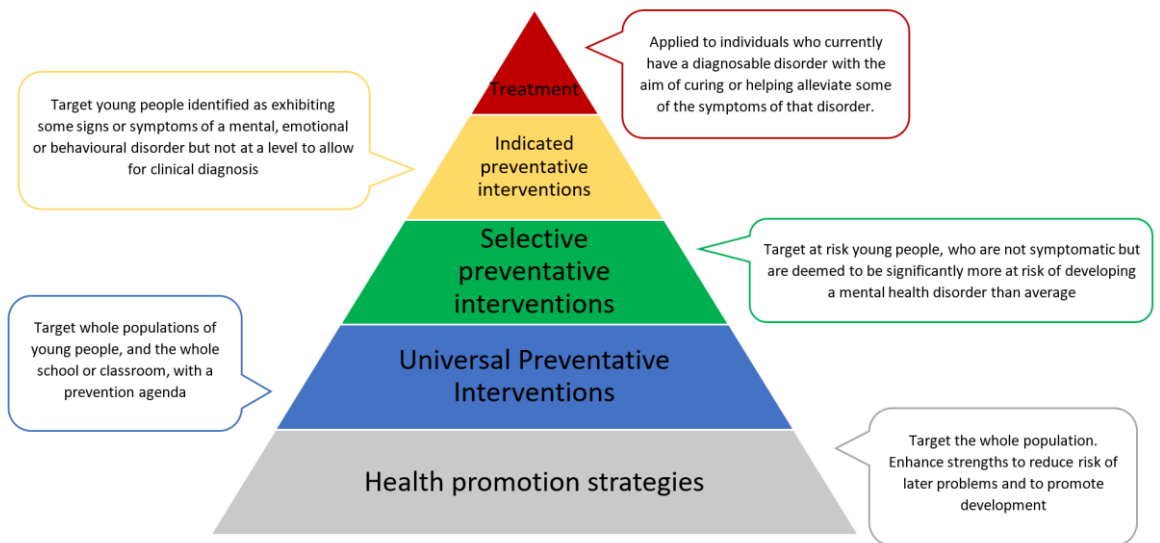
As can be seen, the higher up the pyramid one goes, the more intense the intervention becomes. Indicated and selective programs can both be described as 'targeted' approaches to mental health programs as they target specific groups of people within a population, whereas universal programs are offered to everyone in a chosen population (Gaete et al., 2016). Health promotion is the least intensive as these types of strategies aim to promote healthy behaviours across the whole population. When universal and targeted interventions are introduced into schools, each approach is thought to have its own set of advantages and disadvantages (Werner-Seidler, Perry, Calear, Newby, & Christensen, 2017). Universal and targeted approaches have since been taken with MT interventions in schools (O'Connor, Dyson, Cowdell, & Watson, 2018; Wisner, 2017).

2.1.3   Which approach are schools using?

Internationally, universal prevention approaches are the most popular approaches to mental health interventions taken by schools (Calear & Christensen, 2010; Carnevale, 2013; Corrieri et al., 2014; Neil & Christensen, 2007) (Thomas & Aggleton, 2016). It has been reported that school administrators may prefer universal programs, as unlike targeted programs, no one is singled out as being at risk, they are less time consuming, and there is no screening of participants (Calear & Christensen, 2010).

2.1.4   Whole school approaches

A review by Weare and Nind (2011) on mental health promotion in schools identified that effective interventions were more likely to be universal, with some targeted components, and with a whole school approach (WSA). A WSA utilises the direct intervention alongside changes in school structures, culture, procedures, ethos, the wider community (e.g. family and community involvement), staff development, enhanced student voice, monitoring practice and impact and aligning the intervention with school leadership, policy and the curriculum to promote its delivery (Public Health England, 2014; Thomas & Aggleton, 2016). WSA's have grown in popularity over the last two decades. Their multi-modal approach, whereby action is taken at multiple levels across the school, is thought to be a key ingredient of their success (Weare & Nind, 2011). Such an approach might adopt a universal strategy but also include targeted aspects. In their systematic review of reviews and meta-analyses of school mental health programs, Thomas and Aggleton (2016) reviewed the evidence for taking a WSA across six areas of health-promoting literature: sexual health; bullying; alcohol and drug use; mental health; school connectedness; and

access to services. Reviews in all intervention areas, apart from sexual health, explicitly (to varying degrees) highlighted the value of taking a WSA. The more whole school components that interventions had, the better their outcomes. The authors therefore endorse taking a WSA but conclude that more research is needed to understand how to actually go about implementing the more subtle evidence-based aspects of WSA's and suggest this is likely to be challenging in practice.

2.1.5 Difficulties with the implementation of WSAs

However, like most universal prevention programs, WSAs can be challenging for schools to implement (Thomas & Aggleton, 2016) and they are often unable to fully implement[1] EBP's as a WSA as intended and with fidelity[2] (Blase et al., 2015; Dariotis, Bumbarger, Duncan, & Greenberg, 2008; Domitrovich & Greenberg, 2000; Ransford, Greenberg, Domitrovich, Small, & Jacobson, 2009). Universal approaches need to reach all students, and a sustained effort by school staff is needed to ensure their implementation (Fazel, Hoagwood, Stephan, & Ford, 2014). Universal interventions often impose duties and burdens on staff, so their involvement may not be feasible unless they are given sufficient training, time and support to carry out the responsibilities (Kourkoutas & Giovazolias, 2015; Shepherd et al., 2013). Other factors which have been found to limit the implementation effectiveness of school programs include: the extent of supportive social networks (Langley et al., 2010); teacher training and performance feedback (Han and Weiss, 2005); how aligned the intervention is with a school's philosophy, goals, policies and programs (Forman et al., 2008); and the financial resources, quality of training, and extent of support to ensure fidelity of intervention delivery (Forman et al., 2008). Barriers can exist at the individual (i.e. stigma, parental risk factors), community (i.e. geographic, social occasion), and system level (i.e. funding, government policy; Fazel et al., 2015). The normal profile of EBPs in schools, including mental health practices, is very often incomplete implementation, limited sustainability and limited spread (Domitrovich & Greenberg, 2000; Durlak & DuPre, 2008; Lendrum et al., 2013). The impact of such interventions on intended beneficiaries is thus significantly reduced (Durlak & DuPre,

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[1] The National Implementation Research Network (NIRN) defines 'full implementation' as being reached when "50% or more of the intended practitioners, staff, or team members are using an effective innovation with fidelity and good outcomes" (http://nirn.fpg.unc.edu/learn-implementation/implementation-stages).

[2] Fidelity is a multidimensional construct that refers to the degree to which intervention delivery adheres to the intervention developers' model (Gould, Dariotis, Greenberg, & Mendelson, 2015).

2008; Durlak, Weissberg, Dymnicki, Taylor, & Schellinger, 2011; Meyers, Durlak, & Wandersman, 2012; Naylor & McKay, 2009) as the following examples demonstrate.

Weare and Nind's (2011) review of eleven studies of diverse whole school programs, including those targeting SEL, aggressive behaviour and character education, concluded that implementation fidelity, clarity and intensity directly affected outcomes. Other reviews of whole school health promotion and health prevention programs have reported difficulties in implementing school-based interventions, and that lower levels of implementation were associated with poorer outcomes for participants (Durlak & DuPre, 2008; Fixsen, Blase, Metz, & Van Dyke, 2013). Vernez et al. (2006) reported that, across the 2000 US schools they studied, substantial between-school variation in implementation was apparent and no school had fully implemented the assigned whole school, evidence-based program (to raise student attainment). Limited time, insufficient human resources, low resource flexibility and a lack of school leadership were reported as detrimental to successful implementation. Similarly, the evidence-based, whole school 'Reading First' program in the US (Kersten & Pardo, 2007) was discontinued when no significant intervention effects on reading were reported (Moss et al., 2008). Districts responsible for implementing the 'Reading First' program reported difficulties in getting schools to implement the program with fidelity, and difficulties in having to make major changes to their reading curriculum in order to comply with Reading First which made implementation less likely (Caitlin, 2007). High staff turnover and students changing schools were also reported as barriers to effective implementation of the program.

In the UK, USA and Australia, the most prevalent and most researched universal mental health based whole school programs to date are those designed to improve social and emotional learning (SEL). Systematic reviews and meta-analyses demonstrate the effectiveness of SELs for developing children and young people's social and emotional competencies (Durlak et al., 2011; Weare & Nind, 2011). However, evidence shows that the intended SEL outcomes are compromised by inconsistent and irregular implementation of the EBP (Durlak & DuPre, 2008; Greenberg, 2010; Wandersman et al., 2008). In 2010, Social and Emotional Aspects of Learning (SEAL), a whole school SEL intervention, was introduced to 90% of primary schools and 70% of secondary schools in the UK. Reviews of SEAL exhibited highly variable implementation (Humphrey et al., 2010); 49.8% of school-level variance in academic attainment was accounted for by differences in implementation success (Banerjee, 2010). Durlak et al. (2011) suggest that in order for

universal SEL interventions to deliver to their potential, schools will need help implementing them effectively.

Research into the implementation of MT programs in schools is highly limited. So far, five implementation related studies have been conducted in relation to MT implementation in schools (Dariotis et al., 2017; Mendelson et al., 2013; Powell, Proctor, & Glass, 2014; Sibinga, Webb, Ghazarian, & Ellen, 2016; Wilde et al., 2018). These studies were able to highlight some of the barriers and facilitators to implementation. In a randomised controlled trial (RCT) examining the effectiveness of a mindfulness and yoga intervention in two urban schools, Mendelson et al. (2013) found that administrative support, teacher involvement and student engagement were significant predictors of intervention success. Barriers included securing consistent administrative support, teacher engagement, high staff turnover, and overwhelming staff demands. Sibinga et al. (2016) tested the efficacy of an MBI within two Baltimore city public schools, incorporating implementation strategies from previous mental health studies (Powell et al., 2014). They found that school leadership buy-in, forming a community partnership and ongoing support for staff were the strategies associated with successful implementation. Dariotis et al. (2017) gained the perspectives of both students and teachers involved in a 16-week mindfulness and yoga program around issues of implementation. They reported that program delivery factors, communication with teachers, promoting program buy-in, and program instructor qualities were influential in the successful implementation of MT.

Although these findings provide some evidence of possible barriers to MT implementation, it is still unclear how to go about successfully implementing MT using a WSA. Unless implementation information is recorded and reported by MT studies, and clear, definitive implementation outcomes set, it will not be possible to accurately evaluate the effectiveness of school-based MT programs in preventing the onset, or escalation of young people's mental health difficulties under conditions of the intended, optimal intervention delivery.

There is currently some promising research underway in the UK (University of Oxford's MYRIAD Project) to determine which approach to MBI staff training in schools seems optimal (http://www.oxfordmindfulness.org/learn/myriad). The outcomes of this (2021) will make an important contribution to the form of WSAs to MT. Within this trial, a recent study identified the cornerstones of implementing MT (Wilde et al., 2018). Senior leadership, school staff and mindfulness trainers at schools who are part of MYRIAD were

interviewed at seven schools to understand their experiences of implementation. They found four main factors which affected the implementation of MT. These were the importance of having champions in the schools driving implementation forward, the importance of having resources and time to implement MT, the beliefs and understandings of MT by school staff, and the fact that implementation occurred through stages over time. The results of Wilde et al. (2018) study are discussed in detail in Chapter 5 when they are compared with the results of Study 3 in this doctoral work.

Along with the study by Wilde et al. (2018), the studies in this doctoral work are some of the very first to investigate the implementation of school-based MT programs using a WSA.

2.1.6   A lack of implementation guidance

Schools currently receive very little guidance on how to implement EBPs. Schools are very often left to choose and implement programs with little knowledge about how compatible they might be to their school environment, how to go about training staff to implement them well, and how to sustain them over time (Owens et al., 2014). Current mental health programs for schools rarely advise schools on the best way to implement them. The majority of research on these programs are efficacy studies which tend to be short-term assessments with narrowly defined populations selected for the condition of interest, and who have few comorbidities. They tend to be delivered by highly qualified, trained intervention staff under supervision, who often monitor the fidelity of the intervention delivery (Bauer, Damschroder, Hagedorn, Smith, & Kilbourne, 2015). A lot less is known about how to implement school mental health programs designed to be delivered by teachers, under typically complex school conditions where programs are delivered to more heterogeneous populations, with more comorbidities, and by professional school staff whose ability to deliver it and to monitor fidelity may be limited (Owens et al., 2014). This approach would constitute a more far reaching, public health approach to mental health. The difference in efficacy study settings and real-world school settings may explain the high variability in the outcomes achieved by schools implementing mental health programs targeting the same issue (Durlak & DuPre, 2008).

The simple availability of EBPs (such as MT) does not mean that they will be implemented well to achieve their potential outcomes. Evidence-based, whole school programs, require clear implementation guidance (Blase et al., 2015; Fixsen, Naoom, Blase, & Friedman, 2005). Implementation science research can provide this.

2.1.7   Implementation Science

Implementation science (IS) can be defined as a set of planned and intentional activities designed to integrate EBP into real-world settings (Mitchell, 2011). Implementation science is therefore interested in understanding and working within the context within which implementation is occurring. At the same time, implementation science focuses on the individuals that will be using the new innovation, and the factors that are influencing implementation overall (Peters, Adam, Alonge, Agyepong, & Tran, 2013).

Implementation science assumes the following: a) that evidence-based knowledge stemming from efficacy or effectiveness trials can rarely be applied to real-world settings without some form of local adaptation; and b) that the communication of new knowledge and subsequent change in practice requires two-way communication so that end-users feedback and influence the implementation process (Brownson, Colditz, & Proctor, 2012; Greenhalgh, Robert, Macfarlane, Bate, & Kyriakidou, 2004; Nilsen, 2015; Perl, 2011).

Implementation research shows that the most successful implementation is not a single event but a series of stages, namely exploration, installation, initial implementation, full implementation, and sustainability (Fixsen et al., 2005; McIntosh, Mercer, Nese, & Ghemraoui, 2016). Figure 4 represents these stages. They are covered in more detail in Chapter 4.

Figure 4 - The active implementation framework and the stages of implementation

2-4 Years

Exploration
What's the problem, how fix, what with?

Installation
Getting resources you need together

Initial Implementation
Actually start using intervention

Full implementation
50% with fidelity

Adapted from Fixsen et al., 2005
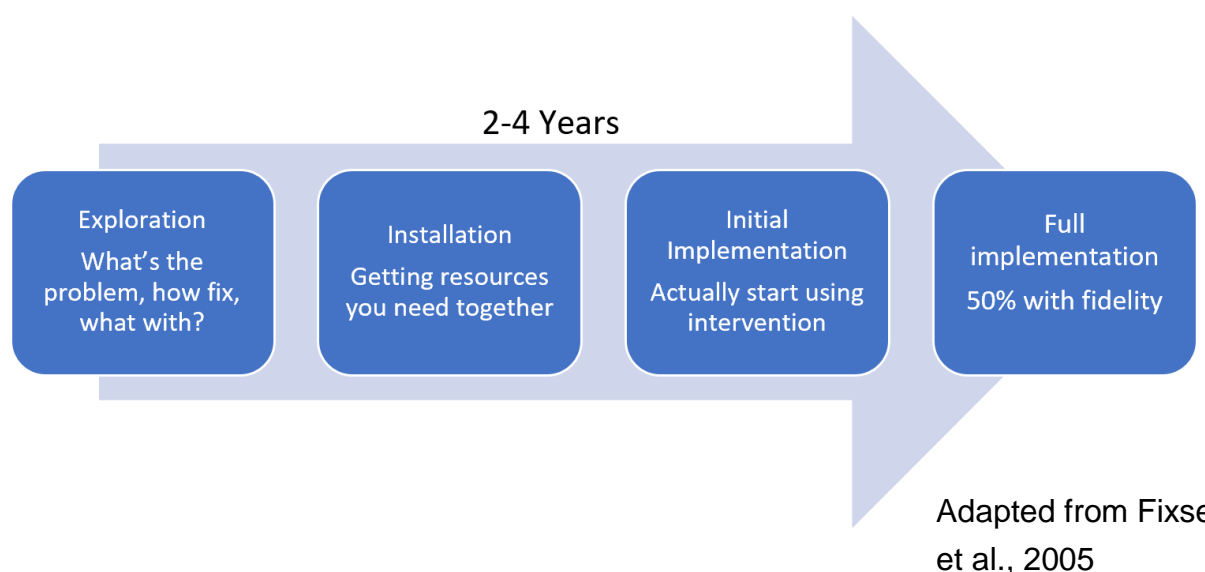
2.1.8 Applying implementation science research to school programs

Implementation studies are being increasingly carried out in schools and evidence on effective implementation of mental health EBPs in schools is growing (Albers & Pattuwage, 2017; Blase & Fixsen, 2013; Fixsen et al., 2005). Very often these studies examine whether or not the chosen program has been implemented with fidelity (Albers & Pattuwage, 2017). By cataloguing levels of fidelity and how well school-based EBPs are being sustained, it has been possible for studies to identify implementation facilitating and limiting factors (Spoth, Guyll, Redmond, Greenberg, & Feinberg, 2011).

Albers and Pattuwage's (2017) synthesis of implementation studies in education reviewed 28 implementation quality studies (which reported on the effectiveness of interventions and included an indicator of implementation quality) and 8 of which were implementation effectiveness studies (which reported implementation outcomes that were achieved through the testing of different implementation strategies). These latter studies identified that 'training and ongoing support' for personnel delivering the intervention was the most frequent implementation strategy. It was associated with greater intervention fidelity which was in turn correlated with higher levels of numeracy, literacy, mental and behavioural health in students. For example, two studies reported the implementation strategy of a school-based nutritional curriculum intervention to improve the eating habits of middle school students. Teachers delivering the program received either no implementation support (control group) or three different levels in intensity of professional development workshops and ongoing support from the program developers. When compared with the control group, only children taught by teachers in the high-intensity teacher implementation group displayed significant improvements in their healthy eating behaviours. Thus, attention to implementation appears pivotal in securing intended outcomes (Gray, Contento, & Koch, 2015; Lee, Contento, & Koch, 2013).

The number of studies testing the effectiveness of implementation strategies on program outcomes remains limited however. Implementation quality studies, which tend to be retrospective attempts to understand what factors influenced implementation, are more common. Some have highlighted factors associated with unsuccessful implementation, namely poor engagement of school staff (Fazel et al., 2015), lack of head teacher support (Forman et al., 2008, Kam et al., 2003), and lack of organisational structure (including administrative support; Langley et al., 2010). School context has also been identified as critical, yet overlooked when EBPs are introduced into schools (Domitrovich et al., 2008;

Fixsen et al., 2005; Pawson, Greenhalgh, Harvey, & Walshe, 2005; Wandersman et al., 2008). School environments are highly heterogeneous and constantly changing. For example, the majority of schools only operate a nine-month academic year. Within this time frame, school staff will very often have multiple competing demands placed on them and be unable to fully support and foster the addition of implementing a new EBP which can limit implementation success (Thomas & Aggleton, 2016).

It is clear that the movement of EBPs into school settings is anything but spontaneous (Moullin, Sabater-Hernández, Fernandez-Llimos, & Benrimoj, 2015). This process of intervention implementation and diffusion of a school EBP requires that a number of phases are passed through. School communities must be informed of its value (dissemination), they must then decide to use it (adoption), they must then trial the program (implementation), and they must then sustain it over time (sustainability; (Durlak & DuPre, 2008). There is now increasing demand for greater use of evidence-based implementation strategies to promote the effectiveness of school-based mental health programs (Fazel et al., 2014). Implementation frameworks present a good opportunity to do this.

2.1.9   Using implementation frameworks to guide implementation research

Implementation frameworks can help researchers frame study aims, questions and hypotheses so that they can identify determinants of implementation that are generalisable and can be applied beyond the specific context in which the research is being conducted. They can also provide a common language, thus supporting evidence comparison and they have become an important reference point when analysing and reporting implementation related study data.

Nilson (2015) organises the various theoretical approaches which exist in implementation science according to three main aims which in turn result in five categories of theories (see Figure 5 below).

Figure 5 - Various theoretical approaches used in implementation science
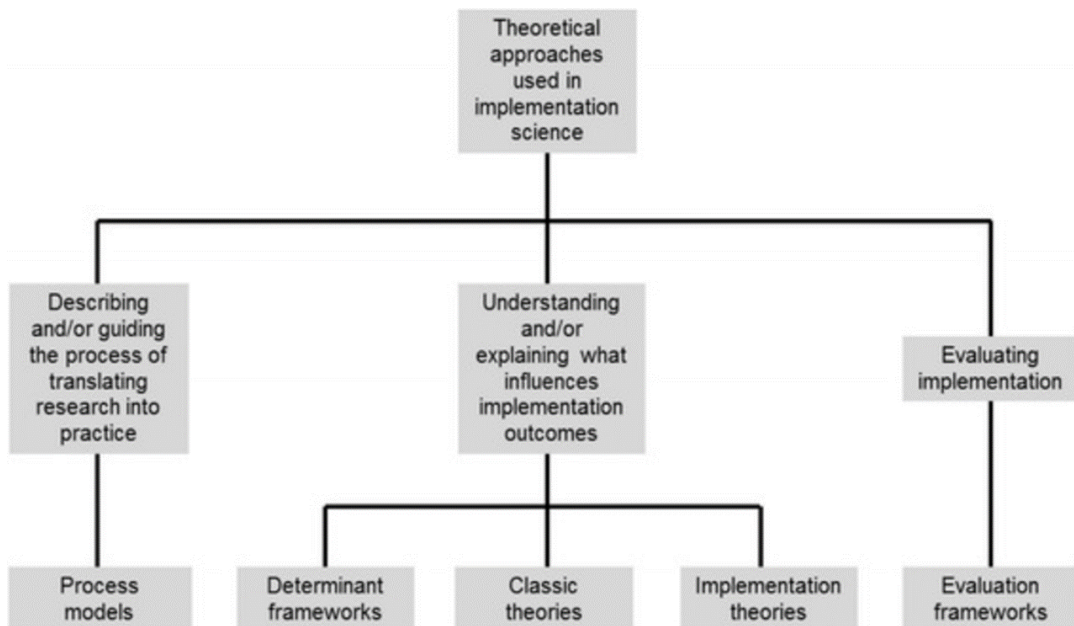
Process models describe and/or guide the process of translating research into practice. Determinant frameworks, classic theories and implementation theories aim to understand and/or explain what influences implementation outcomes. Evaluation frameworks support examination of an implementation process (Nilsen, 2015). This thesis draws from a determinant implementation framework (the CFIR: see chapter 5 for information on this framework) because it aims to understand what influences the implementation outcomes of school-based mental health programs.

Frameworks do not specify causal relationships but instead provide a series of constructs related to implementation which can be used for a range of purposes. Over 60 implementation frameworks now exist (Tabak, Khoong, Chambers, & Brownson, 2012) and they generally tend to either: (i) describe and guide the entire implementation process and hence guide individuals through the stages (e.g. the Knowledge to Action framework (Graham et al., 2006)); (ii) highlight the determinants of successful implementation (e.g. the Consolidated Framework for Implementation Research (CFIR) (Damschroder et al., 2009); the Theoretical Domains Framework (TDF) (Michie et al., 2005)); or (iii) guide the evaluation of implementation (e.g. Reach Effectiveness Adoption Implementation

Maintenance (Glasgow, Vogt, & Boles, 1999). Different frameworks also offer these processes at different levels (e.g. the organisational, team, or individual level) with some focusing on just one level and others focusing on multiple levels (Nilsen, 2015). A small number of frameworks are context specific, e.g. healthcare (Damschroder et al., 2009; Harvey & Kitson, 2016; Stetler, Damschroder, Helfrich, & Hagedorn, 2011) but, for many, context plays a minor role with the focus being on implementation (Pfadenhauer et al., 2017).

In theory, as well as guiding implementation research in schools, implementation frameworks could be used to guide the implementation of school EBPs by identifying determinants of implementation before, during and after the process as well as structuring the intervention or implementation evaluation. The frameworks could also be used to develop an intervention that is most likely to have a 'soft landing,' i.e. be implemented well.

2.1.10 Using implementation frameworks to guide the use of school EBP's

Further research is needed to identify the potential of implementation science frameworks to increase the success of EBP in schools. Few studies have tested how far implementation frameworks can be used as tools to support implementation practice or have assessed how far they can help increase the quality of implementation (Albers & Pattuwage, 2017). Studies such as this are particularly scarce within education. Recently the Theoretical Domains Framework (TDF) was used to explore the barriers and facilitators to implementing daily physical activity policies in schools (Weatherson, Gainforth, & Jung, 2017). Weatherson et al. (2017) conducted a mixed methods review of studies which had implemented school-based daily physical activity (DPA) policies and used the Theoretical Domains Framework (TDF) to retrospectively examine barriers and facilitators to DPA implementation across the studies. The authors used the 14 domains of the TDF (e.g. Knowledge, skills, optimism; (Cane, O'Connor, & Michie, 2012) to code the previous studies for barriers and facilitators. The domains capture a range of factors that influence implementation based on behaviour change theories. This process led to a list of potentially modifiable factors researchers could use to maximise the implementation of DPA policies. The authors felt that using theoretical constructs to identify barriers provided a stronger foundation for intervention development than simply identifying barriers alone (Weatherson et al., 2017). Further research is needed to see if the findings from this study

are able to improve implementation when applied to the actual implementation of physical activity policies.

Moore et al. (2017) is perhaps a more advanced study in the area of school program implementation because they developed evidence-based guidance for schools implementing whole school physical activity programs. The authors used the Quality Implementation Framework (QIF: (Meyers et al., 2012)) to create this implementation guidance. The QIF is derived from the consolidation of 25 previously created implementation frameworks.

It seems that generic implementation frameworks developed for non-school settings can be applied to understand and develop implementation guidance for schools implementing health programs or for stakeholders involved in the development of such programs. Further research is needed to see if these frameworks are useful to schools and can have a significant impact on implementation overall.

MT is a current and popular evidence-based mental health program currently being adopted by schools and presents an opportunity to explore the usefulness of implementation frameworks in helping develop implementation guidance for WSAs further.

2.2 Mindfulness Training

Mindfulness-based interventions (MBIs) have become increasingly popular in schools as a mental health program over the last few years in the UK, USA and Europe and the number of schools attempting to implement them has been increasing (Black, 2015; Black, Milam, & Sussman, 2009). MT is a promising approach to nurturing good mental health in young people (Burke, 2010; Felver, Hoyos, Tezanos, & Singh, 2015; Zenner, Herrnleben-Kurz, & Walach, 2014; Zoogman, Goldberg, Hoyt, & Miller, 2014). Being mindful involves managing one's attention to the present and cultivating a new awareness of thoughts, feelings and behavioural tendencies, but without over-engaging in them or acting on them unconsciously. Mindfulness also encourages an attitude of acceptance and openness to experience, in contrast to a closed, critical or avoidant orientation to day-to-day events, emotions, thoughts, behaviours or sensations (e.g. pain). Mindfulness is both a disposition and a skill that can be learned; that is, it is both a trait-like propensity to express and experience mindful qualities (e.g., non-judgement, self-awareness) which exists to differing degrees in individuals (Hanley & Garland, 2014) and also a practice by which

these personal qualities can be enhanced over time, usually via a group based training program (Zenner et al., 2014).

2.2.1 MT is popular in schools and in research

Globally, mindfulness is increasingly taught in schools, most often via a group-based program, where mindfulness skills are taught over several weeks either by external trainers or by trained school staff (Zenner et al., 2014). Demand for and use of mindfulness-based Interventions (MBIs) for teachers and young people in schools has increased in recent years (Albrecht, Albrecht, & Cohen, 2012). Research has tried to rapidly catch-up with practice and has focused on effectiveness and process studies with these groups. To date, two systematic reviews on mindfulness-based interventions (MBIs) with teachers have been conducted, examining 13 (Emerson et al., 2017) and 19 studies (Lomas, Medina, Ivtzan, Rupprecht, & Eiroa-Orosa, 2017) respectively. Significantly more systematic reviews have been conducted on MBIs with youth (Black, 2015; Black et al., 2009; Burke, 2010; Felver et al., 2015; Greenberg & Harris, 2012; Meiklejohn et al., 2012), as well as two meta-analysis (Zenner et al., 2014; Zoogman, Goldberg, Hoyt, & Miller, 2014) and show how interest in intervention studies with young people has been intensifying, e.g. Black et al. (2009)'s review identified 10 MBI studies which targeted children and adolescents, whereas a more recent review identified 41 (Black, 2015) the majority of which were school-based. An additional review by Felver et al. (2015) identified 28 school-based mindfulness studies the majority of which took place in the USA (22), with only a small number being conducted in Great Britain (2), Australia (2), Canada (1) and Hong Kong (1). Between them, these studies measured the effects of MBIs on a range of psychological, physiological and behavioural outcomes.

2.2.2 Evidence for the use of Mindfulness in schools

International (Felver et al., 2015; Zenner et al., 2014; Zoogman et al., 2014) and emergent UK studies (Kuyken et al., 2013) show that short-term, stand-alone (i.e. delivered as a one-off 8 week course) MBIs generate medium-sized effects on indicators of psychological health, including anxiety and depressive symptoms, self-esteem, sleep quality, attention and behaviour (Black et al., 2009). Subsequent studies have reported post-intervention gains in working memory, academic skills, social skills, emotional regulation and mood (Meiklejohn et al., 2012). MBIs may be particularly suited to clinical populations (Zoogman

et al., 2014) where they generate higher effect sizes (del = 0.500)[3] compared to interventions with non-clinical samples (del = 0.197). MBIs can be beneficial for school teachers. MBIs tend to produce larger effect sizes and more significant results for outcomes relating to emotion regulation among teachers (Emerson et al., 2017; Lomas et al., 2017). Results for outcomes such as stress, burnout, resilience, depression, distress and anger, stress and strain, well-being, mindfulness, compassion, empathy, satisfaction, health and job performance have been mixed with a higher ratio of significant to non-significant results (Lomas et al., 2017). The long term gains of MT in schools, on both teachers and students remains unknown.

2.2.3   Current approaches to offering mindfulness in schools

Many school-based MBIs are adapted adult programs (i.e. MBSR or MBCT (Greenberg & Harris, 2012) and are delivered to groups either within or outside of school hours often by an external provider and sometimes by trained school staff (Felver et al., 2015). Several MBIs have been developed for children and young people, and they typically aim to improve their mental health and wellbeing, including .b and .PAWS (Hennelly, 2011; Weare, 2012), Learning to Breathe (Metz et al., 2013), The Mindfulness Education (ME) Program (Schonert-Reichl & Lawlor, 2010), Moving into Learning (Klatt, Harpster, Browne, White, & Case-Smith, 2013), and Mindful Schools (Black, 2014). The Cultivating Awareness and Resilience in Education (CARE) Program (Jennings, Frank, Snowberg, Coccia, & Greenberg, 2013), and the SMART-in-Education Program (Roeser et al., 2013) was developed to address the well-being of teachers. Apart from .b and .PAWS which originated in the United Kingdom (U.K.), the other interventions originated in the United States (U.S.). The majority of the student-focused MBIs have been applied as universal interventions (generally targeting a specific year group) with the exception of Moving into Learning (Klatt et al., 2013) which was developed to target elementary age children at risk of developing stress-related disorders. Learning to Breathe (Metz et al., 2013), The Mindfulness Education (ME) Program (Schonert-Reichl & Lawlor, 2010), and .b (Hennelly, 2011) are delivered by school teachers themselves who have received training in how to deliver the program. Moving into Learning (Klatt et al., 2013), and Mindful Schools (Black & Fernando, 2014) are delivered by external trainers. All of the above student-focused MBIs are delivered to groups within school hours in a classroom setting. MBI programs can

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[3]Del is a measure of the difference in pre-post effect sizes between groups, in this case, the comparison between MT interventions and alternative treatments

vary in content, delivery time (e.g. 5 to 120 minutes per week (Felver et al., 2015), course duration (e.g. 16 weeks (Metz et al., 2013) to 2 weeks (Liehr and Diaz, 2010) and the mindfulness experience and expertise of the program deliverer. For details on which mindfulness program the MTCHP project in this thesis used, see Chapter 1, page 4.

2.2.4   Critics of MT

MT is not without its critics (Foster, 2016) but so far there is no evidence to support that it is in some way harmful to users (Brensilver, 2016). For example, in work settings, it has been suggested that mindfulness encourages workers to 'adapt' to toxic work environments rather than encouraging them to decrease this toxicity (Van Gordon, Shonin, Zangeneh, & Griffiths, 2014) which some scholars have raised concerns about (Ghodsee, 2016). Not all studies on school children have found positive results. Unlike earlier promising studies in secondary schools (Atkinson & Wade, 2015; Kuyken et al., 2013; Raes, Griffith, Van der Gucht, & Williams, 2014; Sibinga et al., 2013), a RCT by Johnson, Burke, Brinkman, and Wade (2016) found no improvements in adolescents on a number of outcome measures, namely: depression, anxiety, wellbeing, eating disorder risk factors, emotional dysregulation, self-compassion and mindfulness either immediately after the intervention or at a three-month follow-up. Interestingly self-rated anxiety was higher in boys and those with low weight loss concern or depression, who had undergone the mindfulness condition, but so far this is the only study to have found a negative effect and the reasons for this are unclear.

2.2.5   How should we implement MBIs in schools?

Dimidjian and Segal (2015) recently mapped the evidence base for mindfulness-based cognitive therapy (MBCT) and mindfulness-based stress reduction (MBSR) onto the five translational stages of research developed by The National Institutes of Health (NIH; basic science (stage 0); intervention generation, refinement, modification, adaptation and pilot testing (stage I); traditional efficacy testing (stage II); efficacy testing with real-world providers (stage III), effectiveness research (Stage IV) and dissemination and implementation research (Stage V) (Onken, Carroll, Shoham, Cuthbert, & Riddle, 2014)). The authors described an "implementation cliff" which could potentially cause mindfulness interventions to stall out (p.608). The authors found that most mindfulness research is at the feasibility/pilot stage. Mindfulness research within education is no different. Mindfulness in schools research has so far spent a large amount of time

modifying existing adult mindfulness-based programs for schoolchildren (Stage 1: (Burke, 2010) and more recently testing their efficacy and feasibility in school settings (Stage 2 and 3; (Biegel & Brown, 2010; Broderick & Metz, 2009; Corbett, 2011; Desmond & Hanich, 2010; Flook et al., 2010; Franco Justo, Mañas, Cangas, & Gallego, 2011b; Hennelly, 2011; Hupperta & Johnsonb, 2010; Mai, 2010; Mendelson et al., 2010; Metz et al., 2013; Napoli, Krech, & Holley, 2005; Schonert-Reichl & Lawlor, 2010)). Extensive effectiveness research (Stage 4) where evidence-based MBIs are tested extensively in community settings with community therapists/providers while maximising external validity only started recently with the MYRIAD trial, and dissemination and implementation research (stage V) is extremely rare with only five implementation related mindfulness studies having been published (Dariotis et al., 2017; Mendelson et al., 2013; Powell et al., 2014; Sibinga et al., 2016; Wilde et al., 2018).

Both quantitative and qualitative work has suggested that further research is conducted to explore the influence of implementation-related factors on the feasibility and effectiveness of MBIs in order for mindfulness in schools to progress (Dariotis et al., 2017; Renshaw & Cook, 2017; Semple, Droutman, & Reid, 2017) i.e. to conduct stage V research. A recent systematic review of mindfulness-based school interventions with early adolescents highlighted the importance of including qualitative studies in the review process in order to obtain valuable information that can be used to better inform the implementation of MBIs (McKeering & Hwang, 2018). The personal accounts of school teachers and students involved in mindfulness implementation can highlight key barriers and facilitators to implementation.

A best practice model for implementing MBIs into schools would bring some standardisation for research purposes, offer guidance on what makes MBIs accessible, acceptable, effective and sustainable and make it easier to upscale MT (Fixsen, Schultes, & Blase, 2016), i.e. take an evidenced-based intervention and apply it to a whole population.

The urgency for a best practice model is becoming increasingly apparent in the United Kingdom, where the Mindfulness All-Party Parliamentary Group has recommended that the Department for Education designate a number of schools to design and develop MBIs and extend knowledge into replicability, scalability and best practice (MAPPG Report, 2015). The MAPPG report suggests the use of a whole school approach but does not advise how to deliver MT in schools (MAPPG Report, 2015). To know how to implement MT in schools, implementation-related research directed towards MT will be needed.

2.3   Conclusion

When it is ultimately left up to the schools to fully implement programs without any kind of implementation support or guidance, program outcomes have been highly variable (Banerjee, 2010; Durlak & DuPre, 2008; Fixsen et al., 2013; Humphrey et al., 2010; Moss et al., 2008; Vernez et al., 2006; Weare & Nind, 2011). Development of clear implementation guidance for evidence-based whole school programs is needed. Engaging with school staff and other key stakeholders involved in the implementation of school programs, in order to understand their implementation experiences in real-world complex settings, may allow for implementation guidance to be developed. The application of implementation science and implementation frameworks is likely to help this guidance development, and MT presents a good opportunity to see if this is possible.

This thesis, therefore set out to understand what factors might determine the early implementation success of a whole school MBI being introduced across Cumbria. It set about sharing implementation science with a SG responsible for implementing the MBI, asking the SG about its implementation experiences, and also explored the experiences of school staff. In conclusion an implementation framework for school leaders was developed. The next chapter starts by presenting Study 1 where the SG received implementation knowledge from a knowledge broker (KB).

Chapter 3 **Study 1 - Knowledge brokering in a mental health program: does sharing knowledge derived from implementation science help to improve outcomes?**

Chapter 3 presents Study 1 which sought to examine how far a KB, sharing implementation related knowledge, could impact the implementation decisions of the MTCHP SG. The chapter starts by examining the importance of successful knowledge transfer (KT). It then refers to how KBs may be able to help this process and examines the evidence for this. It covers the limited research surrounding the use of KBs in public health and explains how implementation has not, as of yet, been the focus of a KB study. It then goes on to explain the current KB study in detail which aimed to broker implementation knowledge to a public health project steering group (SG) including a description of the research methods used, the findings, a discussion of the findings and a conclusion.

3.1 The research context

The success of public mental health initiatives delivered in schools is likely to be optimised if more attention is given to their implementation (Blase et al., 2015; Fazel et al., 2014). Challenges around implementing EBPs into real-world practice settings such as schools are well documented (Perl, 2011; Poot et al., 2018). The successful adoption and implementation of EBPs in schools is low, and failures of implementation are common (Blase et al., 2015; Lendrum et al., 2013; Moss et al., 2008; Vernez et al., 2006; Weare & Nind, 2011). It has been argued that lack of awareness around the importance of getting implementation right, is one of the primary reasons why those responsible for implementing school-based programs do not use evidence to bolster implementation success. This falls under what Graham describes as a knowledge-to-action gap (Graham et al., 2006). The word 'action' refers to the use of research-based knowledge by health practitioners, policymakers, decision-makers and the public (Poot et al., 2018). There seems to be a knowledge to action (KTA) gap between evidence-based implementation practices, and stakeholders attempting to implement evidence-based programs in schools.

Knowledge transfer (KT) between evidence producers and evidence users is a process which sets out to ensure EBPs successfully make their way into practice (Dobbins et al., 2010). The University of Cambridge defines KT as "a term used to encompass an extensive range of activities to support mutually beneficial collaborations between universities, businesses and the public sector" (http://www.cam.ac.uk/research/news/what-is-knowledge-transfer). It is a two-way process where tangible and intellectual property, expertise, learning and skills move between academic and non-academic communities.

KT is also referred to as knowledge utilisation, knowledge exchange, knowledge transfer, knowledge integration, dissemination, implementation and research utilisation (Nilsen, 2015). The characteristics of the knowledge, the potential adopters and contextual factors can present various challenges to the KT process (Graham et al., 2006). It requires reciprocity between decision-makers and researchers (Brownson & Jones, 2009). As more sustained interactions between researchers and policymakers enhance the impact of KT (Poot et al., 2018), some KT researchers have recommended the use of an intermediary known as a knowledge broker (KB; (Dobbins, DeCorby, & Twiddy, 2004; Ward, House, & Hamer, 2009). KBs act as mediators between researchers and intended users to increase their understanding of each other's language and break down barriers to the use of evidence (Dagenais, Laurendeau, & Briand-Lamarche, 2015). The KB role is based on the premise that interpersonal contact promotes the uptake of evidence (Dobbins et al., 2009; Thompson, Estabrooks, & Degner, 2006).

A review by Elueze (2015) found that knowledge brokering has been a successful KT strategy and an effective way to promote evidence-based decision-making, evidence-based practice or collaboration between researchers, health practitioners and policymakers. A key finding was that although KBs were effective, more empirical studies were needed to compare the effectiveness of specific KB approaches with others. A more extensive systematic review exploring the function and effectiveness of knowledge brokers in health-related settings was conducted by Bornbaum, Kornas, Peirson, and Rosella (2015). Bornbaum et al. (2015) found that KBs can ensure an ongoing interaction between stakeholders, build an understanding of stakeholders' goals and contexts over time, identify challenges, barriers to information flow and particular areas of concern, and speed up how quickly relevant knowledge is identified, evaluated and translated into practice and/or policy. For example, KBs were found to promote knowledge translation into practice or policy by summarising evidence (Chew, Armstrong, & Martin, 2013; Stevens, Liabo, Frost, & Roberts, 2005; Yost et al., 2014), translating relevant findings into

the local context (Cameron, Russell, Rivard, Darrah, & Palisano, 2011; Dobbins et al., 2009; Hoens, Reid, & Camp, 2013; Van Kammen, de Savigny, & Sewankambo, 2006) and preparing tailored knowledge products (Dobbins et al., 2009; Stevens et al., 2005; Traynor, DeCorby, & Dobbins, 2014; Van Kammen et al., 2006). Tailored products included reports (Frost et al., 2012; Richards, 2009), logic models (Traynor et al., 2014), journal article summaries (Donnelly, Letts, Klinger, & Shulha, 2014), presentations (Waqa et al., 2013), and fact sheets (Waqa et al., 2013). Bornbaum et al. (2015) found the overall effectiveness of KBs tended to be subtle and included things such as informing policy deliberations, facilitating stakeholder communication and identifying gaps in evidence. Direct effects were more difficult to measure and may depend on the organizational context (e.g. readiness for change, organizational research culture).

To date, evidence for the use of KBs in public health settings is scarce. The limited evidence available suggests that decision-makers appreciate and value KB input (Dagenais, Some, Boileau-Falardeau, McSween-Cadieux, & Ridde, 2015), that KBs can increase knowledge in the target audience (Ridde, Dagenais, & Boileau, 2013) and promote the use of evidence by decision makers (Traynor et al., 2014). Traynor et al.'s (2014) RCT explored the effectiveness of knowledge translation strategies of varying intensities for promoting the use of research evidence in decisions related to childhood obesity prevention by public health practitioners in 30 Canadian health departments. Results indicated that participants who worked closely with the KB showed a significant change in knowledge and skill (average increase of 2.8 points along a scale of 36 points (95% CI 2.0 to 3.6, P < 0.001)) from baseline. These participants also showed a significant increase of 49% in evidence-informed decision-making (EIDM) behaviours from baseline. Interviews indicated that the KBs experience was largely positive and useful and a number of themes were identified including enhancing capacity, effective KB attributes, and optimal ways of working.

There is a growing body of evidence which has started to specify the components, procedures, and processes that lead to the successful implementation of EBPs in public health settings (Durlak, Weissberg, Dymnicki, Taylor, & Schellinger, 2011). KBs present a promising KT strategy to narrow the KTA gap. Knowledge of implementation science and evidence-based implementation practices could be transferred to the public sector when attempting to implement a widescale mental health program. This knowledge could inform their implementation strategy, ensuring that it was evidence-based. Traynor et al. (2014) describe how "Beyond translation and dissemination, a broker offers the added value of interaction to share their 'know how' of implementation" (p540). Studies are

needed to examine how far KBs can facilitate the implementation of EBPs in public health; not acknowledging the importance of implementation is likely to have a high economic cost to the public health purse.

The National Implementation Research Network (NIRN) highlights that there are a number of implementation activities stakeholders responsible for implementing a public health program must engage in in order for the implementation process to be a success (Blase, Van Dyke, Fixsen, & Bailey, 2012; Fixsen, Blase, Duda, Naoom, & Van Dyke, 2010; Fixsen et al., 2005). Romney, Israel, and Zlatevski (2015) demonstrated that the failure of community centres responsible for implementing an evidence-based public health program to understand or adhere to the initial implementation stage set out by NIRN resulted in a significant negative fiscal impact on the project. Recommended activities included preparing for implementation by building capacity and creating readiness for implementation. The authors studied six community centres, two of which did not prepare for implementation. The average cost per graduate was over seven times higher for the community centres which had not prepared for implementation. This contrast in cost was due to these agencies having a far higher participant attrition rate.

Studying the ability of KBs to facilitate the transfer of implementation knowledge to stakeholders responsible for implementing public health programs may have significant outcome and economic benefits. Additional research in this area is needed.

3.1.1 Steering groups

Many stakeholders are involved in delivering public health programs, i.e. commissioners, program deliverers, the target population. Knowing which group of stakeholders might be best to target with an implementation KB is currently unknown. Key decision makers in public health programs sometimes form a SG, defined as *"a group of people who are chosen to direct the way something is dealt with"* (dictionary.cambridge.org). It is not uncommon for public health interventions to have a SG who have responsibility for implementing an intervention, e.g. the WHO's Health Literacy Program (http://www.healthliteracy.org.uk/index.php/steering-group). Most funding councils and clinical commissioners would expect intervention projects to have SGs with sufficient knowledge to make evidence-based decisions. Although there are many known barriers to the effective implementation of EBPs in schools (Caitlin, 2007; Hoare, Bott, & Robinson, 2017; Langley, Nadeem, Kataoka, Stein, & Jaycox, 2010; Vernez et al., 2006), little is known

about how the implementation knowledge of the SG influences decisions and outcomes. SGs might, therefore, constitute an excellent forum to target with an implementation KB.

3.1.2 Study aims

This study aimed to explore whether knowledge about implementation could be brokered to a SG responsible for a wide scale, public mental health, school-based intervention, and what impact this might have on the SG's implementation decisions.

3.2 Method

3.2.1 Design

This study was semi-ethnographic and took place within the MTCHP SG. As the primary researcher, I joined the SG as a fully-fledged member, and like all other members played a role in steering the project. I also acted as a KB. The study was semi-ethnographic because I was an active participant in the SG's implementation process and fully immersed in their culture (Musante & DeWalt, 2010) while at the same time, I systematically observed implementation developments within this context, carrying out participant observations and recording interactions with the SG members both in and outside of meetings (Okely, 2002). The SG members had no prior knowledge or experience of implementation science.

I attended 13 monthly SG meetings between September 2015 and November 2016 during the initial implementation phase of the MTCHP project. At this point, the project was in phase II, a test and learn phase, with the opportunity to move into phase III by July 2016 should HeadStart decide to fund the project further.

3.2.2 Ethics and recruitment

Ethical approval was obtained from the University of Leeds Faculty of Medicine and Health (School of Psychology) Research Ethics Committee (reference: 16-0089). The study recruited participants from the MTCHP SG. A participant information sheet was e-mailed to all six SG members. In that email, information on the purpose of the study, data collection procedures, and timescales were given. The participant information detailed the purpose of the study, what participation involved, the ethical considerations, what outcomes were expected and opt-in / out procedures (see Appendix 5). Willing participants were asked to email the researcher directly. Signed informed consent was

obtained before data collection (see Appendix A6 for the consent form). All six members of the SG agreed to take part. The sample, therefore, included a public health consultant, a local GP, two local head teachers, a mindfulness trainer, and an emotional resilience project officer from HeadStart. Table 1 details the SG members' job, role in the group, gender and reason for joining the SG.

The project's funder (HeadStart) required that all SG actions be evidenced based and this was a prerequisite to obtain future funding. This meant the SG were particularly motivated to receive and use evidence-based knowledge.

Table 1: SG members job, role in the group, gender and reason for joining the SG

SG Member	Job	Role in Group	Reason for joining
Public health consultant (Female)	A consultant in public health working for both NHS Cumbria and Cumbria County Council. Experienced in working with mental health teams across Cumbria, e.g. suicide, dementia, young people	Founded the SG and was asked by HeadStart to write the projects service specification Provided guidance on evaluation measures Wrote the phase 3 bid (for additional funding) and maintained ongoing communication with HeadStart and commissioners	Wanted to monitor the progress of the SG and project Felt that if you want a successful, sophisticated, multicomponent, multiagency program to work, you need to hear all voices Passionate about improving the emotional health and well-being of children and viewed it as her responsibility to do something to help
General Practitioner (Female)	A local general practitioner with surgery in Cumbria interested in MT and promoting the well-being of young people. Also a MT trainer	Clinical Lead Chair of the meetings MT trainer in schools	As a GP saw first-hand the mental health problems faced by children Believed effective prevention programs for young people were rare. She felt MT worked, based on feedback from teachers, students and patients and wanted to see it rolled out
Mindfulness trainer (Female)	An active mindfulness trainer in and around Cumbria Trained in MBSR, MBCT, .b and paws.b	MT lead and chief mindfulness trainer Designed the MT program offered by SG	Was asked to join by group founders Felt strongly about young people and mental health

			Believed that you can equip young people to manage stress, anxiety, thoughts and difficult situations
HeadStart representative (Female)	Employed by HeadStart to oversee MTCHP	Monitor overall progress of project and feedback to HeadStart Ensure project remains within the original goals set out by HeadStart before providing the funding Liaise with schools, support them, obtain feedback	to monitor the project for HeadStart Believed in building the resilience and emotional health of young people Was passionate about impact and sustainability
Headteacher (Male)	The headteacher of a local secondary school receiving the offer of MT	Advised group on school-related practicalities and issues related to implementing the project	SG founders asked him to join He viewed being part of the SG as an opportunity to meet new people and gain a deeper understanding of MT in schools, mainly how it might be implemented in his school.
Headteacher (Female)	The headteacher of a local secondary school receiving the offer of MT	Advised group on school-related practicalities and issues related to implementing the project	SG founders asked her to join She felt the association between mental health and academic attainment was strong and that MT was a good program to foster mental health amongst students

Participants had the right to withdraw from participating in the study at any time. They could refuse to answer any questions during the SG meetings and remove their data up until two weeks after the date of each session, after which point combined analysis of this meeting data with other data had begun. Participant identities are anonymised, but their job titles are not. The personal details of participants were stored securely and separately to study data.

3.2.3 Knowledge broker and role

As the KB, my experience at project start was as follows: I am a PhD student with a BA Business Management, BSC in Psychology, MSc in Health Psychology and a teaching qualification. I have six years' experience of working in sales, recruitment and HR as well as four years working as an assistant clinical psychologist and research assistant in a number of healthcare settings. I have extensive knowledge of mindfulness interventions and implementation science and, at the start of the study, had conducted research in schools, hospitals and the community. I have a proven track record of being approachable, dealing with people at multiple levels in organisations, and being able to gain people's trust. I have excellent communication skills and a good knowledge of research processes. My practical experience of working in healthcare settings, previous success of working in teams, good research knowledge of schools, and excellent research skills, in general, put me in a good position to carry out the KB role effectively. Where I could have perhaps had more experience was in my knowledge of public health (an area I had not worked in before). However, after an initial meeting with the MTCHP SG, and after I suggested to them that I act as a KB, I and the SG felt I was suitable for the role. I had not shared implementation knowledge as a KB with any one individual or group of individuals previously.

As the appointed KB, I had continuous direct interactions with all the key decision makers in the MTCHP project and maintained ongoing communication between meetings via e-mail and phone calls. I also visited and interviewed school staff who were receiving the Cumbrian offer of mindfulness to learn more about school contexts and understand implementation from their point of view (Study 3). Throughout the present study, my primary focus was on promoting findings from implementation science research to the SG to support them in making evidence-based decisions regarding their implementation strategy for a whole school approach to mindfulness.

3.2.4 Data collection

The principal aim of the study was to explore whether knowledge about effective implementation could be shared with the SG and if and how it impacted their implementation decisions. There is no standardised taxonomy of KB activities. KB activities very often depend on, and are dictated by, stakeholders' needs which are themselves often unanticipated and in the moment (Bornbaum et al., 2015). Thus, a pragmatic approach to data collection was taken. Notes were taken, and a journal kept of all SG meetings (n=12; each approximately 3 hours long), and 5 of these meetings were audio

recorded (from March 2016 onwards). With consent, all interactions with the SG outside of meetings (including e-mails) were also logged and noted. Such notes reported who was involved, to what extent, what questions were raised, what answered were given, what implementation knowledge was shared, and what knowledge was adopted (if at all).

3.3 Analysis

The journal, meeting notes and audio recordings were analysed by myself and constituted the study data. The audio recordings were not transcribed but worked from directly during analysis. The data from all three sources was amalgamated and ordered into month-by-month summaries. These summaries, therefore, contained information such as who was present, what was discussed, what implementation information was shared and what happened as a result (based on subsequent reports at meetings). When implementation knowledge was shared with the group, it was labelled as a 'key moment'. What the SG did with this knowledge was then labelled as a 'key outcome'. A timeline and a flow diagram of key moments and key outcomes were constructed. My supervisor and I reviewed 20% of the summaries and came to a consensus on what were key moments and key outcomes. Key moments, and key outcomes are explained in detail below.

Figure 6 - Flow diagram of data analysis
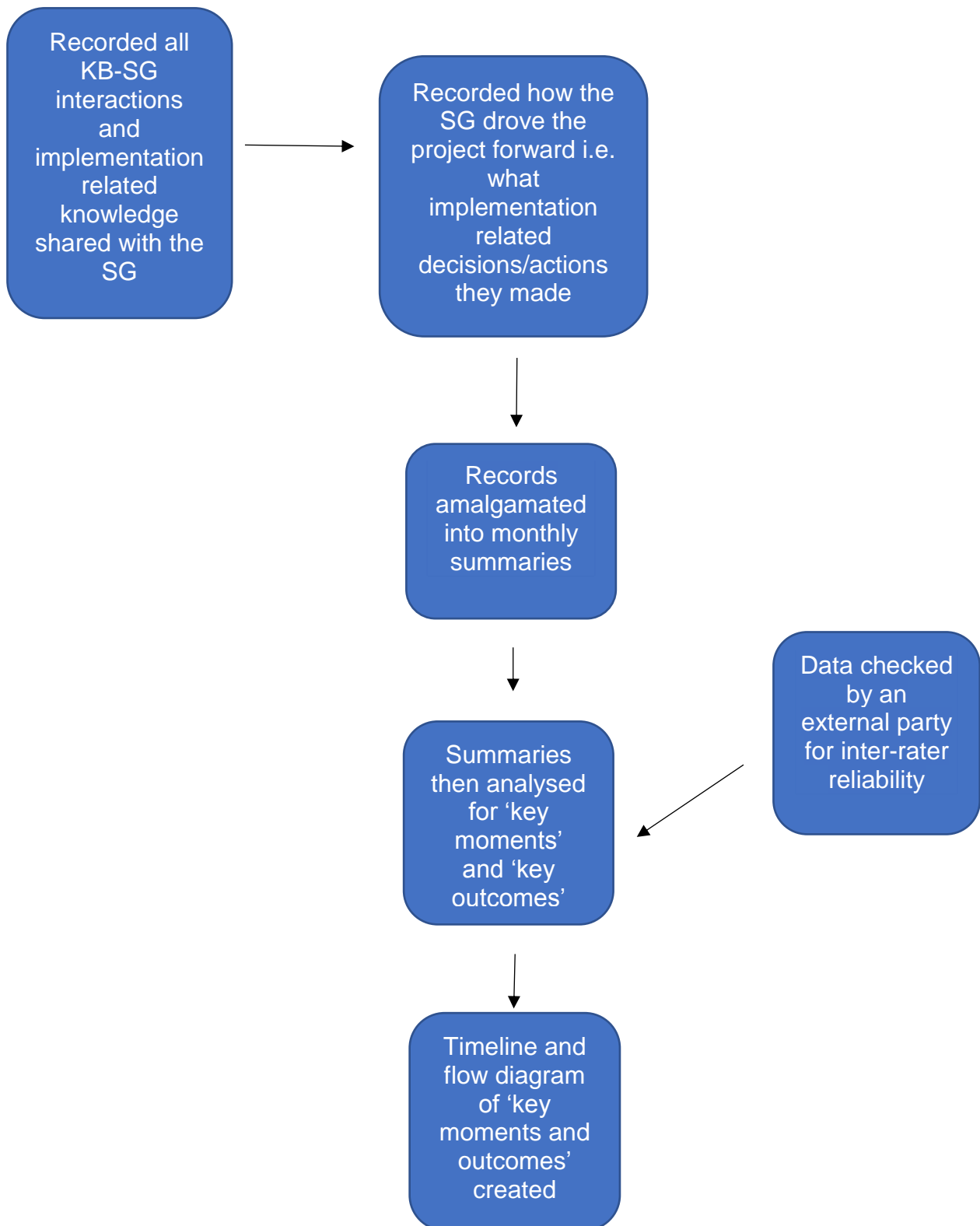
3.4 Findings

Overall I attended every SG meeting which took place, n= 12 in total. Figure 8 details the "key moments" and Figure 7 places these on a timeline and includes references for each piece of information shared with the SG at each meeting. Knowledge shared was often re-visited in future meetings as the group attempted to incorporate it into their decisions.

During each SG meeting, I was given a time slot to share knowledge with the group which was relevant to their implementation decisions or to answer questions they had regarding implementation (some asked previously, some asked in the present moment). The SG members' questions on implementation often gave me insight into what knowledge to share in the next meeting to ensure they could make the best implementation decisions possible (see Appendix A1 for a summary of each KB action and the scientific research it stemmed from). Sometimes this was knowledge I had already and sometimes I needed to identify or review evidence. I documented the initial response of the group to each piece of knowledge shared and whether I thought they had understood the knowledge at the end of each meeting. If a SG member or I felt knowledge had not been understood, I reiterated it.

The implementation knowledge shared in each key moment is explained in detail in Figure 8. Figure 8 also shows how these key moments led to "key outcomes" and to what effect. It can be seen from Figure 7 that key moments occurred regularly up until meeting 9. Figure 8 shows how there were, in total, 15 key moments which occurred over the course of the study and which led to 14 key outcomes. Key outcomes began to occur in November 2015, three months after the KB had joined the SG, and continued up until November 2016 when the SG did not receive phase 3 funding in order to continue. At this point, the KB stopped attending meetings. It can be seen from Figure 7 that the majority of key moments (n=12 of 15) led to affirmative key outcomes (n=10 of 14) where the SG used the knowledge shared to make evidence-based decisions on how the intervention should be implemented. There were also some key outcomes (n=4) where the SG did not take into account the implementation evidence shared with them at three key moments (n=3).

Figure 7 - Timeline of SG meetings: key moments and key outcomes

Meeting 7: Talked in detail about the 'readiness' of schools. Outlined why implementation might work better with one intervention at a time. Discussed how schools should only implement programs with an evidence base and that one-to-one MT had no evidence base. Sent info to Headstart about why more than one program was a bad idea on request of SG. Highlighted the need to monitor implementation (Key moment 10,11, 12, 13) [13]
Feb 4

Meeting 2: Further explained the importance of implementation with examples. (Key moment 3) [3-6]
Sep 18

Meeting 11: Meeting cancelled
Jul 14

Meeting 4: Taught group in detail about implementation outcomes (what might success look like?), fidelity, the importance of sustainable interventions and other key factors of successful implementation (Key moment 7) [7]
Nov 12

Meeting 9: Shared with the group PhD research findings and the CFIR framework (Key moment 15) [16]
Apr 14

Meeting 12: There were no key moments in this meeting
Sep 8

Meeting 13: There were no key moments in this meeting
Nov 3

2015 | Sep | Nov | 2016 | Mar | May | Jul | Sep | Nov | 2016

Oct 2
Meeting 3: Gave presentation on implementation, gave examples of whole school programs which had implementation difficulties provided to group and examples of better outcomes following implementation strategies, provided Q&A sessions (Key moment 4,5,6)

Mar 3
Meeting 8: Key issues regarding implementation discussed e.g. getting buy-in Vs ensuring good outcomes by getting schools to agree to certain things (Key moment 14) [14-15]

Jan 17
Meeting 6: Presented group with preliminary implementation framework (Key moment 9) [12]

May 26
Meeting 10: There were no key moments in this meeting

Dec 3
Meeting 5: Shared systematic reviews on MT in schools and evidence of the importance of implementation and implementation strategies. The authors refer specifically to the implementation of MT highlighting it as important (Key moment 8) [8-11]

Sep 4
Meeting 1: Shared basic idea of implementation science and differences between helping it happen, letting it happen, making it happen (key moments 1 and 2) [1, 2]

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15. Domitrovich CE, Bradshaw CP, Poduska JM, Hoagwood K, Buckley JA, Olin S. Maximizing the implementation quality of evidence-based preventive interventions in schools: a conceptual framework. Adv Sch Ment Health Promot. 2008;1.
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Figure 8 - Key moments and key outcomes

KEY MOMENTS

1) Shared foundations of implementation science with SG: 04/09/15

2) Explained the difference between helping it happen, letting it happen, and making it happen: 04/09/15

3) Further explained the importance of implementation with examples e.g. MT in healthcare (Crane 2013): 18/09/15

4) Gave presentation to group on implementation basics 02/10/15

5) Examples of whole school programs which had implementation difficulties provided to group and examples of better outcomes following implementation strategies 02/10/15

6) Implementation Q&A sessions take place via phone 02/10/15

7) Taught group in detail about the importance of implementation outcomes 12/11/15

8) Shared Gould 2015, Felver 2015, Zoogman 2014, and Zenner 2014 – systematic reviews on MT in schools. The authors refer specifically to the implementation of MT highlighting it as important: 08/12/15

9) Presented preliminary implementation framework based on CASEL: 17/01/16

10) Talked in detail about the 'readiness' of schools and readiness of individuals: 04/02/16

11) Suggested the group avoid 1 to 1 MT in schools as zero evidence

12) Highlighted the need to monitor implementation 04/02/16

13) SG advised to ensure schools only implement one intervention at a time 04/02/16

14) Key issues regarding implementation discussed e.g. getting buy-in Vs ensuring good outcomes by getting schools to agree to certain things 03/03/16

15) Shared with the group research findings and the CFIR framework: 26.05.16

KEY OUTCOMES

1) Getting the implementation right became a key aim of the project – "how can we make it happen?" – 15/11/15

2) Group can be heard using the preliminary framework as a reference point – 03/02/16

7) Schools no longer have to sign memorandum of agreement when receiving MT – 14/04/16

5) One on one MT included with MT offer

6) No formal or planned process of evaluation and monitoring was set up

3) Sent info to Headstart about why encouraging schools to implement more than one program might be a bad idea on request of SG - 04/02/16

9) Use of 'implementation language' in major bid meeting with Headstart e.g. 'making it happen' not 'helping it happen' - 14/04/16

8) The group began applying aspects of the preliminary framework to how they approached schools e.g. leadership engagement – 05/03/16

14) Schools now questioned on their 'readiness'. MT given only to schools deemed as engaged and 'ready' – 03/11/16

4) The offer of multiple interventions at once is kept - 14/04/16

10) Implementation coordinators written into phase 3 bid to ensure people on the ground driving implementation – 25/04/16

11) Phase 3 bid includes 'implementation guidance for headteachers', An Implementation plan is a key part of the phase 3 bid presented to Headstart. Project aim is now to find out best way to implement MT – 15/05/16

12) Headstart didn't understand the implementation aspect of the bid. May have contributed to not getting phase 3 funding – 17/07/16

13) Headstart wanted more PhD's, more knowledge transfer involved in its other projects – 14/08/16

3.4.1 What were the key moments?

The initial key moments which occurred in the SG (Figure 8: 1-6 and 8) aimed to ensure the SG developed a deeper understanding of what implementation was, why it was important and how it could impact the MTCHP project. The SG was introduced to implementation science (Key Moment 1 and 4; (Fixsen et al., 2005; Greenhalgh et al., 2004)) and showed evidence that very often, mental health programs, including those in schools, are not implemented well (Key Moment 3 and 5; (Crane & Kuyken, 2013; Durlak & DuPre, 2008; Vernez et al., 2006; Weare & Nind, 2011)). It was explained that this was often because there was no one taking responsibility for ensuring implementation happens effectively or even at all (Key Moment 2; (Blase et al., 2015; Fixsen et al., 2005; Greenhalgh et al., 2004)). The SG were then shown review systematic reviews of mindfulness in schools and studies highlighting wide variation in MT implementation success across schools, the need to understand its implementation better, and that implementation strategies might be able to help (Key Moment 8; (Fazel et al., 2014; Gould et al., 2015; Zenner et al., 2014; Zoogman et al., 2014)). The SG also received Q&A sessions relating to implementation, over the phone (Key Moment 5) where they could ask questions about implementation and where evidence shown in moments 1-4 was reiterated.

The remaining key moments (Figure 8: 7 and 9-15) provided the group with knowledge for finalising the MTCHP project's own implementation process. In meeting 4 (Figure 7), the group were introduced to some core ways of evaluating implementation, e.g. fidelity, reach, acceptability, dosage (Moment 7; (O'Donnell, 2008; Proctor et al., 2011). In meeting 6 (Figure 7), the group were presented with a preliminary implementation framework (Key Moment 9). This framework was based on one devised in 2006 by the collaborative for academic, social and emotional learning (CASEL) in the United States. CASEL produced an 'implementation guide and toolkit' designed to help schools implement social and emotional learning interventions (Devaney et al., 2006). The 158-page guide and 272-page toolkit was derived from research on school reform and organizational change and summarised the state of the science of implementation and sustainability of interventions at the time. The SG were shown just one part of the guide - an implementation rubric which included a series of ten steps that made up a full implementation cycle as well as six sustainability factors that were essential to high quality, sustainable implementation (see Appendix A3 for the full rubric). They found that two key sets of activities (10 implementation steps and 6 sustainability factors) combined with essential elements of

effective leadership, were vital to effective SEL implementation and sustainability. In the present study, any references to SEL programs were replaced with references to MT. The SG were invited to see if they could use these steps to help them implement MT into schools.

The SG were also introduced to the idea of the 'readiness' of schools and the 'readiness of individuals' (Key Moment 10). This referred to how schools' and individuals' motivation and capacity to adopt a mental health program affected its implementation success (Scaccia et al., 2015). The group were then advised to use only evidenced-based forms of MT, and that unlike MT delivered in groups, there was no evidence that one-to-one sessions of MT in schools could improve the wellbeing of young people (Moment 11). They had planned to include one-to-one MT in their offer, but they were advised that evidenced-based programs are likely to lead to better outcomes than non-evidence-based ones (Fixsen et al., 2005). The SG were also encouraged to formulate some ways to monitor the implementation progress of schools (Key Moment 12) as this is a clear recommendation of a number of implementation frameworks (Damschroder et al., 2009; Devaney et al., 2006; Sharples, Albers, & Fraser, 2018). The SG were also advised to ensure schools implemented just one intervention at a time (Key Moment 13). When organisations try to implement multiple programs at the same time, implementation success can decrease as resources for implementation become more stretched.

 In meeting 8 (Figure 7), the tension between getting school buy-in and allowing schools to adapt the MT program was discussed. The group were shown evidence that too much adaptation (on behalf of the school) of the core components of a school mental health program can lower or eradicate impact (Key Moment 14; (Domitrovich et al., 2008). However, they were also shown evidence that schools may need to make adaptations to 'fit' mindfulness into their workflows. No one school is the same, and some degree of adaptation can aid implementation by increasing buy-in, ownership and enhancing 'fit' (Lendrum & Humphrey, 2012). In meeting 9 (Figure 7), the KB shared their personal research findings being produced concurrently in the PhD (Study 5), and introduced the SG to the Consolidated Framework for Implementation Research (Key Moment 15; (CFIR; (Damschroder et al., 2009). The CFIR is a comprehensive, organising taxonomy of operationally defined constructs that may impact the implementation success of complex programs. The SG were shown initial evidence of which aspects of the CFIR might foster the implementation success of the Cumbrian schools .

3.4.2 What were the key outcomes?

All of the key moments led to key outcomes. Moments 1-6 were responsible for bringing implementation into the group as a core topic of conversation and ultimately ensured the group decided to make 'getting implementation right', a key aim of the MTCHP project (Key Outcome 1). This outcome itself led to Key Outcome 9 where the SG began to talk about incorporating various aspects of implementation science into their phase 3 bid going forward. This, in turn, led to Key Outcome 10, where they applied for funding to ensure there were 'local implementation coordinators' in phase 3, whose primary focus would be on making sure MT was implemented successfully in the schools, a rare occurrence amongst school mental health projects. Halfway through the KB process, the SG went on to develop their 'implementation guidance for headteachers' (Appendix A2) which they planned to distribute to schools during phase 3 (Key Outcome 11). It talked about 'making it happen' (Key Moment 2) and encouraged schools to think about various aspects of implementation, create an action plan and agree to a number of implementation related goals in order to decide if they were 'ready' to implement an offer of MT (Key Moment 10). The document was informed by the CASEL framework (Key Moment 9) and gave schools advice on how to implement a whole school approach (WSA).

Key outcomes 10 and 11 were also inspired by the CASEL framework (Key moment 9) which, prior to the development of the 'implementation guidance for headteachers', had led to the SG using the CASEL framework as a reference point in meetings (Key Outcome 2). The CASEL framework also influenced how the SG approached schools, e.g. by trying to achieve a high level of leadership engagement (Key Moment 7). Learning about the 'readiness of schools' (Key Moment 10) meant the SG began offering MT only to schools deemed 'ready for MT' (Key Outcome 14). Making their implementation strategy more selective in this way, was also driven by the KB's shared research findings which found school readiness to be a key distinguishing determinant of implementation success between schools, and the CFIR framework which highlights organisational readiness as a key driver of implementation (Key Moment 15). Another key outcome was the removal of the need for schools to sign a memorandum of agreement when offered MT (Key Outcome 7) and was a result of Key Moment 14. During Key Moment 14, the SG learnt that although ensuring programs are implemented with fidelity can lead to greater outcomes, some adaptations to 'fit' mindfulness into the school may be needed by each

school and could aid implementation by increasing buy-in, ownership and enhanced 'fit'. The SG had originally set out to ensure schools signed a memorandum of agreement which meant they had to implement MT exactly as the SG instructed but this was in light of Key moment 14.

A number of key moments had no impact on the SG's implementation related decisions. Interestingly, the SG went ahead and included one-to-one MT in its phase 3 bid (Key Outcome 5) despite the evidence provided which advised them not to (Key Moment 11). They also never incorporated any measures to monitor implementation across the schools (Key Moment 12). Although HeadStart, the funders of MTCHP, seemed to acknowledge the value of a KB and wanted more KBs in their other mental health projects (Key Outcome 13), the SG perceived that HeadStart did not understand the value of the SG's decision to make getting implementation right a priority. This perception arose after the public health consultant and the HeadStart representative from the SG met with HeadStart representatives to discuss phase 3 funding. Both SG members felt HeadStart had not understood the value of getting implementation right in the meeting. The SG believed this might have been the main reason why they did not obtain phase 3 funding (Key Outcome 12). HeadStart's decision to not provide phase 3 funding had little impact on the KB process as the SG were keen to find ways to continue, and were keen to receive ongoing help from the KB. Finally, despite being informed about the dangers to implementation posed by offering multiple interventions at once (Key Outcome 3), HeadStart insisted that schools be offered, and be encouraged to use, multiple interventions at the same time (Key Outcome 4).

3.5   Discussion

This study aimed to explore whether knowledge about implementation could be brokered to a SG responsible for a wide scale, public mental health, school-based intervention, and what impact this might have on the SG's implementation decisions. Over 14 months, the SG made 10 evidenced-based decisions as a result of implementation knowledge being shared with them. The SG ensured the project encompassed practices and principles from implementation science going forward, and they did this by incorporating these ideas into their phase 3 bid. These findings echo Traynor et al.'s (2014) which also found participants who had received knowledge from a KB exhibited a significant change in knowledge and skill as well as greater EIDM.

The KT process occurred in two stages. In the first stage, the SG came to understand and prioritise implementation, and in their second stage, the SG learnt how to apply implementation science to their own MTCHP project. These processes took time. The SG made getting implementation right a priority in February 2016, two months after the KB process started. The SG started making changes to the project's implementation strategy for the first time in March 2016 (Key outcome 8) six months after the KB process started. This was most likely related to the time taken for the KB to develop a good relationship with the SG who also needed time to develop their understanding of implementation.

The fact that some knowledge shared by the KB was not acted upon (e.g. offering one-to-one MT to students) may have been because the SG was passionate about MT and believed in its ability to help young people become more resilient to mental health problems. The support and drive behind MT was sometimes based on personal beliefs rather than evidence.

Second, the fact that no formal method of evaluation was ever set up by the SG seemed to have more to do with limited resources than a deliberate decision by the SG to not follow the KB advice. Well-specified and evidence-based measures of implementation are rare in public health programs (Rychetnik, Frommer, Hawe, & Shiell, 2002). Setting up clear evaluation measures of implementation progress would require a significant amount of time and resources, of which the SG had little. The KB's role is to share knowledge but 'making it happen' requires a group effort.

Third, the SG was unable to persuade HeadStart to encourage schools to disseminate one program offer at a time. It seems likely that HeadStart did not view implementation science evidence with the same importance as the SG. Dagenais et al.'s (2015) critical analysis of a qualitative knowledge brokering study concluded that interpersonal contact is an essential condition for effective KB interventions and it has been suggested that KB interpersonal contact improves the likeliness of behaviour change (Thompson, Estabrooks, & Degner, 2006; Traynor et al., 2014). In their systematic review, Bornbaum et al. (2015) found that maintaining a physical presence among stakeholders, facilitating relationships among them, encouraging teamwork and facilitating interactions was found to be useful to promoting the KT process in health-related settings. Although I was in regular contact with the SG and formed interpersonal relationships with members, knowledge was not being brokered, first hand, to key decision-makers at HeadStart. It seems that KB's need to understand the needs of, and have ongoing contact with multiple stakeholders and

decision-makers in order to be effective. The SG was relying on HeadStart to understand the importance of implementation without receiving direct knowledge of its value. It seems that this may have contributed to the SG not receiving phase 3 funding (Key Outcome 12). All other implementation decisions which the group made in regards to phase 3 (e.g. giving schools implementation guidance and having implementation coordinators oversee things) were effectively stopped by HeadStart when funding for phase 3 was not given.

Despite not having contact with HeadStart, their goals were made clear throughout the project by the HeadStart representative who sat as a member on the group. HeadStart's priority was to make sure the money they had invested was spent effectively and in a way that meant for clear improvements in outcomes. In theory, making evidence-informed implementation decisions should improve the positive outcomes of a program like MT. Without implementation, the cost benefit is incalculable, because to invest in a programme without follow-through is, according to implementation science research, likely to be wholly wasteful. However, Headstart never fully understood this point of long term reductions in cost, and remained concerned on the initial short term costs of incorporating implementation strategies (e.g. paying local implementation coordinators (Key Outcome 10). This presented a slight conflict of interest as the HeadStart representative's main priority was costs and outcomes in the short term rather than getting implementation right and reducing waste over the long term.

Despite these contextual difficulties, the majority of key moments led to a significant number of evidence-informed implementation decisions being made by the SG. They perceived the KB to be a legitimate source of information. There was also an active research culture amongst the SG with members including a public health consultant and GP who were familiar with scientific research studies and journals. This familiarity meant it was not difficult for key members of the group to understand and relate to the scientific knowledge being shared with them. Researchers and intended users often come from very different cultures, creating a gap or "semantic distance" which can weaken the broker-recipient interactions and lessen the KB's effects on EIDM (Cinq-Mars, Labadie, & Souffez, 2010; Traynor et al., 2014). In the SG, there was no evidence of this being the case, but in some SGs and schools, the translation of research may not be so easy as some stakeholders are unlikely to have much experience with scientific research studies in journals. In circumstances such as these, it will become increasingly important that the KB is able to tailor knowledge in a way that the stakeholders find acceptable.

Some researchers have pointed to the 'dark side' of KB (Kislov, Wilson, & Boaden, 2016) and suggest it may be negatively affected by some tensions stemming from the inherent complexity of knowledge and brokering and from the 'in-between' position occupied by KB's. KB's take up a position where they are not officially part of the group they are sharing knowledge with but also not completely separate and external to that group. They have one foot in each camp and stakeholders they are sharing knowledge can find it challenging to trust and accept them as a result. KB's can also receive hostility and scepticism from other professionals, and can sometimes feel isolated and incompetent as a result (Kislov et al., 2016). This has been reported by KBs involved with public health programs previously (Robeson, Dobbins, & DeCorby, 2008). I never felt incompetent, but I did receive some hostility and scepticism from the HeadStart representative in meeting 7 where we discussed encouraging schools to implement one program at a time. The HeadStart representative believed strongly that schools should be given a range of programs to choose from in order to maximise mental health outcomes. HeadStart was uncomfortable with the idea of giving schools funding, and for the schools to then only introduce one or two of the available programs on offer. In their minds, introducing multiple programs was likely to lead to better outcomes than just one or two.

I also raised the point that some of the programs they were offering were unsustainable as they relied on external trainers to deliver them. Once the money had run out the program would be unable to continue in the school. Programs like mindfulness, which can be delivered by school teachers themselves, are in theory, easier to sustain. This was not received well by the HeadStart representative and the offer of multiple interventions, some of which were arguably unsustainable, was kept in the HeadStart offer as a whole. Moments of hostility and scepticism were on the whole rare, however, and most of the time all members of the SG responded equally to the suggestions I made. Occurrences of scepticism or hostility may have been higher had I had more decision-making power. My position as KB was the most junior in the SG. This meant none of the other SG members had their decision-making powers challenged by me. Had my status been higher, I might have encountered power struggles and more resistance from the SG to the KT process.

I also, at times, felt isolated from decisions around the phase 3 bid, that were mainly made outside the group by the HeadStart representative and the public health consultant. Implementation science was included in the phase 3 bid without much involvement from me. It may have been that the HeadStart representative and the public health consultant did not explain the importance of implementation very well, or that they simply could not

convey its importance to the HeadStart representatives and convince them that the additional costs of insuring MT was implemented effectively were worth it.

The SG in this study were passionate about ensuring the project was a success and were therefore willing to consider anything, including implementation science. This may not be true of all SGs, and future studies may find that less passionate SGs may be more resistant to implementation knowledge.

3.6   Study Evaluation

As well as understanding what drives implementation, it is also important to actively drive it forward and this study, with the use of a knowledge broker, presents evidence of a possible way to do this. However, the study is not without its weaknesses. The study could have recorded some clearer and more precise indicators that the SG had understood the knowledge being shared with them. Use of specific evaluative questions (rather than meeting notes for example) might have helped clarify the extent of the SG's understanding more clearly. I could have, for example, given the SG an exit questionnaire when I left the group. Dagenais et al. (2015) collected self-administered questionnaires and conducted a semi-structured interview seven months after their public health KB intervention had ended to gauge respondents perceptions of the KB's effectiveness. Traynor et al. (2014) conducted interviews with participants to assess the impact they perceived the KB intervention had had on them and their organisation with respect to the knowledge transferred. However, I decided not to ask the SG to complete an exit questionnaire or interview because I was researching my own input which created a potential for bias, and was a further weakness of this study. The SG might have been positively biased in their answers to an exit questionnaire as they had built up a good interpersonal relationship with me and they may not have wanted to paint me in a negative light. There was also a risk of bias on my part as the research was not independent. Had an independent researcher conducted the interviews in this study and analysed the results, the findings may have been different. To lower the risk of bias in the analysis process, data was checked by a third party for inter-rater reliability.

In light of the negative effects of not brokering knowledge to HeadStart representatives, the KT process may have been more effective in this study had the KB brokered knowledge to stakeholders across all levels of the hierarchy and been independent of the research process.

3.7 Future studies

KBs may well be able to close the KTA gap when receivers of knowledge are passionate about their project, are willing and able to receive research evidence, and interpersonal relationships are able to develop between the KB and the receivers of knowledge. Future studies will need to be aware of potential contextual difficulties and address these accordingly. For example, issues around power dynamics and conflicts of interest can potentially disrupt the KT process.

Contextual issues highlight just how complex and context-specific KB processes are (Conklin, Lusk, Harris, & Stolee, 2013). Conveying relevant knowledge to appropriate people does not automatically result in those people taking action and engaging in EIDM (Elueze, 2015). This implies that a standard criterion for evaluating the effect of KB on KT processes is needed. A number of researchers have begun making promising attempts to create standard criteria of evaluating KBs (Ellen, Lavis, Ouimet, Grimshaw, & Bédard, 2011; Mavoa et al., 2012; Rowley, 2012).

Future studies should seek to better understand which combinations of KB activities are associated with optimal evidence-based decision-making outcomes and whether the ideal combination of KB activities changes in different settings and among different healthcare decision-makers (van Kammen, de Savigny, & Sewankambo, 2006). Feasibility and cost-effectiveness data on KBs as a KT strategy are also needed. The use of a PhD student in this study worked well and kept expenses low, but future KB interventions may not occur due to public health commissioners or SGs not having enough money to fund a KB. KBs are often an intensive and costly KT intervention (Traynor et al., 2014). Feasibility and cost-effectiveness data around KB studies may also show public health organisations they can save a great deal of money by employing a KB. Knowing about the potential cost savings a KB can bring may motivate public health organisations to use them (Traynor et al., 2014).

Future studies may want to explore creating teams of KBs. Kislov et al. (2016) suggest that creating isolated knowledge brokering roles is not enough to produce a long-term sustainable impact on the KTA gap. The authors suggest shifting from individual KBs to collective KBs where multi-professional teams of KBs are supported at the organisational and policy level in order to impact the KTA gap.

3.8 Conclusion

In this study, 15 Key Moments led to 14 Key Outcomes, 10 of which involved implementation decisions being made based on scientific evidence, suggesting a successful KT process. It seems that SGs responsible for implementing public health programs can learn about implementation and then apply this new knowledge to their program when broker-recipient interactions are strong, and there is a research culture amongst SG members.

These findings, therefore, offer a possible KT strategy within public health settings. Further research is needed to determine empirically which specific KB activities lead to successful KT and which characteristics of KB can withstand what is very often the complex and context-specific processes. Feasibility and cost-effectiveness data, data on internal KBs and data on the effectiveness of KB teams will also be useful. To promote the use of implementation science in public health initiatives, KBs may need to broker knowledge to commissioners and funders as well as SGs.

Chapter 4 **Study 2 - Implementing a whole school mindfulness program: how far can a SG influence implementation?**

This chapter covers the second study in this thesis which aimed to expand our understanding of the implementation of school-based mental health programs. Study 1 (Chapter 3) sought to examine how far a KB could impact the decisions made by the MTCHP SG in regards to implementing MT across Cumbria. Study 2 sought to understand if the same SG could function as an external implementation team and what they perceived were the opportunities and barriers for them to act in this way (bearing in mind they were being supported by a KB). This study, therefore, builds very closely on Study 1, but rather than take an objective view of what happened as a result of the knowledge brokering, Study 2 examined the experiences of the individuals in the group.

4.1 Implementing school-based health promotion programs: The need for implementation teams in public health settings

That effective implementation occurs in stages was introduced in Chapter 2. The implementation stages (see Figure 9) stem from work by the National Implementation Research Network (NIRN) which produced them following an extensive review of the implementation literature (Blase et al., 2012; Fixsen et al., 2010; Fixsen et al., 2005). As can be seen in Figure 9, there are a number of activities that stakeholders responsible for implementing a program must engage in during each implementation stage to promote implementation success. Failure to attend to these activities may inhibit full implementation and intended positive program outcomes.

Figure 9 - Stages of Implementation
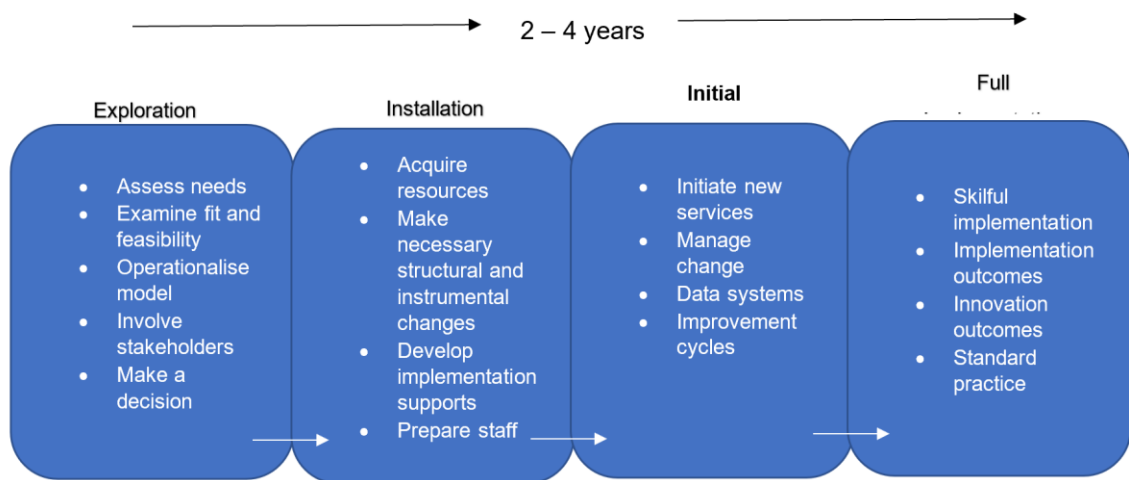
Based on Fixsen et al., 2005

Currently, most public health, school-based initiatives support schools in the exploration and installation phases of an EBP program, but there is little to support the implementation phases (initial implementation, full implementation) outlined in Figure 9 (Bessems, van Assema, de Vries, & Paulussen, 2014; Domitrovich & Greenberg, 2000; Durlak, 1998; Fagan & Mihalic, 2003). This can be seen in past efforts which have been characterised as 'letting it happen', where school leaders are left to make use of EBPs on their own, or 'helping it happen' where manuals, guidelines, websites and other information is provided to 'help' implementation happen. Neither of these approaches, which view the implementation phase as the school's responsibility, have been successful in promoting the full and effective use of EBPs (Balas & Boren, 2000; Clancy, 2006).

In their extensive review of the implementation literature, Greenhalgh et al. (2004, p. 593) generated a new category called 'making it happen'. The central way to 'make it happen' is via the creation of expert implementation teams, equipped with evidence-based implementation strategies, to actively support implementation of a new EBP. It was not until recently that the name 'implementation team' was coined and the role of these teams laid out by (Fixsen et al., 2005); p.12) in their conceptual framework for implementation (See Figure 2 below). The authors produced their conceptual framework after conducting a review of the implementation literature and suggested that, in its simplest form, implementation had five essential components. One of these components was a 'communication link' where "an individual or group of individuals, named

"purveyors"..actively work to implement the defined practice or program with fidelity and good effect.." (Fixsen et al., 2005, p12). NIRN describes implementation teams as "the people who do the work of implementation" (https://nirn.fpg.unc.edu), and it can be seen that implementation teams 'make it happen' by actively supporting the movement of a program through all the stages of implementation (Fixsen et al., 2005).

Studies exploring the effectiveness of implementation teams are relatively scarce although the idea of creating a group of people to drive implementation forward is not new. In 1983, Flanagan developed 'a consultation and training team' to make changes in the residential units at a large state hospital over a period of seven years. The team's implementation strategies included gaining management support, training staff, coaching staff, measuring staff performance and promoting intervention sustainability. The authors found that staff skill acquisition was only a small part of all the things that needed to be done to assure quality care for residents (Flanagan, Cray, & Van Meter, 1983). Blase examined the impact of 'Teaching-Family teams' that support Teaching-Family group homes in community and campus-based settings and found these teams to be effective in promoting new service delivery systems (Blase, Fixsen, & Phillips, 1984). Tansik and Chakrabarti (1989) explored the introduction of a new type of bank account within a large banking chain and why its success varied across banks. They were surprised to find that having an external implementation team made a huge difference that overrode many of the expected influences of organisational structure, climate and staff competencies: "We came to view importing and subcontracting (of teams) as major techniques for successful implementation" (p. 356). These studies demonstrate that training alone is not enough to ensure quality implementation and that implementation teams can complement training programs by promoting program adoption and overcoming the many contextual barriers to implementation that often exist in organisations.

On the whole, research and implementation teams in public health settings are rare. A study from 2012 found that national implementation teams performed critical functions and promoted program success in the implementation and upscale process of a child public health program (Chamberlain et al., 2012; Saldana & Chamberlain, 2012). Metz et al. (2014) applied the 'Active Implementation Frameworks' to a countywide wellbeing project in an attempt to improve service delivery. Implementation team development (a key aspect of the active implementation frameworks) related to fidelity of the use of innovations; the authors found innovation practitioner performance was linked to how well implementation teams were able to carry out their role effectively. Studies such as

this are promising, and suggest that public health programs might be more successful if an implementation team is actively involved and if those responsible for rolling them out develop a strong focus on 'making it happen'.

Despite the few studies which show implementation teams may promote the implementation of public health programs, the implementation literature remains dominated by 'helping it happen' i.e. dissemination work. It is also unclear what barriers and facilitators implementation teams might face when trying to 'make it happen'. The closest to 'making it happen' research in schools seems to be studies examining ways to improve the fidelity of interventions, as fidelity is a key element of 'making it happen' e.g. (Carroll et al., 2007; Dusenbury, Brannigan, Falco, & Hansen, 2003; Gould et al., 2015; Gould et al., 2014; Hamre et al., 2010; McBride, Farringdon, & Midford, 2002).

4.1.1   What should a good implementation team look like?

Implementation teams can take various forms or structures but are typically developed on site with support from groups outside the organization or system (Fixsen et al., 2013). Implementation teams can exist at different levels within a system. Within education systems in the USA, Blase et al. (2015) describe implementation teams existing at the state level, regional level, district level, and school level. In a similar vein, Metz et al. (2013) describe implementation teams existing at the national level, state or regional level, and the program level. Study 1 involved a SG at the regional level of an educational system, and one that was external to the schools hosting the MT. A regional implementation team would sit between the local education authority (funded to deliver MT) and schools and be responsible for 'making it happen' by use of robust implementation strategies. This PhD focused on an external SG operating at a regional level.

Although implementation researchers recommend the use of implementation teams at all levels (e.g. school, district, national etc.) for school mental health programs (Blase et al., 2015; Fixsen et al., 2013), there is little guidance on how to form such teams. The Education Endowment Foundation (EEF) encourages UK schools, who are implementing a new program, to create an internal implementation team from appropriate school staff (Sharples et al., 2018). If schools do this, it is likely to have a positive effect on overall program implementation because it opens up the possibility that getting implementation right will become a more explicit and ongoing group activity. However, school programs are likely to be even more effective if an external implementation team with expertise in implementation science also works to drive the implementation process.

The term implementation team is not currently used in the UK. Instead, public health programs can sometimes have a SG. Although SGs will aim to oversee the delivery of a project, they would not ordinarily have a focus on ensuring frontline delivery agents of the program move successfully through all the stages of implementation. Within mindfulness programs, for example, councils and/or commissioners will bring in mindfulness trainers and fund schools to train their staff, but it is not currently normal practice for there to be an external group of people with a sole focus on supporting schools to get implementation right. Instead, SGs and the councils/commissioners that fund them, tend to be concerned with program outcomes but not implementation outcomes.

In Study 1, the SG continually received implementation knowledge from a KB (knowledge broker). They were encouraged to 'make it happen' and in effect act like an implementation team. Three members of the SG in particular were in constant communication with the schools. The GP, mindfulness trainer and HeadStart representative were all involved in introducing schools to the MT offer and the GP and mindfulness trainer trained each school's teachers in mindfulness. After schools had trained their teachers in mindfulness, these three members of the SG offered ongoing support to schools and continually gathered feedback on their implementation progress. Ongoing support entailed regular phone calls, school visits, and mindfulness related advice which occurred on a weekly basis. This ongoing support continued until the end of phase II of the project (see 'time points' below).

This presented a unique opportunity to study what can be characterised as an improvised regional implementation team. We have little idea as to the role SGs might play in influencing implementation overall and if they are able to act as regional implementation teams. Studying a group like this could be of interest to several stakeholders, from research funders (e.g. should they expect intervention developers to establish a local implementation team for implementation?), to commissioners of public services (e.g. do they need to be convinced of the importance of local implementation teams? What do local implementation teams do that an internal implementation team at each school cannot do?), to schools (e.g. what is the added value of an external team to them?). In effect, Study 1 attempted to broker knowledge to the SG in regards to implementation and studied this process objectively to see if it affected their decisions. Study 2 took this a step further and looked at the subjective experiences of the SG members in trying to use the implementation knowledge they had learnt and the barriers and facilitators to this that they experienced.

Understanding what they perceived to be the opportunities and barriers for them to act as an implementation team while receiving implementation knowledge, could help to develop our understanding of whether external SGs can learn to effectively move schools through the stages of implementation. If external SGs can be taught to 'make it happen', the result could be more effective school program outcomes.

Some work has sought to profile what makes for an effective implementation team. Tout, Metz, and Bartley (2013)(p.260) list five activities taken from Fixsen et al., (2012) that teams must focus on to move programs through the stages of implementation:

 1. Increasing "buy-in" and readiness

2. Installing and sustaining the implementation infrastructure

3. Assessing fidelity and outcomes

4. Building linkages with external systems

5. Problem-solving and sustainability

Metz et al. (2013)(p.36) describe three core competencies of successful implementation teams taken from Fixsen et al., (2012):

1. Knowledge and understanding of core program components and linkages to outcomes.

2. Knowledge of implementation science and recommended practices for implementation (e.g. activities needed to be carried out at each implementation stage).

3. Experience in using data for program improvement and instituting continuous improvement cycles.

These lists offer a convenient way to assess how far a group of people attempting to implement a public health program have been able to act as an implementation team.

4.1.2   Aims

This study sought to understand what were the perceived opportunities and barriers for the SG to act as an implementation team (supported by a KB). Specifically, it examined:

i)   The experiences and attitudes which the MTCHP SG members developed around implementation during the KB process and how far they felt they were able to incorporate the new knowledge into their thinking and the project.

ii) How far the members of the SG felt they had, and could influence, the implementation of MT across Cumbria and act as an implementation team.

iii) If the members of the SG were able to act as an implementation team by comparing their experiences to suggested competencies and activities conducted by implementation teams (Metz et al., 2013; Tout et al., 2013).

These aims were as far as the PhD timeline permitted follow-up.

4.2   Method

4.2.1   Design

This was a longitudinal qualitative study whereby data was collected via face-to-face interviews or telephone interviews at two time points, six months apart. This was to capture the SG's experiences of attempting to promote and facilitate the implementation of MT over time.

4.2.2   Ethics and recruitment

The study recruited participants from the MTCHP SG. A participant information sheet was e-mailed to the six SG members (Appendix B1) detailing the purpose of the study, what participation involved, ethical considerations, expected outcomes and opt-in / out procedures. Willing participants were asked to email the researcher directly. Signed informed consent was obtained before data collection (see Appendix B2 for example consent form). Five members of the SG agreed to take part. One member, a head teacher, felt she was too busy and therefore unable to partake in the interviews. Apart from one headteacher, the sample, therefore, included the same participants from study one, i.e. a public health consultant, a local GP, a local head teacher, a MT trainer, and an emotional resilience project officer from HeadStart. Table 1 in Chapter 3 gives further details of the SG members' job, role in the group, gender and reason for joining the SG.

Participants had the right to withdraw from participating in the study at any time including during the interview. They could choose to withdraw their data up until two weeks after the date of the second interview, after which point combined analysis of this interview with other data had begun. There were no risks to the participants. Ethical approval was obtained from the University of Leeds Faculty of Medicine and Health (School of Psychology) Research Ethics Committee (reference: 16-0089; dated 15/03/16; 17-0072, dated 23/02/17). Group members' identities are anonymised, but their job titles are not.

The personal details of participants were stored securely and separately to study data. Transcripts were assigned a code known only to the PhD student and supervisor, and personal information was anonymised. Participants were not aware in advance of which others members of the SG had consented to take part; however, they may have shared this information with each other post-interview.

4.3 Data collection

4.3.1 Time points

Participants were interviewed at two time points six months apart. At T1, the SG had received just over four months of knowledge from the KB, and at T2, they had received knowledge from the KB for 12 months. T1 interviews took place during phase II of the broader project (February 2016 – April 2016). At this stage, the SG had enough funding to trial the MT offer across a number of primary and secondary schools in Cumbria. The transition from phase II to phase III involved the SG applying for further funding to build on phase II and implement MT across the whole of Cumbria and offer it to every school. They did not receive this funding but were still able to continue into phase III of the project albeit on a much lesser scale. T2 interviews, therefore, took place during phase III of the project (August 2016 – October 2016).

4.3.2 Interview Schedule

A semi-structured interview schedule was designed to explore participants' attitudes, beliefs and experiences of implementing MT across Cumbria to gauge what they felt they had learnt about implementation and to get an indication as to how far they felt they were able to influence it overall and act as an implementation team. For indicative interview questions, see Table 2 below.

There were no questions specifically asking about their views of the KB. Because I acted as the KB and the interviewer for this study, asking questions directly about the SG's perception of the KB would have likely produced biased findings, given my relationship with them. This was therefore not a KB feedback study; rather we wanted to understand what their initial views of implementation were, what experiences they had during the implementation process, what they learnt, and how far they felt they could apply what they had learnt about implementation to the program with good effect. The first stage

questions took place very early on in the KB process and so were primarily concerned with understanding the SG members' initial views on implementation.

Opening questions were also focused around joining the SG because individuals' agendas are known to influence groups and we wanted to be clear about why participants felt they were there and what their intentions for the project were. It also illustrated their focus on implementation versus other agendas. Participants were asked about their view of MT as the knowledge and beliefs individuals have about a program such as MT can impact how well it is implemented.

Table 2 - Interview questions for SG Time Point 1 & 2

Time Point 1

1. How did you initially get involved with the SG?
2. What was your motivation for taking part in it?
3. What would you like to see happen?
4. What is your view of MT and why do you think MT is needed in schools?
5. Do you have any concerns?
6. What has had the biggest influence on your thinking?
7. What is your view regarding implementation?
8. Do you have a model in mind in regards to implementation?
9. What do you hope to achieve as a group?
10. What have been the barriers / facilitators to the group's goals so far?
11. Have there been any schools which have engaged well/not so well with the offer?
12. What do you think are the reasons for differences in engagement levels?
13. How have you handled opposition to MT? E.g. if you are challenged by someone not in support of it what might you say? Why not a fitness intervention or something else?
14. What is a feature of good practice that you are proud of in regards to the SG?

Time Point 2

1. What have you learnt about implementation?
2. How well is the project coming along?
3. How well has been the uptake of the offer?
4. What have been the barriers / facilitators to the group's implementation goals?
5. How well are things being implemented / going according to plan?
6. What has prevented you/facilitated your efforts to implement mindfulness as a team?
7. How has the group handled schools that have not engaged well?
8. Do you have any concerns?
9. Has your thinking around implementation changed at all?
10. You set out to implement MT in 80% of schools in Cumbria, do you still think this is an achievable aim?

Interviews were either face-to-face or over the phone. Mean interview time (across T1 and T2) was 44.1 minutes and interviews were transcribed verbatim to playscript standard by either the principal researcher or a professional transcriber. See Table 3 below for more details.

Table 3 - Interview participant characteristics, interview type and interview length

Participant and Job role		Stage (T1 or T2) and interview setting (phone or face to face)	
Participant	**Participants job role**	**T1** (date and length in minutes/seconds)	**T2** (date and length in minutes/seconds)
Participant 1	Local general practitioner	**04/02/16** 52.08 Face to face	**09/08/16** 33.44 Face to face
Participant 2	MT trainer	**11/02/16** 23.39 Telephone	**04/08/16** 47.13 Telephone
Participant 3	Public health consultant	**18/02/16** 34.38 Telephone	**11/08/16** 44.18 Telephone
Participant 4	HeadStart Coordinator	**25/02/16** 68.12 Telephone	**10/08/16** 61.12 Telephone
Participant 5	Local Headteacher (secondary school)	**03/03/16** 58.18 Face to face	**01/09/16** 19.09 Face to face
		Total mean time: 236.15 minutes 3.935 Hours Average length: 47.23 minutes	**Total mean time:** 204.96 minutes 3.416 Hours Average length: 40.99 minutes **Total mean interview time:** 44.11 minutes

4.4 Analysis

The interview data were analysed using thematic analysis. This is a method for exploring, identifying and interpreting patterns (themes) across datasets (Braun & Clarke, 2006). The aim of this analysis was to determine: (i) the dominant experiences of SG members in regards to making decisions about, or implementing, the MT intervention; (ii) the aspects of the implementation process the SG felt they wanted to, and were able to, influence; and (iii) the aspects of the implementation process which presented the most problems.

The analysis adopted a social constructivist approach incorporating subtle realism. Social constructionism is interested in how knowledge is constructed and understood within society (Andrews, 2012) and proposes that we construct a representation of reality rather than discover it directly. Hammersley (1990) refers to subtle realism which proposes we only know reality from our perceptions of it. This analysis, therefore, claims that perceptions of interview participants would provide a representation of reality.

The analysis of the interviews took place in three stages, illustrated in Figure 10. Stage one individual-level data from both time points were analysed using thematic analysis (explained in the next section). Themes were generated for each participant. In stage two, a group level analysis was conducted to identify if individual themes could be meaningfully grouped. Stage three of the analysis involved a final refinement and re-labelling of the themes into core themes and sub-themes which were relevant to all participants.

Figure 10 - Flow diagram of data analysis

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┌─────────────────┐      ┌─────────────────┐
│ Familiarise with│      │ Conduct thematic│
│     SG          │ ───► │   analysis of   │
│    T1 and T2    │      │   transcripts   │
│   transcripts   │      │                 │
└─────────────────┘      └────────┬────────┘
                                  │
                                  ▼
                         ┌─────────────────┐      ┌─────────────────┐
                         │ Create individual│     │ Data checked by an│
                         │ level participant│◄───►│ external party for│
                         │     themes       │     │   inter-rater     │
                         │                  │     │   reliability     │
                         └────────┬─────────┘     └─────────────────┘
                                  │
                                  ▼
                         ┌─────────────────┐
                         │ Create 1st stage │
                         │ group level themes│
                         └────────┬─────────┘
                                  │
                                  ▼
                         ┌─────────────────┐
                         │ Generate core    │
                         │ themes and sub-  │
                         │     themes       │
                         └─────────────────┘
```
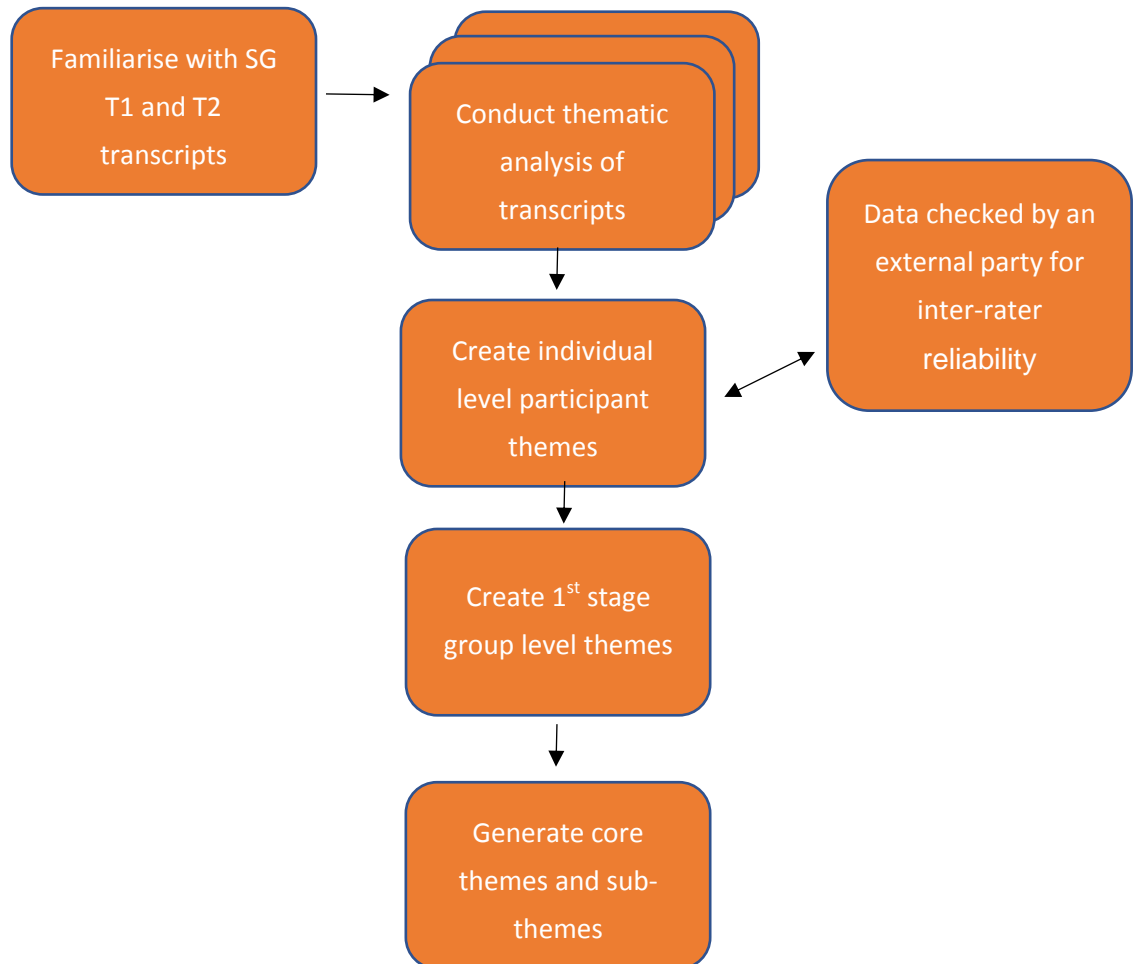
Stage 1: Thematic Analysis of individual-level data

Analysis for stage one proceeded in line with the initial steps outlined by Braun and Clarke (2013) which in this case involved four phases. **Phase 1** was 'familiarisation' and involved reading and re-reading the transcripts with the analytic aims in mind. **Phase 2** 'coding' was descriptive and involved identifying and labelling units of text of relevance to the research question. For example, participant two spoke considerably about the importance of reaching out to schools and letting them know about MT as well as the importance of maintaining contact with them over time. This section of text was assigned a code 'feels engagement is important'. **Phase 3** involved theme generation at the participant level; themes were generated by grouping codes that were similar in meaning and assigning a new label where needed. For example, some codes labelled within the participant two

transcripts related to 'feeling engagement with schools was important', and these were grouped to form the main theme 'getting engagement'. Themes which were similar and did not provide additional information in regards to the data when kept separate were merged, e.g. 'lack of funding' and 'lack of time' for participant 2 became 'resources'. **Phase 4**, 'reviewing themes' involved discussion of emergent themes with a supervisor. Confidence in the consistency of first-rater theme generation was established via blind rated checks by my supervisor on 20% of each participant's data. In total, 53 instances of implementation relevant coding were reviewed and 6 instances of disagreement were identified. Consensus was reached through discussion.

Stage 2: Grouping of individual themes into collective themes

Stage 2 of the analysis involved working across the dataset to explore where there were similarities and the possibility of grouping. For example, the theme 'personal interests, experiences, relationship and beliefs' (participant 1) was grouped with 'roles and agendas' (participant 2) and 'personal beliefs' (participant 5). Themes that emerged in only one transcript were discussed and checked to see whether they added any value to the analytic outcomes, e.g. getting compliance.

Stage 3: Translating collective themes into core themes

Stage 3 involved defining core themes. The core themes (and their sub-themes) described recurring patterns across the dataset which were associated with one central organising concept.

4.5   Findings - The results of the analysis can be seen in Figure 11 below.

Figure 11 - The three stages of interview analysis and resulting themes
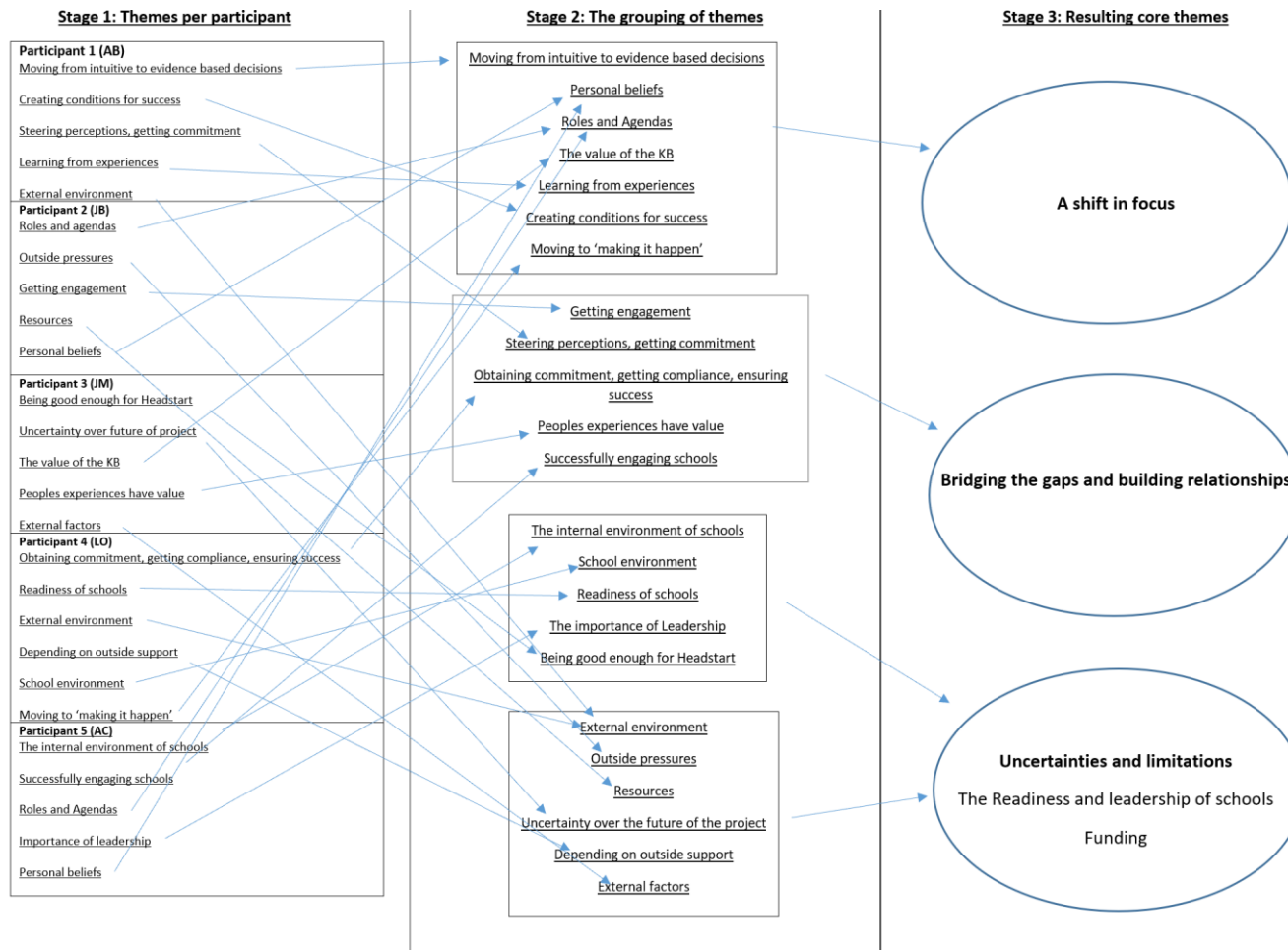
Three cores themes generated are shown in Figure 2. All participants contributed to all themes as shown in Table 4. All three core themes seemed to hold equal importance when it came to the experiences, attitudes and beliefs of the SG in regards to implementing a mental health program across schools in Cumbria and how successful the SG felt it had been in this endeavour. Each theme and relevant sub-theme is described below with examples.

Table 4 - Participants' contribution to theme generation

Core themes (bold) and Sub-themes (not bold)	A shift in focus	Bridging the gaps through relationships	Uncertainties and limitations	The readiness and leadership of schools	Funding
Participant 1	✓	✓	✓	✓	✓
Participant 2	✓	✓	✓	✓	✓
Participant 3	✓	✓	✓	✓	✓
Participant 4	✓	✓	✓	✓	✓
Participant 5	✓	✓	✓	✓	✓

Theme 1: A shift in focus

This theme represents how, over time, the SG perceived their understanding of implementation to become more explicit, evidence-based, and a key aim of the project, as a result of the KB process. This shift was perceived by the SG to have implications for the project as it began to see its role as not only creating a MT program and providing it to schools but also in supporting or taking responsibility for ensuring that it was implemented in schools successfully. They took the newfound view that selecting an EBP such as MT and convincing HeadStart and schools that it would work was not enough to get the outcomes they wanted. They reported learning that they needed to 'make it happen'. They reported no initial barriers to them taking this view, and they were able to organise themselves and make implementation a priority.

> *By its very nature, the SG was perceived to automatically serve the purpose of coordinating and planning the project: "I suppose you can't try and implement it into hundreds of schools without some type of coordination and planning"*

> *(P5, T1: 11 – 13). However, it's members were not explicitly aware at project*
> *start of implementation science and ways of measuring implementation: "I*
> *didn't know anything about, fidelity and all that sort of stuff" (P1: S1: 331-*
> *332).*

Many of the ideas SG members had around implementation were implicit. The KB process acted on the group by making ideas and thoughts around implementation explicit. For example, the GP described how she was excited to have someone in the group who knew more about implementation. In her mind, every decision they had made about implementing MT had been intuitive but unsystematic and probably needed to become more explicit:

> *"I'm really excited about the whole thing about implementation because, and I*
> *really, I'm really pleased that you're looking at it [laughs] in a more systematic*
> *way, because I would say that all the things that we've done until you came*
> *along have been just intuitive, just, I feel we need to do this or I feel we need to*
> *do that, that will work, and it just comes from, I don't know, years of knowing*
> *what will work within a practice or teachers probably also say 'this will work,*
> *that won't' in a school but it's been very much intuitive and, whereas somehow*
> *if we roll it out further and as the project goes on, I recognise that that's*
> *probably not gonna be enough" (P1, S1, 302-309)*

For the GP, ensuring the SG was more aware of and explicit in its implementation aims would make it easier to deal with barriers and objections because their implementation choices would be evidenced based and well thought out:

> *"it needs that, and especially because of the, especially from the point of view*
> *of sustainability and longevity and, and with this huge scrutiny, you know, it's*
> *important to, I mean you can, it would be a shame to spend an awful lot of*
> *money on something that because the model we chose was doomed to fail*
> *right from the, or was likely to fail, it's a big project, it's difficult… it's bound to*
> *be difficult but if you've got a kind of, and you can, but it's hard to argue your*
> *intuition, whereas if you've got that background of 'this is best practice, we're*
> *doing this because it's likely to, it's more likely to work', well I find that, well I*
> *find that exciting but I find it also really comforting and it makes me more*
> *hopeful. (P1, S1, 309-320)*

She felt she was able to adapt what she already knew and believed about implementation to what she was being taught: *"so I have a model in my mind because it's worked really well in the school that I worked, in the schools that I've worked in, but I really see that it might have gaps and it might not be appropriate"* (P1: S1: 327-329)

Over time, the SG's view of itself began to change. It began to feel more responsible for ensuring MT was implemented in the schools, not just offered to schools:

> *"Over the course of the past year, actually looking at the nuts and bolts of successful implementation has become a stronger and stronger focus for our program"* (Stage 1: P3: 207-209). *This was seen as a strength: the* "strength of having had the PhD" (Stage 1: P3: 207; participants would sometimes refer to me (the KB) as the PhD).

As the public health consultant commented, the question the SG began to ask itself was: *"how do we apply this good (implementation) science to the practicalities of everyday Cumbria?" (Stage 1: P3: 211-213).* The HeadStart coordinator's way of thinking about the project and her role within it shifted from simply offering MT to schools to making sure MT was fully implemented: *"you have to look at things differently.. my motivation now is about how do we make it happen?" (P4, T2: 91-92).* This shift to making it happen resulted in a number of group outcomes. For example, the SG described taking responsibility for ensuring MT was implemented with fidelity and in monitoring this over time but also being wary of overburdening schools: *"You've already spoken to us about how difficult ensuring fidelity can be in schools, and if we give them too much to do in terms of measurements we might not get anything at all" (P3: T1: 321 -323).*

For the SG, once an offer of MT had been accepted, the successful implementation of MT no longer lay just with the schools. As far as the SG was concerned, if schools were left to their own devices, the effective implementation of MT would not happen. The HeadStart coordinator commented that although most schools were 'desperate' (P4: 191) for help and therefore keen for MT, implementing it could be like a *"minefield"* (P4: 154) because they were not able to implement MT on their own, at least to a level deemed satisfactory by the SG: *"if schools are left to their own devices, they will do it (MT) but not at necessarily the level and quality that we want" (P4: T2: 95-96).*

A growing awareness of implementation amongst the group and a decision to make it happen was described as leading to them making changes to the project. For example, the

public health consultant described how the SG had learnt about the 'readiness of schools to engage' and that this had shaped the project as a whole:

> *"So for schools to engage we've said we're going to do a phased approach, and that will be based on school need, but also their readiness to engage" (P3: T2: 295-296)*

There was also an indication from the data that the SG members felt they had learnt about implementation from their own experiences as well as from the KB. The public health consultant commented that changing the nature of the program so that the only offered it to schools which were ready had been influenced by the KB, but also by the group's own learning during phase 2 of the project: *"And that has obviously been influenced by the PhD but also our other learning over phase 2".* As the GP described, once implementation was made a priority they would learn things as they went along:

> *"It was learning as we went along and that means, you know, what works, what doesn't work, how best to get buy-in from the schools, how best to, you know, from the sort of more strategic things to the very detailed things" (P1: T1: 122-125)*

> *"We've learnt a lot as we've gone on about, you know, the fact things like how important the venue is, the fact that you have to have someone, you have to have, the most important thing is to have the Head of the school, or someone from the Senior Leadership Team really, really enthusiastic, that makes such a difference" (P1: T1: 129-132)… the importance of the booster sessions, supporting the staff as you go in their practice" (P1: T1: 134-136)*

There were no perceived initial barriers to the SG making changes to the project in light of their new implementation focus. For example, when the project started, training teachers was not thought to be that important to the implementation of MT, but the SG described being able to change this and start training teachers to teach the students, rather than relying on external mindfulness trainers to do this: *"it was almost like a by-product that the teachers had a course themselves, I now realise that that's absolutely integral in the whole" (P1: T1: 282-284).*

However, at Stage I there were signs that, in order for them to achieve more funding, HeadStart would need to see their newfound focus on implementation as a positive thing:

"I hope it actually comes across as the unique selling point for HeadStart in Cumbria"
(Stage 1: P3: 209-210).

Theme 2: Bridging the gaps and building relationships

This theme represents the way the SG perceived it had learnt to conduct a proactive
engagement strategy towards schools, and felt that this was a key way they could go
about ensuring the successful implementation of the project. The SG's ability and efforts
to engage with schools was described as facilitating their efforts to act as an
implementation team. The GP, mindfulness trainer, and HeadStart representative had
conversations with staff at the schools on a weekly basis. The SG, therefore, had a great
deal of access to the schools which allowed them to freely promote and encourage good
implementation practice. They described being able to build on their school relationships,
offer ongoing support and monitor implementation progress over time. The Cumbrian
schools' teachers were trained by the SG and MT, and the SG realised that implementation
success rested not only on encouraging schools to adopt MT but also rested on providing
them with ongoing support on how to implement mindfulness into the school curriculum
and ensure sustainability. This is where the SG felt their ability to aid in the
implementation of mindfulness shone through.

The public health consultant described the SG's relationships with schools as *"unusual"*
(346), *"proactive"* (346) and valuable because it meant the group could *"really find out
what their (the schools) challenges might be" (P3: TI: 350).* The SG appeared to learn that
by opening up an open dialogue and two-way communication with the schools (via the GP,
mindfulness trainer and HeadStart representative), they could aid the implementation
effort because it would often decrease school resistance to implementing the program as
concerns and issues could be addressed. For example, the head teacher commented how
the SG was careful not to dictate to schools exactly how they should implement MT, but
rather request some core implementation outcomes while giving schools freedom in how
they achieved these. He felt this was a better approach than the traditional approach of
telling schools what to do, which in his mind would grind the implementation of MT to a
halt*: "If we approach schools with the mindset that everyone needs it and it should be done
'this way', well I think that is a recipe for disaster as every school is different" (P5, T2: 128-
129).*

The SG's reported experiences suggested that avoiding a one size fits all approach was
thought to decrease school resistance. As the public health consultant commented:

"You've kind of got to set a general tone that this is important to schools without creating resistance to it" (P3: T1: 161-165), and by taking this approach the SG felt it learnt valuable lessons about implementation from the schools: *"I've learnt a lot from the teachers, especially from the Head Teacher" (P1: T1: 287).*

The GP described how she *"in fact really purposely I have not gone in and told them what to do" (P1, T2: 447)* and felt that overall schools knew *"best how to put it (MT) across to their schools" (P1, TII, 452).* In her mind, the alternative to a healthy two-way relationship with schools was a disconnected SG which made decisions which were not necessarily useful:

> *"I don't want to become yet another organisation that sits in its ivory tower and dictates what's best policy when it's not necessarily the case (P1: T1: 528-529).*

The GP also felt that her close relationships with schools had allowed her to deepen her understanding and appreciation of the many demands and pressures teachers in schools have to deal with which fed back into the group's implementation strategy:

> *"I've become much more aware how desperate it is in schools, you know, how strapped they are for cash, how strapped they are for time, how many pressures there are on them to do things in a certain way and I really, I really admire the teachers that can negotiate all of that and keep their head above water and keep smiling, you know, I think they do an amazing, amazing job" (P1, T2: 304-308).*

Having access to the schools appeared to present additional opportunities for good implementation because it allowed the SG to develop an understanding of context which was perceived to be critical for successful implementation. The GP felt that this understanding of context was something which clinical commissioners involved in mental health interventions did not understand:

> *"I think I've just become much more aware, and in a way that's been quite helpful because when I've been, say some of these meetings that I've gone to, and you have many academics and people in Public Health or people in CCG or whatever who are like, "Oh couldn't they just do this, couldn't they just do that," and the number of times I've just said, "No, they haven't... they don't have £5 to spend on that, let alone £200," you know, that sort of thing, It's*

> *been a bit of a reality check I think for people so it's been helpful from that*
> *point of view (P1, T2: 308-314).*

Once positive relationships had been formed, there was another perceived opportunity to promote implementation which was to *"keep the profile going" (P1, T2: 182).* The SG perceived that they were unable to move the implementation of MT along the implementation stages if they stopped engaging with schools. Schools were very busy *"they've just got tons to do" (P1, T2: 462),* and other projects could be made more of a priority. Ongoing engagement by the SG could bring MT back into the main focus of what the school was doing: *"when they're so busy they just need a little tiny bit of encouragement just to get them focused in on it for half an hour to decide something and then it runs (P1, T2: 472-474).* In the GP's mind, by keeping in contact with schools and arranging meetings with them, the implementation of MT was bought back onto the table which would, in turn, influence its implementation overall: "*I've found that just about getting a few people in the room together for one hour, makes all the difference" (P1, T2: 475-476)* and she was careful to point out that this did not entail telling the schools what to do, rather bringing their attention back to MT: "*it's nothing to do with telling them, it's just bringing it to the top of the agenda again." (P1, T2: 460-461).*

If the group stopped engaging with schools, the implementation of mindfulness was perceived to suffer. For example, one participant described "*the casualties of us not being on the ground"* as a result of a period in phase 3 of the project where there was uncertainty over funding and little effort made by the SG to contact schools:

> *"I think because we weren't on the ground encouraging, reminding whatever,*
> *there weren't enough people to do a dot-b course (mindfulness training) so I*
> *think that's a clear indication that if you're not there just encouraging, you*
> *know, some things don't happen" (P1, T2: 55 – 60).*

In this instance, the group knew that it was no longer getting funding and it took time for the group to work out how to continue and give up their time for free to ensure the project continued. They were unable to act like an implementation team during this period and uncertainty over funding presented a clear barrier to this (see Theme three).

Finally, the SG's reported experiences seemed to suggest that the SG's perceived status by schools was one factor which enabled it to get in front of schools and impact implementation. There was a well-known, respected, local GP on the team which in the initial stages when first approaching schools was thought to help:

> *"certainly in my patch here just by being a GP in the area it has helped, you know, it just opens the door, it doesn't mean more than that, but it opens the door, they're willing to listen, you know, I think that makes it, makes a bit of a difference" (P1: stage I: 439-441)*

Theme 3: Uncertainties and limitations

This theme captures two elements the SG felt hindered their ability to act as an implementation team. One was the readiness of schools, and the other was money related factors, two areas which had an impact on implementation success.

Sub-theme 1: School readiness for MT

The SG were definite that the success of the project depended to a great extent on the schools. Every school was different and how well MT was received and implemented depended on a variety of school-based factors often beyond the control of the SG. As the HeadStart coordinator explained there were significant differences between the schools which created many implementation related uncertainties:

> *"And the challenge is, is that every school is different. Although they all have the same curriculum to deliver etc.. they are all completely different, their pastoral systems are different. All their… You know its different sizes, different, different demographics, different funding mechanisms potentially if you got some that are academies and some that aren't. So it is a little bit of a minefield really" (P4: T1: 296-300).*

During the implementation process of MTCHP, it became clear to SG members that these school-specific factors meant some schools were in a greater position to adopt MT than others. Participants referred to this as the *'readiness'* of schools (a term they had learnt from the KB) and in their minds, this was a central ingredient to implementation success or failure. The Headteacher commented, "*What the group seems to have learned over time is that some schools are simply not ready for MT. This could be for a host of reasons" (P5: Stage I: 111-112).*

The SG discovered low levels of readiness including capacity issues, a lack of time and money, or competing academic demands could mean a school was not ready for MT:

> *"It might be that they simply don't have the capacity to implement it, they*
> *don't have the time or the money or the resources or the teachers or their*
> *students just aren't in the right place for it" (P5, T2: 113-116)*

> *"Schools have really struggled to find time to allow MT to happen... one of the*
> *schools decided not to teach the year nines MT because it couldn't afford to*
> *take any time out of preparing them for their G.C.S.E exams" (P5, T2: 50-54).*

Participants described how less 'ready' schools might need more engagement than others: *"I think you have to have different approaches"* (P1: stage I: 380-381) and some schools required a more intensive form of engagement: "*if you look at the (school name) they really do need someone going in and negotiating a bit more with the staff and finding ways to support the staff and school more"* (P4, stage II: 60-62).

However, engagement did not always lead to positive outcomes. As the GP explained, once she had done all she could in engaging a school there was no point *'banging her head against the wall'* because if a school was not ready for MT, there was not much else she could do apart from wait till they were:

> *"As long as I think that they've really got the information and they understand*
> *how it would work, if they decide they're not ready, well I just don't see there's*
> *any point in banging my head against the wall, and I'd wait" (P1: T1: 478-480)*

For all of the SG members, the degree to which a school could be 'ready' depended to a large extent on school leadership. These important individuals could make or break implementation. For example, the engagement of school leaders with the SG and their enthusiasm towards MT differed dramatically between schools which were perceived to affect implementation a great deal. As the GP commented: *"the most important thing is to have the Head of the school, or someone from the Senior leadership team really, really enthusiastic, that makes such a difference" (P1: T1: 130-132).* The HeadStart coordinator felt that the support of leadership was vital to implementation success: "*It needs strategic leads on board" (P4: T1: 160)* and so did the public health consultant: *"You know if the senior team and the head are not up for it then we're all wasting our time aren't we?" (P3: T1: 292-293).* For the member of the SG who was a head teacher, if leadership was not on board the chances were that MT implementation would not happen:

> *"Leadership is one of the pivotal reasons why MT will or will not be*
> *implemented. At the end of the day, it is a leader who will decide whether it*
> *happens or not" (P5, T2: 24-25)*

Leadership engagement was also important for the medium to long-term success of implementing MT in schools. The HeadStart coordinator described how even if they managed to get MT adopted in a school, it could quite easily fall by the wayside due to unsupportive leadership who sometimes steered teachers roles away from MT or did not truly value or understand MT and therefore did not support it enough:

> *"We have real advocates, you have all these people who are really, really up*
> *for it and making it happen, and then you have within the space of six months*
> *you have somebody who changes their role, and in their new role MT is not*
> *acknowledged as something they should be looking at" (P4: T1: 372-375).*

> *"You have a member of the student learning team who don't really value it or*
> *understand it and basically tells that they cannot go on the .b training, and*
> *kicks off that it's not during term time… it could have gone somewhere, but*
> *because of the school system and the school structure and how much it's*
> *valued in that school by the student learning team and by people who could*
> *make that decision it falls at the first hurdle" (P4: T1: 375-381)*

In one school, the second round of MT for the teachers to train their students was cancelled, and this was, to a large extent, put down to a lack of "*senior leadership supporting it*" (P4, T2: 48).

As the GP commented, the group could potentially impact implementation positively if it could '*win leadership over*' (P1: T1: 389). Despite this, going and doing a "*a big sell*" (P1: stage I: 216) was not always successful or even possible, "*(Name of MT trainer) for instance had to just keep emailing and it would just be left, you know, she would just get silence*" (P1, T2: 195 – 197).

As well as leadership, school staff involved in MT implementation were described as being able to impact outcomes, positively or negatively depending on their beliefs about MT. Some staff saw MT as a hindrance rather than a benefit e.g. having their lesson time taken up: "*there are bound to be people that are squealing like that phone call we had this morning, you know, that someone a bit upset because their lessons are being taken over*" (P1: T1: 312-314) or simply not having time to attend, which meant they were quite

resistant to its implementation:*"I've been finding it hard to find the time for staff to agree when to do the training" (P2: T1: 160-162).* The MT trainer felt that for MT to work in a school, schools had to prioritize mental health: *"Having children and young people, and professionals realising that emotional health and well-being are a priority" (P2, T2: 11-12),* and as the head teacher explained, the absence of any perception of need meant the absence of any effort to embrace MT:

> *"If people don't perceive that there is an issue with adolescent mental health in their schools, if people don't perceive a need for it and also if they don't perceive that you can do anything about it then you're never going to get them properly embracing MT" (P5, T2: 32-34).*

Despite not having much power over leadership engagement, staff perceptions, time and money or resources in schools, understanding differences between schools regarding their readiness allowed the SG to adopt a more selective implementation strategy. By T2 there just were not enough resources to offer MT to every school anymore. The SG used the little money it had to invest in schools they believed had the best chance of succeeding, i.e. those that were most 'ready':

> *"if a school isn't ready then they simply aren't ready and the group has realised that now funding is so short it might be a wise idea to simply focus on schools that are ready for MT and let the schools that aren't ready for it know we are there should they change their minds" (P5, T2: 116-121).*

Sub-theme 2: Funding

The SG perceived its power to be limited because of its reliance on an external charity for funding, i.e. HeadStart, "*it all stemmed from HeadStart" (P3: 11 – 13)* and this was considered to be a barrier to their implementation efforts. The continuation of the project was described as being threatened by their reliance on HeadStart. By the end of phase II, HeadStart had decided not to provide any more funding to MTCHP. Twelve geographical areas applied for phase III funding (£8-9 million each) and only six areas in the UK were awarded it. MTCHP had been positive about receiving the funding *"we were going to get the money"* (P4, stage II: 95) so it was a significant shock when they did not receive it. The impact it had on the project was significant, *"we kind of lost momentum"* (P4, stage II: 5).

One participant saw their reliance on HeadStart for funding as a kind of Achilles heel to the project. In her mind their dependence on HeadStart and having no alternative means of future funding put the project at risk:

> *"Because in a way we kind of backed ourselves into a corner because everything was dependent on HeadStart funding and we didn't have a plan B" (P4, stage II: 76-78)*

Not getting the funding meant the SG had minimal resources to put into MT going forward:

> *"We have very little dedicated resource notwithstanding the HeadStart money we already have. And now we no longer have the money for phase 3 that is even less of a dedicated resource obviously (P3, T2: 29 – 30)*

Having a lack of resources was experienced by the group as a huge obstacle, and one participant described is as *"one of the biggest obstacles we've had to face" (P5, T2: 11-12)* and a *"a huge spanner in the works" (P5, T2: 80).* Fewer resources meant less ability to engage schools, raise awareness about the training, roll the program out, and ultimately act as an implementation team. Implementation teams cost money:

> *"If we have no money we cannot pay members of the SG and the MT trainer to ensure that training is rolled-out. There's no way of paying (name SG member) to go into schools and explain what the offer is. So really without further funding, there is no more training, and there is no more raising awareness or roll-out" (P5, T2: 80-83).*

Funding was also felt to impact their ability to measure and record implementation progress: *"we haven't got the capacity to evaluate very closely.* Ultimately in the SG's mind, the schools were now left to implement MT on their own: *"there is no one left outside of schools to provide that support" (P4, T2: 18-19)* and they did not feel they could do very much to help:

> *"Obviously I'm concerned about the project as we don't know where it is going now. My concern is that we don't even have sufficient funding to embed what we have done properly. And we don't have money to embed the PhD. It's concerning. I feel I've done my utmost and at the very least we should embed what we have done and continue the PhD. I couldn't really do more. So I have a concern at that level (P3, T2: 60-64)*

One participant was concerned the cuts in funding would mean the project would slowly end *"because we didn't get the funding it'll just fizzle out" (P1, T2: 272)"*. Some SG members did what they could to ensure the survival of the project and felt it mattered strongly enough that they offered their services for free:

> *"and between you and me I've agreed to train another of the teachers for free. This is because she cannot attend the training this year due to funding cuts" (P2, T2: 5 – 6).*

However, there was not much the SG could do to lessen the enormous impact funding cuts had on the project. When the SG had lost its financial power,it was down to schools as to whether MT would continue, with some schools determined to carry on:

> *"in the schools where they really believe in it like (school name) and that, they're just, "We're going to carry on this year," without any input, but others might find it a bit more difficult (P1, T2: 277-279)*

As one participant concluded, schools "*doing it off their own backs" (P5, T2: 148)* might lead to positive results which might attract the interest of others schools but the implementation of MT would take "*a hell of a lot longer" (P5, T2: 154).*

4.6   Comparing the SG to an implementation team

A key aim of this study was to explore if the MTCHP SG was able to act as an implementation team by comparing their behaviours to suggested competencies and activities (Fixsen et al., 2012) conducted by implementation teams.

Table 5 (see below) lists the core competencies of implementation teams as suggested by Fixsen et al. (2012) and compares how these relate to the MTCHP SG reported experiences. As Table 5 shows, the Study 2 data suggests that the SG appeared to demonstrate two out of three of the competencies recommended by Fixsen et al. (2012). One member of the SG was a mindfulness trainer and the group felt this meant they had extensive knowledge of MT and how it could benefit students. The SG's reported experiences suggest they felt they were able to gain knowledge of implementation science over time. Their reported experiences suggest they were not able to collect data for program improvement or conduct formal improvement cycles (although they did engage in ad hoc problem-solving). Perhaps if the project had been able to continue they may have started to do this.

Table 5 - How far the SG had the core competencies of implementation teams

Core competencies of implementation teams (Fixsen et al., 2012)	Relation to SG	Did it have the competency?
1. Knowledge and understanding of core program components and linkages to outcomes	The SG demonstrated an understanding of MT. They had a MT trainer on the team who designed the MT program for schools. They felt they knew the research and the 'key ingredients' of MT.	Yes
2. Knowledge of implementation science and recommended practices for implementation (e.g. stage based work, installation of implementation drivers)	The SG described being able to gain this knowledge over time via the KB. Knowledge in implementation science, stages, etc. relates to the theme: "a shift in focus".	Yes
3. Experience in using data for program improvement and instituting continuous improvement cycles	The SG described engaging in problem-solving but never collected data on implementation progress. No monitoring process ever set up.	No

Table 6 describes the five core activities of implementation teams suggested by Fixsen et al. (2012) and compares them to the experiences and perceptions of the SG. The table also demonstrates which themes from the thematic analysis relate to the five core activities and provides evidence from the data to support this. The degree to which I judged the SG to have met these based on their self-reports is shown using ratings of not achieved, partly achieved, or achieved.

Table 6 - How the SG behaved like an implementation team

The five activities of implementation teams (Fixsen et al., 2013)	Activity explained (Fixsen et al., 2013)	Evidence of SG behaviour by study theme	How far SG achieved the suggested implementation team behaviour
1. Increasing "buy-in" and readiness	**Increasing "buy in"** relates to an implementation team ensuring schools perceive a need for the program on offer, understand how it works, how it can benefit their students, and ultimately agree to adopt it. **Increasing Readiness** involves making sure each school is ready to adopt the program on offer. This means assessing their needs, examining the fit and feasibility of the program, assessing potential barriers to implementation, and looking at resource availability.	**Theme 2:** *"If we approach schools with the mindset that everyone needs it and it should be done 'this way', well I think that is a recipe for disaster as every school is different" (P5, T2: 128-129). "You've kind of got to set a general tone that this is important to schools without creating resistance to it" (P3: T1: 161-165)* **Theme 3: Sub-theme 1:** *"And the challenge is, is that every school is different. Although they all have the same curriculum to deliver etc. they are all completely different" (P4: T1: 296-398).* *"some schools are simply not ready for MT (P5: Stage I: 111).*	**Increasing "buy in" – Partly achieved:** The SG described how it's knowledge of mindfulness, and extensive engagement strategy with schools, allowed it to increase buy-in to a large extent **Increasing Readiness – Not achieved:** the SG's reported experiences indicated that it was, on the whole, unable to impact the readiness of schools. This was perceived to depend to a large degree on the leadership of each school. It also depended on time and money resources within each school, all things the SG had no control over.
2. Installing and sustaining the implementation	**Installing:** helping the school acquire the resources it needed to implement the program (e.g. program materials, training	**Theme 2:** *"when they're so busy they just need a little tiny bit of encouragement just to get them focused in on it for half an hour to*	**Installing – Achieved:** the SG felt it was successful in helping schools acquire the resources they needed to adopt MT

	teachers) and encouraging the school to make the necessary structural instrumental changes to support the implementation of the program (e.g. curriculum changes, classroom space). **Sustaining:** As schools begin implementing the program, the implementation team ensures interest and buy-in around the program is maintained.	*decide something and then it runs" (P1, T2: 472-474).* "*I've found that it's just about getting a few people in the room together for one hour, makes all the difference" (P1, T2: 474-475)* "*the casualties of us not being on the ground" (P1, T2: 54)*	(HeadStart, via the SG, provided the funding for everything) and was successful in convincing schools to include MT in their curriculum. **Sustaining – Partly achieved**: A key aim of the SG was to maintain an ongoing engagement strategy with schools in order to "keep the profile going" *(P1, T2: 182).* According to their reported experiences, their success in this endeavour varied between schools.
3. Assessing fidelity and outcomes	Data fidelity to the core program components and fidelity to the core implementation components, as well as outcome data, must be collected	There was no evidence that the team assessed fidelity.	**Assessing fidelity and outcomes – Not achieved:** Apart from anecdotal evidence and what schools told them, the team described collecting no data on fidelity and did not know how far schools were implementing mindfulness according to its design
4. Building linkages with external systems	The implementation team engages with the larger service delivery and funding systems to create an improved regulatory and funding environment.	The SG was linked to the funding system supporting them.	**Building linkages with external systems - Achieved:** The SG described building up a strong link with HeadStart the funder of their project. Although they didn't have much power, they were linked to the funding system which supported them. They tried to increase funding although were not successful in doing

			so.
5. Problem-solving and sustainability	**Problem-solving:** the implementation team continually recognises barriers to implementation as they arise and goes about addressing them **Sustainability**: as a new program becomes part of the school's routine implementation teams remain an essential contributed to the success of using the new program. As staff turnover takes place, the implementation team ensures that new staff develop competencies to carry the program forward.	**Theme 3: Sub-theme 1:** "I suppose it's a place where Jo and I, who are delivering the courses, can meet people who are doing more of the strategic planning side of things and we can say what will work and they can say what they need and we can come up with a solution in between really" *(P1, T1: 137-139)* "it's the idea that you have to go in and get your hands dirty to really understand what's going on and what the best way forward might be" (P3, T2: 214-215) "so things like the importance of the booster sessions, supporting the staff as you go, you know, in their practice, that's come out of meetings" (P1: T2: 135-136) *"We've learnt a lot as we've gone on about, you know, the fact things like how important the venue is, the fact that you have to have someone, you have to have, the most important thing is to have the Head of the*	**Problem-solving - Achieved:** The team appeared to make a concerted effort to address implementation problems as they arose and came up with various solutions **Sustainability – Partly achieved:** Funding for the project ended before any schools could fully implement MT, so it was not possible to determine how far the SG was able to ensure MT was sustained over the long run in the schools. However, the SG was thinking about ways of offering ongoing training and booster sessions and did run some of these

		school, or someone from the Senior Leadership Team really, really enthusiastic, that makes such a difference" (P1: T1: 129-132)	

4.7   Discussion

By interviewing a SG responsible for overseeing an offer of a school-based mental health program across schools in Cumbria, this study was able to explore the experiences, attitudes and beliefs of a SG in regards to implementing a wide scale mental health program and compare the SG's perceived behaviours to suggested competencies and activities (Fixsen et al., 2012) conducted by implementation teams. It was able to explore what the SG felt it had learnt, bearing in mind its members had received implementation guidance and was able to identify how successful the SG felt it had been in influencing implementation. The findings suggest that the SG evolved into being, to some extent, an implementation team as a result of the KB process. Key aspects of the findings will now be discussed.

The SG began with a viewpoint of 'helping it happen', but over time, due to the KB process, the SG became more aware of the role they would need to play *after* schools had accepted an offer of MT, hence the 'shift in focus' to 'making it happen'. It seems that in this case, a public-health SG was able to learn about implementation and incorporate this knowledge into their thinking without any initial barriers. Group members having experience of, and implicit ideas about implementation, seemed to facilitate this process. The KB process may awaken what SGs know about implementation already. This may also cause a snowball effect, whereby making SGs think about implementation more explicitly, they start seeing it and thinking about it more on their own. Initial changes to the project as a result of the KB process were practical for/logistical things. It was later on that the project began to be changed fundamentally as a result of their shift in focus when the group started incorporating their ideas around implementation into phase 3 of the project.

According to the analysis of themes, the SG seemed to hold two out of three of the core competencies for implementation teams, and 4 out of 5 of the core implementation team activities (albeit to differing degrees) put forward by Fixsen et al. (2012). Each activity is briefly discussed below and examined alongside the themes found in the thematic analysis.

1. Increasing 'buy-in' and readiness

One way the SG acted as an implementation team was by continually attempting to increase 'buy-in' via its intensive engagement strategy with schools (Theme two: bridging the gaps and building relationships). The extent that the SG was able to 'create readiness' varied and this was represented as an uncertainty under Theme 3 of the analysis. Scaccia et al. (2015) recently conceptualised readiness into the formula $R=MC^2$ (Readiness = Motivation × General Capacity × Intervention-Specific Capacity). This formula suggests that the motivation of schools to adopt MT is not enough on its own to ensure readiness and hence eventual program success. There must also be the presence of general capacities (culture, climate, receptiveness to program, leadership, staff skills and expertise) and innovation specific capacities (e.g. intervention-specific knowledge and skills, a champion for the new intervention, specific implementation supports, and healthy relationships among providers, coaches, and other organizations that will support the implementation) in the school to ensure readiness.

The data from Theme 3 suggests the SG were able to create innovation specific capacities (i.e. teaching schools about MT, championing MT, supporting schools with the training, advising them on how to deliver it, keeping up good relationships with the school) but unable to create general school capacity (e.g. change school culture to support MT implementation, determine staff or leadership receptiveness to MT). When the SG realised it could not impact general school capacity, it stopped offering MT to schools based on their motivation to accept the offer alone. This suggests that SGs need to have more power and resources to increase school capacity and if they cannot, they need to adopt a more selective implementation strategy where only ready schools are selected. If public health initiatives want all schools to benefit, they will need to ensure they can increase school capacity.

Recently research around SEL interventions have started looking at ways to measure and increase the readiness of schools for SEL programs in order to increase the likelihood of their successful implementation (Wanless & Domitrovich, 2015). For example, Leading Together (LT) is an intervention designed to build the individual strengths of school leaders (Seigle, Wood, Sankowski, & Ackerman, 2012). Rimm-Kaufman, Leis, and Paxton (2014) followed the delivery of LT to primary schools over two years and found that schools which had implemented LT fully reported increased professional capacity and relational trust, both

aspects of readiness. Preservice training is another approach to increase the readiness of schools. Preservice training programs are teacher education programs which provide a unique and relatively untapped away of increasing readiness of schools to receive EBPs by increasing teachers' knowledge and skill at delivering them. Research around MT interventions found that increasing the mindfulness skills of school teachers meant they felt greater general capacity to implement MT in their schools in the future (Jennings, 2014; Margolis, Hodge, & Alexandrou, 2014). These studies suggest that stakeholders offering MT to schools may be able to increase implementation success by intervening to promote school capacity prior to the start of the implementation process.

2. Installing and sustaining the implementation

Once schools had demonstrated leadership support for the project, the SG made an effort to continue engaging schools in order to keep MT at the top of their agenda (See Table 6). The SG's unbridled access to schools created a clear opportunity for them to act as an implementation team. Uncertainty over funding created a barrier to their engagement strategy for a short period which resulted in schools losing focus in some cases on implementing mindfulness. During the installation stage, it is common for teachers to become impatient and lose interest and implementation teams must retain a sense of urgency and avoid the program falling by the wayside (Blase et al., 2015). The SG appeared competent in doing this.

3. Assessing fidelity and outcomes

Data on fidelity to the core program and implementation components, as well as outcome data, would have ideally been collected by the SG so they could ensure full and effective use of MT. Durlak and Dupre (2008) estimated evidence-based programs used with acceptable fidelity have effect sizes 3 to 12 times greater than those used with low fidelity. There was no evidence that the team was able to set up processes to assess fidelity or outcomes and the knowledge of these depended on anecdotal evidence and what schools told them. It may be the role of commissioners and program funders to support and require SGs and schools to record implementation outcomes as well as program outcomes.

4. Building linkages with external systems

The SG was actively engaged with the service delivery and funding systems surrounding them and worked hard to increase their funding by engaging with HeadStart on a regular basis. Having a close bond with HeadStart did not guarantee funding however, and in this case, the SG's bond to HeadStart did not necessarily facilitate their ability to act as an implementation team.

5. Problem-solving and sustainability

As the new program becomes regionalised and institutionalised, implementation teams remain essential contributors to the success of using a new program, model or practice (Metz et al., 2014). Implementation teams will promote ongoing buy-in and readiness of practitioners and leaders, actively using data for continuous improvement, and intervening if barriers to implementation are encountered (Fixsen et al., 2012). The implementation team will encourage new staff to be trained as previously trained staff leave or have their job roles changed.

The SG was able to problem solve and promote the sustainability of MT to some extent. The team engaged in problem-solving, albeit on a more ad hoc basis than the strict plan-do-study-act (PDSA) cycles suggested by Fixsen et al., 2005. In terms of sustainability, the SG was aware of its importance throughout the project and did offer booster sessions and additional training to schools.

It seems that to some degree, the SG was able to act as an effective regional implementation team. They were able to promote the buy-in of MT, ensure schools were able to adopt it, and solved implementation problems as they arose. The experienced few barriers to acting like this. The SG also had a clear understanding of MT and implementation science. However, the SG had a limited impact on the general capacity of schools which affected their readiness for MT. School readiness and external funding were clear barriers to the SG acting as an implementation team. School leadership was a major determinant, as was funding. For external implementation teams to be effective in school programs, they would ideally have decision-making power/strong links to and sway over school leadership within the schools as well as control over funding. It is clear that implementation teams, no matter how skillful, will be unable to move the schools through implementation stages unless they have the money to

do this, and the schools they are targeting are ready for implementation. Whether creating school readiness is the responsibility of the school, implementation teams or the council is unclear, but it may require external aid from the council. Funding has been described as the most critical and least changeable factor in the successful implementation of school-based EBPs (Langley et al., 2010). SGs responsible for implementing a countywide project may always be at the mercy of funding bodies but may do well to have a plan B should things not financially go according to plan.

Further research is needed to understand how to promote the use of implementation outcomes in public health programs. The SG created no formal processes of monitoring fidelity and outcomes and, despite having a close link to HeadStart, were unable to get additional funding to continue the project forward.

A key advantage to having an external implementation team, rather than school level teams made up of school staff only, was the presence of professional expertise in the SG. Having expert mindfulness trainers in the team meant the SG had expert knowledge of the EBP being implemented. It was also useful that those making the MT offer (i.e. the SG) had implementation knowledge as this meant the SG made implementation related decisions and designed the offer accordingly i.e. the offer required schools to ensure MT was entered into the curriculum and sustained over time.

4.7.1   Linked implementation teams

A possible solution to a lack of funding may be to develop implementation knowledge up the funding hierarchy and create linked implementation teams, i.e. implementation teams at every level in the system, e.g. school, county, national. For example, in 2014 the National Implementation Research Network began supporting the Kentucky Department of Education in implementing student learning programs across Kentucky, USA. Linked implementation teams were created at the teacher, school, district, region and the state level in an attempt to use implementation science to improve student outcomes. They recently released a White Paper sharing their journey and learnings (Ryan Jackson, Fixsen, Ward, Waldroup, & Sullivan, 2018). The data suggests that linked implementation teams can produce systemic change, scaling capacity, and have a positive impact on teachers and students.

When Metz et al. (2014) used implementation science frameworks to facilitate a countywide well-being project in the US, they also developed and used linked implementation teams at the leadership, management and practice level. The implementation teams were found to promote program fidelity and overall implementation success.

It may be that the successful uptake of MT across a county will require linked implementation teams. The idea of linked implementation teams is also captured by the concept of 'co-creation'. Co-creation is the development of a "shared body of usable knowledge" across scientific, governance, and local practice boundaries (Kerkhoff & Lebel, 2015). There must be meaningful interaction not only between researchers and service providers but also policymakers, consumers and other key stakeholders.

4.8   Strengths and Weaknesses

A key strength of this study is that it is the first time a SG responsible for implementing a mental health program across a county has been interviewed about their implementation experiences. It provides evidence that may be transferable to other future wide scale public health programs, e.g. that SGs with a focus on and knowledge of implementation science can become more like implementation teams which may increase program outcomes overall. SG implementation decisions in the future may become more honed and useful as a result. The study also suggests that funders and schools may benefit from learning about implementation as well.

A weakness of this study was the fact I was researching my own input. In Study 1, I acted as a KB. In Study 2, I was enquiring about the impact of this. Had an independent researcher conducted the interviews in this study, the results may have been slightly different. There may have been less risk of unconscious bias. Additionally, by being part of the SG and part of the Mindfulness in Cumbria project, my relationships with SG members I interviewed could have affected their perceptions, willingness to participate as well as biasing their answers to my questions.

Another serious limitation of the study was that it only studied one SG. The findings of the study could have been more robust had multiple SGs been studied. Data collected from schools to see how far they felt the SG had helped implementation would have also allowed for more robust data. The sample size across the study was small (six SG members). There

were no more members to include. I did not interview stakeholders based within HeadStart who were funding the SG. A greater number of SG members and the perspectives of additional stakeholders would have added a further dimension to the research.

4.9 Conclusion

Involving an external group of people with expert knowledge in the EBP being implemented, as well as knowledge around implementation, who can work with multiple schools at once and who have a clear aim of ensuring implementation is successful, offers a possible way to increase implementation success across schools. SGs present a group of people who can be trained to do this, but that may need a way of increasing school capacity and ensuring sufficient funding, in order to be an effective implementation team. Forming linked implementation teams may also be a good way forward, but their potential is still unknown.

Chapter 5 **Study 3 - Factors affecting early implementation of a whole school mindfulness program: A qualitative study using the Consolidated Framework for Implementation Research**

5.1 Introduction

This chapter presents Study 3 which aimed to build on the previous two studies and further expand our understanding of the implementation of school-based mental health programmes. Study 1 (Chapter 3) sought to examine how far a KB could impact the implementation related decisions made by the MTCHP SG in regards to implementing MT across Cumbria. Study 2 (Chapter 4) explored how far the MTCHP SG could function as an external implementation team and how far the SG felt they could impact implementation. The present study moves the focus away from the SG and onto schools.

Schools represent an effective platform for the delivery of universal programmes which have the potential to lower the risk of poor mental health in adolescence. Recent changes to UK policy aims to ensure that "all children and young people have access to high quality, mental health and wellbeing support linked to their school" (Department of Health & Department of Education, 2017, p4). Universal, whole school (see Chapter 2) preventative approaches are valued for their reach, and anti-stigmatising and resilience building principles (Department of Education, 2016; Weare & Nind, 2011). Although a number of EBPs for school-based mental health promotion exist, their successful implementation as a whole school approach (WSA) appears difficult (Durlak & DuPre, 2008; Fixsen et al., 2013).

Ineffective implementation typically mean that expected outcomes of WSAs for young people are not secured. The importance of effective implementation is seen in the most prevalent mental health interventions in the UK, USA and Australia. Broadly, these aim to improve social and emotional learning. However, the expected outcomes have been markedly weakened by implementation difficulties (Durlak & DuPre, 2008; Greenberg, 2010; Wandersman et al., 2008) and other large-scale school EBPs have experienced the same fate (Durlak & DuPre, 2008; Moss et al., 2008; Vernez et al., 2006). Mindfulness approaches to well-being have the potential to be effective when delivered as a whole

school approach for both young people and staff. However, despite growing demand, there is little understanding of possible and optimal ways to implement a mindfulness, whole school approach (M-WSA) to well-being.

It has been argued that the lack of clear, effective and tested implementation guidance underpins the poor success of EBPs in schools (Blase et al., 2015; Fazel et al., 2014) and this needs to be addressed (Owens et al., 2014). There is now increasing demand from researchers for greater use of implementation science to ensure that the anticipated benefits of school mental health programmes for young people are secured (Dix, Slee, Lawson, & Keeves, 2012; Fazel et al., 2014; Fixsen et al., 2005).

In the last decade over 60 implementation frameworks been identified or developed (Tabak et al., 2012) providing a systematic way to develop, manage and evaluate the implementation of interventions; however, the evidence base for implementation frameworks remains scarce. Few studies have tested how far implementation frameworks support implementation practice or have assessed how far they can help increase the quality of implementation (Albers & Pattuwage, 2017) and there are only a handful of such studies within education.

The Theoretical Domains Framework (TDF) was recently used to explore the barriers and facilitators to implementing daily physical activity policies in schools (Weatherson et al., 2017). Similarly, Moore et al. (2017) used the Quality Implementation Framework (QIF: (Meyers et al., 2012)) to create implementation guidance for schools attempting to implement whole school physical activity programmes. These studies show that generic implementation frameworks can be successfully applied to educational settings to understand the barriers and facilitators to implementing school programmes, and in the case of Moore et al. (2017), frameworks can help create implementation guidance.

There is a lack of knowledge about how to go about implementing MT and there are many ways this could be examined. This study opted to explore what happens when schools are left to work out implementing MT themselves (to some extent) and then identify what activities/attitudes etc appeared to be associated with more successful implementation. This study therefore made use of studying the natural implementation efforts made by schools who had accepted an offer of MT from the MTCHP. Apart from a very brief set of implementation requirements (set by MTCHP and explain below), schools were allowed to implement MT as they saw fit. Successful adoption in the early stages of implementation is

critical to overall implementation success. Studying the initial and early stages of implementation activity in five of these schools (a period which schools find notoriously difficult) presented a unique opportunity to further understand what factors allowed for the successful implementation of MT in schools. Because implementation is such a complex process, and schools are such complex environments, simply observing implementation activity would not have been enough to understand some of the key drivers of implementing MT. Instead the study focused on interviewing school staff and their experiences of trying to implement MT and it was thought that this would provide a much more detailed set of data.

The potential of implementation frameworks to study and inform the implementation of school-based programs such as MT is currently under-researched. Determining implementation frameworks present an opportunity to study the implementation of MT and create some evidence-based implementation guidance for stakeholders. We opted to use the Consolidated Framework for Implementation Research (CFIR(Damschroder et al., 2009)), to explore its usability in capturing the determinants of implementation in complex, school-based interventions. This allowed the study to make an important contribution to the field as for the first time, the usefulness of the CFIR in understanding implementation processes in school settings would be tested. Reasons for not using the TDF and QIF are explained below.

The CFIR is a comprehensive, organising taxonomy of operationally defined constructs that may impact the implementation success of complex programmes. The CFIR defines five domains (intervention characteristics, outer setting, inner setting, characteristics of individuals and process), each with constructs and some sub-constructs which can affect implementation success. To date, the CFIR has been applied to a wide variety of quantitative, qualitative and mixed healthcare related studies pre, post or during implementation for a variety of purposes (Kirk et al., 2016). For example, it has been successfully applied to understanding variations in healthcare service levels and outcomes (Connell, McMahon, Watkins, & Eng, 2014; Cragun et al., 2014; Shimada et al., 2013); understanding the implementation experiences of stakeholders or their experiences of adopting a new healthcare practice (Forman et al., 2014; Green et al., 2014; Shimada et al., 2013); identifying factors of successful implementation (Cilenti, Brownson, Umble, Erwin, & Summers, 2012; Damschroder & Lowery, 2013); and evaluating implementation success across a number of healthcare settings.

Like the CFIR, the TDF provides a set of determinants of implementation that enable users to understand and study it. However, some researchers have suggested the TDF specialises in individual-level behaviour change and how individual behavioural constructs might impact implementation, whereas the CFIR focuses more on the organisational level and takes a 'meta-view' of implementation (Murphy, Gardner, Kutcher, & Martin-Misener, 2014; Prior et al., 2014; Sales et al., 2016) i.e. it is 'meta-theoretical' and therefore includes constructs from a synthesis of existing theories, without depicting interrelationships, specific ecological levels, or specific hypotheses. The theories the CFIR draws from proposes what works to promote implementation but not necessarily why. The CFIR, by presenting a list of constructs promotes theory development and understanding what works and why across multiple contexts. Although the usefulness of both frameworks to promote and understand implementation is unclear (Birken et al., 2017), we decided to use the CFIR as we felt it would be more suited to answering our research question. The QIF was not suitable for our research aims because, rather than provide a set of multilevel constructs thought to determine implementation the QIF framework was built to provide a 'how to' of implementation (i.e. by listing specific procedures and strategies for implementation). The QIF is therefore a step-by-step guide rather than a set of theories and determinants which can be used to study and understand and implementation process. The CFIR can be used to code qualitative data , but the QIF cannot.

5.2   Study aim

One aim of the present study was to identify the determinants of early implementation success of a M-WSA. The initial stages of implementation were supported, free of charge, by a national charity (HeadStart), but schools had considerable flexibility in how they responded to that support and what subsequent actions they took. Thus, we wanted to know 'If, how and why does the quality and extent of early implementation of a M-WSA vary across schools?'. A second question was 'how usable and useful is the CFIR in capturing the determinants of a mental health intervention in a school setting'?

The present study focused on secondary schools only, given the importance of adolescence as a time of mental health intervention and because significant differences exist between mindfulness programs for younger vs older children.

5.3 Methods

5.3.1 Design

This was a longitudinal qualitative study. Data were collected via face-to-face or telephone interviews at two time points, six months apart. These timings were partly determined by the project timeline. Data on school implementation activity, collated by a third party over three years, was drawn upon in this study to contextualise our findings. The study received ethical approval from the University of Leeds Research Ethics Committee (15-0397; 15-0366).

5.3.2 Context

The research reported here was conducted by the first author at the invite of the Cumbria region SG. The Cumbrian offer to schools was to support early implementation of an M-WSA over a five year period. This involved free training to school staff to learn mindfulness skills for their personal well-being first, and then an invitation to receive free training on how to deliver MT to their students (See Chapter 1 for more information on the SG and their offer of MT).

The offer of support from Cumbria was conditional upon schools striving to achieve a shared set of early goals, namely: (i) training teachers in MBSR, then .b, then delivering mindfulness to either Y7 (11-12 years) or Y9 (13-14 years) students; (ii) having a way to sustain delivery to new cohorts entering those years; and (iii) ensuring mindfulness had a place in the school curriculum and alongside other core lessons. By way of establishing a relatively crude measure of progress towards these goals, the following information from each interview was ascertained: (a) when a M-WSA was first discussed in school; (b) when MBSR was offered to staff and how many attended; (c) number of staff accessing the .b or paws.b training; and (d) which year group of students and how many had received mindfulness teaching. These data were collated from the interview data and from monitoring data undertaken by the Cumbrian project SG which identified schools' progress towards a M-WSA over the previous three school calendar years. The offer was made to schools in January 2015 and monitoring continued until September 2017. Implementation progress was therefore tracked for 32 months. No further stipulations on implementation were made, and schools were free to supplement these with their own implementation plans and activity as much or as little as they wished. Apart from ensuring it was their own

staff who trained in mindfulness first and subsequently delivered mindfulness to their students, schools were not given a plan for how to implement a M-WSA.

Stakeholders were interviewed at two time-points; T1 when schools had accepted the Cumbrian offer and had trained their staff (at a point in 2015), and T2 was six months after the first interview. Schools were then tracked and their implementation progress recorded up until September 2017 (See 'Stage 5: Rating school success in achieving their implementation goals' for more information on what was tracked and by whom).

5.3.3   Recruitment

In total, 21 school staff from 5 Cumbrian secondary schools took up the free training for personal well-being (in the form of an eight-week Mindfulness-based Stress Reduction course (Shapiro, Astin, Bishop, & Cordova, 2005). All of these staff were then given the option to receive training in how to deliver MT to students (12 received .b training (https://mindfulnessinschools.org/courses/dotb/), one received paws.b training (https://mindfulnessinschools.org/courses/paws-b/), and three were trained in both .b and paws.b. Head teachers at these five schools were contacted asking for permission to advertise the study in their school. All consented, and subsequently, their staff received an email explaining the study and inviting participation (i.e. interview at two time points). Participation was only relevant to those staff who had some engagement with the Cumbrian offer of support (i.e. who had some responsibility for implementation, and /or had opted into MBSR, and been trained to deliver mindfulness to students).

5.3.4   Participating schools and staff

Two of the five participating schools were comprehensive schools (state funded and controlled by the local authority), two were academy schools (state-funded but free of local authority control), and one was a school for students with special needs. Across these schools, 15 school staff, including two head teachers, consented to participate from a total of 26. It was explained that their interview data would be anonymised and would not be shared with their school (see Appendix C3 and C4 for participant information sheet and consent form). Table 7 details the key information about participating schools and staff. Schools ranged in size from 141-1400 pupils. The percentage of students receiving free schools meals is a marker of the socioeconomic profile of the students in a school; eligibility for free school meals is based on parental receipt of other state benefits (e.g.

unemployment benefits). Schools 4 and 5 were well above the national average (14.5%) for free school meals.

Table 7 - Description of participating schools (n=5) and staff (n=15)

School type	Pupil Demographics	Pupils registered for free school meals	Year group receiving MT	Participants' position in school
School 1 Comprehensive Established 1928	1028 pupils Age: 11-16 Mixed gender	6.8%	Year 7 and 9	1 Headteacher 1 Assistant Headteacher 3 Teachers
School 2 Academy Established 1953	1400 pupils Age: 11-18 Mixed gender	5.7%	Year 7	3 Teachers 1 Assistant teacher
School 3 Comprehensive Established 1965	495 pupils Age: 11-18 Mixed gender	5.9%	Year 9	1 Headteacher 3 Teaching assistants
School 4 Academy Established 2009	1009 pupils Age: 11-16 Mixed gender	23.5%	Year 7	2 Teachers
School 5 School for students with profound learning needs Established1988	141 pupils Age: 3 – 19 Mixed gender	30.1%	One class	1 Teacher

5.3.5 Interview schedule

The interview schedule was designed to explore participants' attitudes, beliefs and experiences towards M-WSA in their school, their reasons for taking part in the teacher MBSR and .b training, as well as their views regarding implementation processes and progress towards a M-WSA. Indicative interview questions are detailed in Table 8.

Table 8 - Indicative interview questions for the two data collection points

Time point 1

1. How did the offer of mindfulness training come about?

2. What was your motivation for taking part in it?

3. What have you learnt from it, if anything?

4. What was good / bad about the MBSR course?

5. Do you practise mindfulness now? Do you use it at work/home?

6. What do you hope to achieve / will be achieved by bringing mindfulness into school?

7. Do you have any concerns?

8. Do you or others have a model in mind for implementation a M-WSA?

9. What has been happening so far in terms of implementation? Can you outline the steps take / decisions made in this process?

10. What, do you feel, have been/will be the barriers and facilitators to successful implementation?

11. What are the next steps?

12. What have you learned during this process?

Time point 2

1. What have been your personal experiences of mindfulness since your training?

2. How do you feel about it now compared to 6 months ago?

3. How has the .b training been?

4. How far has a M-WSA been implemented in your school since we last spoke? Can you outline the steps taken / decisions made so far?

5. How far have you (or others) achieved what you (or others) set out to do?

6. What have been the barriers and the facilitators to implementation?

7. What are the next steps?

8. What have you learned during this process?

5.3.6   Data collection and preparation

In total, 30 interviews were conducted either face-to-face in schools or by telephone between February 2016 and December 2016. T1 and T2 interviews were kept 6 months apart. Interviews took place during school hours, and staff were pressed for time. The mean interview time was 21.94 minutes with a range of 5.51 to 53.02 and two teachers were lost at T2 (see Table 9). Interviews were audio recorded and transcribed verbatim to playscript standard ready for coding.

Table 9 - Interview details

	Participant's position in the school	T1 Interview date and mean duration across all interviews (min/sec)	T2 Interview date and mean duration across all interviews (min/sec)
School 1	Headteacher Assistant Headteacher Teacher 1 Teacher 2 Teacher 3	06/05/16 20.51	09/11/16 14.06
School 2	Curriculum Leader/Teacher	04/03/16 53.02	09/09/16 15.25
School 3	Headteacher Teaching assistants 1 Teaching assistant 2 Teaching assistant 3	03/02/16 25.13	03/08/16 23.18
School 4	Assistant Head (T1 only) Teacher 1 Teacher 2 Teacher 3 (T1 only)	24/02/16 24.11	20/10/16 19.82
School 5	Teacher 1	18/04/16 25.18	21/10/16 15.11
		Average mean interview time: 29.59	Average mean interview time (minutes): 17.50

5.4 Data Analysis

5.4.1 The Consolidated Framework for Implementation Research (CFIR)

Data analysis was guided by the Consolidated Framework for Implementation Research (CFIR) (Damschroder et al., 2009). Guidance is available on how to use the framework including definitions of constructs and how to code for them in qualitative data (www.cfirguide.org). We applied the CFIR to our interview data via six analytic stages. The stages included coding for constructs, inter-rater checks, aggregating the data, assigning valence, rating school success in achieving their implementation goals, and matrix creation, all of which are detailed in Figure 15. The analysis process meant that every CFIR construct was labelled as strongly distinguishing, weakly distinguishing or not distinguishing between schools.

Stage 1: Coding for constructs

Coding at this stage involved assigning CFIR constructs to the data. Proceeding line-by-line, implementation relevant sections of talk were identified. Where possible, these were assigned a CFIR construct code if the data met the inclusion criteria as specified in the CFIR codebook. In cases where it was not possible, a new code was generated. T1 and T2 transcripts for each participant were coded separately. All 38 constructs, from all five domains of the CFIR, were applied to the data.

Stage 2: Inter-rater checks

My primary supervisor reviewed Stage 1 coding across a random 20% of the transcripts. All assigned constructs were checked for appropriate fit. In total, 33 constructs across 194 instances of implementation-relevant talk were reviewed. Only 4 instances of disagreement were identified. Consensus was reached through discussion.

Stage 3: Aggregating the data

Case memos are an effective way to aggregate data from multiple participants and study sites when it has been coded for multiple constructs from the same framework. A case memo template was used to construct memos (http://www.cfirguide.org), and memo construction proceeded as follows: (i) combining the coding of T1 data for each school's participants; (ii) combining the coding of T2 data for each school's participants; (iii) based on these, producing one memo for each school across both time points. Memos were

organised by CFIR constructs, with each construct supported by summary statements and interview extracts.

Figure 12 is an example of a memo for School 4, for the construct 'relative priority' at T1, for the first 2 of the 5 participants at this school (participants 101 and 102). All data coded as 'relative priority' within these participants' transcript were collated into this memo (as many constructs can be assigned to a section of text, the same extracts often appeared in multiple memos to evidence different constructs). This process was repeated for all constructs and, for T2, across all schools. This resulted in 5 memos in total, one for each of the five participating schools, which included large amounts of data.

Figure 12 - School 4 memo extract combining participants 101 and 102 for the construct 'Relative Priority'

RATIONALE: A strong sense from participants that mindfulness was not being prioritized in the school with clear descriptions of how this prevented its implementation from continuing further.

DATA:

Participant 101

with the PD staff but when they found out that the training was over the weekend, so they had to go like, (name of Assistant Head) spoke to the head and said it's not, we can't afford to pay the cover type of thing for the Thursday and the Friday and the staff were adverse to giving up the weekend and, like, [?? 05.12] and so he said that we didn't have to go on it.

Yeah, and it's not gonna, it's not really going to be like a culture for the school if there's only two staff, so.

Yeah, because our headteacher like sees absolutely everything and everything has to be his idea type of thing, so I think, and he was on board with it when (name of mindfulness trainer) came in and spoke to him and what he did was, he was like, "Yeah, I want this to happen, this is the way it's going to happen," but it just hasn't happened in the end so it obviously hasn't been a priority.

Yeah, but now we'll never be able to access that again because the school won't pay like £800 per person to do the training.

No, of course.

But it's, but it's the way to get through to our school would be through the head teacher and the SLT team, someone coming in to work with them maybe and talking about the growth mind-set element of it because that's what they absolutely love at the minute, they're obsessed with growth mind-set at the minute and that's like linked into all our like school improvement plans and like the development plan, so, yeah.

Participant 102

Well things have been really manic. They have changed our roles.

Yes (name) told me they had changed the roles?

And I'm teaching as well, of course I have teaching to do now. Yes it's a… I am much in need of my mindfulness at the moment (laughs). It's been difficult for us to fit the mindfulness in as yet

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Boxes (right column):

- Relative priority / Leadership engagement / Available resources / Compatibility / Individual stage of change
- Relative priority / Available resources
- Learning climate / Relative Priority / Goals and Feedback / Culture
- Relative priority / Available resources
- Relative priority
- Formally appointed implementation leaders / Culture / Structural Characteristics / Relative priority

Stage 4: Assigning valence

During the data aggregation stage, judgments were made as to the impact of each construct on implementation in each school at T1 and T2 separately, and also at both times combined. Cfirguide.org provides criteria for judging the valence of assigned CFIR constructs. Valence ratings attempt to capture the extent to which the construct has implicitly or explicitly affected the implementation process. Analysts may have to infer the influence of a construct on implementation; for example, if a participant states that the intervention has advantages over existing programs, but does not state how this has influenced implementation, the analyst can infer that 'relative advantage' facilitated implementation. Once collated and summarised, the aggregation of data pertaining to each construct can be assigned a valence between -2 to +2, representing the direction (positive or negative) and strength (-2 to +2) of the construct on implementation. Zero represents no indication of an effect. Mixed effects are rated as X; mixed ratings that were more towards positive or negative impacts are rated, e.g. +1* / -1*.

Using these ratings, an overall valence score was produced per construct, per school, both for T1, T2 and overall, meaning the effect of each construct on implementation could be captured over time to more easily produce an overall valence of each construct per school. Figure 13 shows an extract from a School 4 memo for 'Relative Priority', including a summary of the data collated across its five participants at T1.

Figure 13 - School 4 memo extract showing assigned valence for the construct 'Relative Priority', analyst summary and supporting interview data

3 Relative Priority

RATING: OVERALL -2

SUMMARY: By this stage MT was perceived to be less and less of a priority by the participants. A number of teachers were due to attend the MBSR training but it was at the weekend and they did not want to give up their free time to attend. The assistant headteacher felt training them in the week was too costly and did not allow this to happen. Leadership had prioritized the school restructure. The school is also implementing multiple interventions at once which again led to a perception by participants that mindfulness was not perceived as a priority in the school. Participants also felt that after the restructure, the fact that no further MT had happened and the school ended their roles and 'disabled' their mindfulness involvement was another sign they weren't really prioritizing it.

RATIONALE: A strong sense from participants that mindfulness was not being prioritized in the school with clear descriptions of how this prevented its implementation from continuing further.

DATA:
Participant 101
with the PD staff but when they found out that the training was over the weekend, so they had to go like, (name of Assistant Head) spoke to the head and said it's not, we can't afford to pay the cover type of thing for the Thursday and the Friday and the staff were adverse to giving up the weekend and, like, [?? 05.12] and so he said that we didn't have to go on it.

Yeah, and it's not gonna, it's not really going to be like a culture for the school if there's only two staff, so.

Yeah, because our headteacher like sees absolutely everything and everything has to be his idea type of thing, so I think, and he was on board with it when Jo came in and spoke to him and what he did was, he was like, "Yeah, I want this to happen, this is the way it's going to happen," but it just hasn't happened in the end so it obviously hasn't been a priority.

| Relative priority |
| Leadership engagement |
| Available resources |
| Compatibility |
| Individual stage of change |

| Relative priority |
| Available resources |

| Learning Climate |
| Relative priority |

Stage 5: Rating school success in achieving their implementation goals

This stage involved examining how far each school had achieved their early implementation goals. The offer of support from Cumbria was conditional upon schools striving to achieve a shared set of early goals, namely: (i) training teachers in MBSR, then .b, then delivering mindfulness to either Y7 or Y9 students; (ii) having a way to sustain delivery to new cohorts entering those years; and (iii) ensuring mindfulness had a place in the school curriculum and alongside other core lessons. By way of establishing a relatively crude measure of progress towards these goals, the following information from each interview was ascertained: (a) when a M-WSA was first discussed in school; (b) when MBSR was offered to staff and how many attended; (c) number of staff accessing the .b or paws.b training; and (d) which year group of students had received mindfulness teaching and how many. In addition, monitoring data undertaken by the Cumbrian project SG which identified schools' progress towards a M-WSA over the last three school calendar years was also used. The offer was made to schools in January 2015 and monitoring continued until September 2017. Schools were rated from 1-5 (low to high).

Stage 6: Matrix creation

In this final stage, a matrix template was created that listed the ratings for each CFIR construct per school, combined across time points (see Figure 14 below). The matrix template allowed for the identification of constructs which appeared to be more dominant (i.e. had the strongest valency and were reported most frequently), and whether these constructs distinguished between successful and less successful schools in terms of reaching early implementation goals. Constructs were therefore labelled as strongly distinguishing, weakly distinguishing or not distinguishing at all in this regard. These were therefore deemed to be distinguishing constructs. For example, if for a particular construct all five schools were assigned the same score of +2 this was not deemed to be a distinguishing factor. If, however, for any particular construct, School 1 and School 2 were each assigned +2, School 3, a +1 and schools 4 and 5, a -2, this was deemed to be a strongly distinguishing factor. Where the pattern was still evident but less pronounced, it would be deemed a weakly distinguishing factor.

Figure 14 - A section of a created matrix template listing the ratings at each time point and combined per school, for the CFIR construct 'formally appointed implementation leaders' including an overall summary of the scores
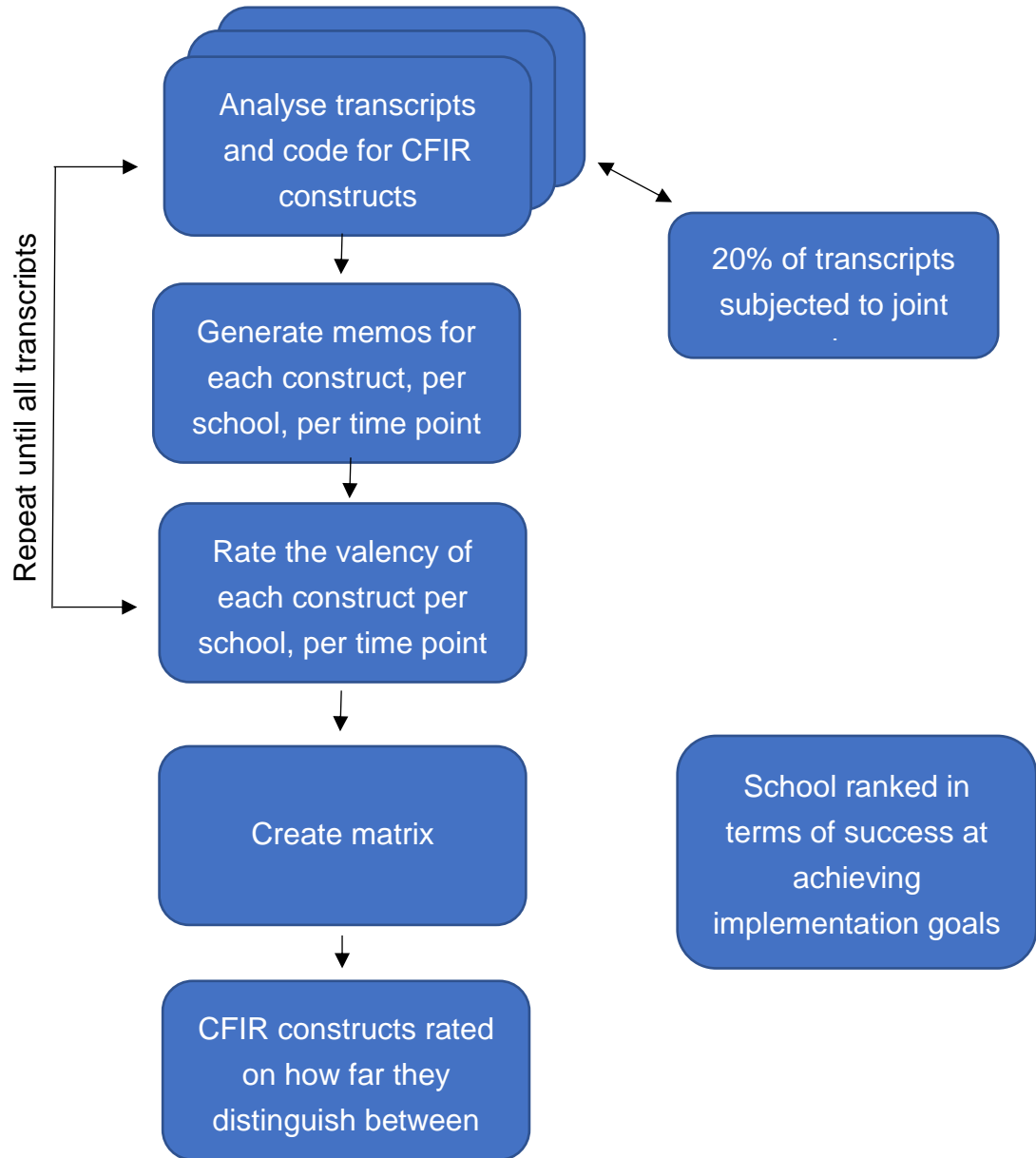
High success in meeting early implementation goals → Low success in meeting early implementation goals

	School 1	School 2	School 3	School 4	School 5
2. Formally Appointed Internal Implementation Leaders	Overall: +2 Rationale: By effectively identifying and engaging with formally appointed implementation leaders early on in the implementation process, the headteacher perceived that she was able to influence the implementation process in a strong way. By T2 s/he was looking at trying to engage more men in the training, and create student mentors. Stage 1: +2 Stage 2: +2	Overall: +2 Rationale: The participant perceived his/herself to be a good choice to lead the implementation of mindfulness who considered carefully who would be suitable to successful implementation; something she felt had a significant impact on implemenatation. In her mind s/he was curriculum leader, s/he had autonomy over decisions and a good deal of influence. S/he also had the help of who s/he deemed to be a talented and experienced mental health teacher. S/he was attempting to employ 2 more key members of staff into training in and delivering mindfulness across the school. Stage 1: +2 Stage 2: +2	Overall: -1 Rationale: A number of participants including the headteacher held the belief that because nobody was specifically selected to implement or oversee the implementation of mindfulness, that this had hindered its implementation. Despite getting a significant number of staff trained in the initial MBSR, the head teacher was unable to successfully implement MT alone and this was increasingly evident by T2 Stage 1: +1 Stage 2: -2	Overall: -2 Rationale: Participants reported how nobody was specifically chosen to implement the MT. Teachers were just invited to go along and see what they thought. Two participants felt that this meant that a lot of teachers who went were not interested or likely to bring it forward. In their minds it was pot luck there were 2 people who became champions. But these 2 teachers reported having no decision-making power and perceived this to hinder the implementation of MT. At stage 2 participants reported that the headteacher, rather than appointing any specific internal implementation leaders ended up changing the roles of the 2 champions that were driving MT forward to something else and tried to force other teachers to go to training which backfired. Stage 1: -2 Stage 2: -2	Overall: -1 Rationale: The participant perceived that the headteacher selected the him/her deliberately because he thought she would be suitable to train and introduce mindfulness to the school. S/he felt this was key to its short term implementation. However in terms of its long term implementation the participant felt s/he was was less of an effective choice as s/he was not part of the management team, nor were any other teachers who had been trained in MT. Stage 1: +1 Stage 2: -2

This was a strongly distinguishing construct amongst the schools. In the most active school the headteacher felt s/he had effectively identified and engaged with staff s/he knew would be committed to the implementation of mindfulness. S/he was able to form a team of five people. In the second most active school the head of personal development explained how s/he was appointed as implementation lead, and in his/her mind s/he was somebody who was not only fully committed to its implementation and believed in it, but was also able to make key decisions to allow its implementation to go ahead. In the third most active school there was no evidence of any formally appointed implementation leaders. The headteacher was attempting to implement mindfulness on his/her own. Support staff who were interested in training and mindfulness got to do so and go on to train the students but they had little to do with the implementation process and zero decision-making power. In the second least active school nobody was chosen to implement mindfulness by leadership. Teachers were just invited to go along and see what they thought. It was purely chance that two teachers were very interested in it. Many

This process of analysis supported the possibility of distinguishing between low and high activity schools on the basis of implementation constructs (see Table 11 below). In conclusion, the analysis led to the following:

- An individual level analysis of participant data and its cross-over with the CFIR

- Valency scores for the perceived impact of each CFIR construct across the schools

- Which constructs, based on the perceptions of participants, seemed to distinguish the most between high activity and low activity schools

In sum, via these stages of analysis we assigned CFIR constructs, and one non-CFIR construct, to individual-level data; synthesised coding across participants in each school, both per time point, and for both time points combined; assigned valency scores for the perceived impact of each CFIR construct across the schools; and identified which constructs, based on the perceptions of participants, seemed to distinguish the most between successful and less successful schools. See Figure 15 below for a flow diagram of this process.

Figure 15 - Flow diagram of data analysis

5.5   Findings

School success in reaching early implementation goals

Table 10 shows the implementation activity of each school across calendar years 1-3 and
the assigned success rating they were allocated in relation to each other's implementation
activity.

**Table 10 - Implementation activity across calendar years 1-3 and assigned success
rating per school**

	Students trained in calendar Year 1	Students trained in calendar Year 2	Students trained in calendar Year 3	No. trained in MBSR	No. trained in .b or paws.b	Implementation Rank
School 1	Year 9	Year 9	Year 7 & 9	5	4	5
School 2		Year 7	Year 7	4	4	4
School 3		Year 9		9	5	3
School 4	Year 7			2	2	2
School 5		1 Class		1	1	1

All of the schools were able to identify at the outset which students would be the first to
receive the MT (implementation commitment 1). It was either year 7, 9 or in the case of
the special school, one class of mixed ages received the intervention. All of the schools at
some point were able to deliver the MT to these students and assign curriculum time to
this (implementation commitment 3). What differentiated the schools was their ability to
ensure MT remained a sustained activity in the school (implementation commitment 2).
School 1, for example, was able to mobilise resources to MT implementation and maintain
MT in the school more than the other schools.

Using the CFIR to code interview data

Coding utilised all 38 CFIR constructs. There was only one aspect of the data for which
there was no appropriate CFIR code. This related to when participants spoke about how
experiencing mindfulness personally via MBSR and personal practice had led them to
become keen advocates of mindfulness. An additional construct 'personal impact' was
created to capture this.

Distinguishing CFIR constructs

Some constructs were found to be more dominant than others in distinguishing between high and low success schools. Table 11 details scoring by school for each of the five CFIR construct domains (Intervention characteristics, Outer setting, Inner setting, Characteristics of individuals, Process) and their sub-categories. Schools are presented left to right in decreasing order of success in reaching early implementation goals. A * denoted that the construct weakly distinguished between successful and less successful schools and ** denotes that the construct strongly distinguished between them. In total eleven constructs appeared to distinguish between schools. Six constructs strongly distinguished between schools and five constructs weakly distinguished.

The strongest distinguishing constructs were: Leadership, Relative priority, Networks and communications, Formally appointed implementation leaders, Knowledge and beliefs about the intervention and Executing. Five other constructs exhibited a weak distinguishing effect: Structural characteristics, Complexity, Compatibility, Learning climate, and Planning. The remaining 27 constructs did not appear to distinguish between high and low success schools, but 17 constructs nonetheless appeared important. The importance of a construct was identified when a positive or negative pattern was apparent across schools. For example, Trialability was rated as +2 in every school indicating its perceived importance to implementation, regardless of how successful the school had been with implementation. The following section outlines the strongly distinguishing constructs. Weakly distinguishing constructs are presented in Table 11 and constructs which did not distinguish between schools, for which there was evidence of importance or no evidence of importance are included in Appendix C1 and C2.

Table 11 - Ratings assigned to CFIR constructs amongst high and low success schools

	High implementation success			Low implementation success		
SCHOOL ID	1	2	3	4	5	
1. INTERVENTION CHARACTERISTICS						
Intervention Source	E	E	E	E	E	

Evidence Strength and Quality	+2	+2	+1	+2	+1	
Relative Advantage	+1	Missing	0	+1	Missing	
Adaptability	+1	+2	+1	+1	+2	
Trialability	+2	+2	+2	+2	+2	
Complexity (reverse rated)	0	0	-1	-2	-2	*
Design Quality and Packaging	0	Mixed	Mixed	-1	Mixed	
Cost	0	Missing	0	0	0	
Personal Impact	+1	+1	+1	Mixed	+1*	
2. OUTER SETTING						
Patient Needs and Resources	+1	+2	+1	+1	+1	
Cosmopolitanism	Missing	Missing	Missing	Missing	Missing	
Peer Pressure	Missing	Missing	Missing	Missing	Missing	
External Policy and Incentives	+1	+1	+1	+1	+1	
3. INNER SETTING						
Structural Characteristics	+1	+1	X	-2	+1	*
Networks and Communications	+2	+2	X	-2	-2	**
Culture	Missing	Missing	Missing	Missing	Missing	
Implementation Climate:						
Tension for change	+2	Missing	+2	+2	Missing	
Compatibility	+2	+1	+1	-1	-1*	*
Relative priority	+2	+2	+1	-2	-2	**

Organizational Incentives and Rewards	Missing	Missing	Missing	Missing	Missing	
Goals and Feedback	0	0	0	0	0	
Learning climate	+2	+1	Mixed	-1	Mixed	*
Readiness for Implementation:						
Leadership Engagement	+2	+2	+2	-2	-2	**
Available resources	-1	-2	-2	-2	-1	
Access to knowledge and information	Mixed	Mixed	+1	Mixed	0	
4. CHARACTERISTICS OF INDIVIDUALS						
Knowledge and beliefs about the intervention	+2	+2	+2	-2	-1	**
Self-efficacy	Missing	Missing	Missing	Missing	Missing	
Individual Stage of Change	Mixed	+1	+1	Mixed	+1	
Individual Identification with Organisation	M	M	M	M	M	
Other Personal Attributes	+1*	+1	Mixed	Mixed	+1	
5. PROCESS						
Planning	+2	+2	+1	+1	-1	*
Engaging:						
Opinion Leaders	Missing	Missing	Missing	Missing	Missing	
Formally Appointed Internal Implementation Leaders	+2	+2	-1	-2	-1	**
Champions	Missing	Missing	Missing	+2	+1	
External Change Agents	+1	+1	+1	+1	0	

Key Stakeholders	0	0	+2	-1	+1*	
Innovation Participants	+1	+1	+2	+2*	+1	
Executing	+2	+2	-2	-2	-2	**
Reflecting and Evaluating	0	0	0	0	0	

E: Treated MT as externally developed; I: Treated MT as internally developed; 'Mixed' indicates a mix of positive and negative valency; Missing: indicates no qualitative data was found to correspond to the construct; A * denoted that the construct weakly distinguished between successful and less successful schools and ** denotes that the construct strongly distinguished between them.

5.5.1 Strongly distinguishing constructs

The eleven distinguishing constructs and supporting extracts are presented below. Many of these constructs were interrelated, and *Leadership engagement*, in particular, seemed to pervade talk around distinguishing constructs. The 6 strongly distinguishing constructs are presented first. The 5 weakly distinguishing constructs are shown in Table 12.

1 Leadership Engagement

Leadership engagement was a highly distinguishing construct, ranging from +2 in Schools 1,2 and 3 to -2 in Schools 4 and 5. This construct related to the level of commitment, involvement and accountability of leaders to the implementation process. In School 1 participants perceived engaged leadership to be fundamental to implementation success, mainly due to their decision-making powers: *"because it does take a commitment from her [head teacher] because she is the only person who can make it happen timetable-wise" (S1, P1,T1: assistant head).* The headteacher themselves stated *that "leadership's always your determining factor" (S1, P4, T1: head teacher)* as *"heads can make things work, or they can block things".* School 2 was also perceived to have leadership engagement as they had appointed an implementation leader with decision-making powers to implement a M-WSA as she saw fit: she explained that to progress implementation *"You do need autonomy" (P1: TI: head of the SN).* The head teacher in School 3 also showed engagement through the articulation of direction and openness*: "our journey really is about a mindful school and mindful approach to leading a school" (P2: T1: Headteacher).*

Although there was early leadership engagement in School 4, with senior staff very positive and motivated, they soon disengaged when MBSR was scheduled for a weekend. In addition, the assistant head fundamentally disagreed that teachers needed to practice

mindfulness themselves before they could teach it. The training was cancelled, there was no further engagement (or problem-solving) from the head teacher, and no further progress with implementation activity.

In School 5, there was no reported leadership engagement, and only one teacher was assigned responsibility for implementation of M-WSA; At T2 the participant commented that it was *"still just myself" (P1: T2: teacher)* and that, in terms of school leadership, there was *"no real support, no real understanding or what the benefits might be" (P1: T2: teacher).*

2 Relative Priority

A second strongly distinguishing construct was 'relative priority', ranging from +2 to -2 across the schools. This construct related to how far individuals in the organisation shared a perception that the implementation of MT was important. The level of perceived prioritisation of the intervention appeared strongly associated with schools' implementation activity. A senior staff member in School 1 conveyed the commitment of the school: *"It's about that whole system approach, and it's about driving it forward and making everybody realise that this is definitely part of us, so it's here to stay, it's not something that's just going to be a flash in the pan" (referring to mindfulness and mental health promotion)* (P1: T1: Deputy head). School 1 was also able to maintain the intervention as a high priority over time, despite challenges (e.g. funding cuts).

The implementation lead from School 2 explained the importance of keeping it *"high profile"* (P1: T1: Head of SN) else the intervention could become replaced by new incentives *"something else will come along, and there will be some funding to support that, and that's what they'll go for, you know"* (P1: T1: Head of SN). In School 3, there was an awareness of the need to prioritise the intervention so that staff do not *"do lots of training that you never use again"* (P3: T1: Assistant Teacher) but other demands emerged that demoted the priority of implementing a M-WSA:

> *"We were hoping to teach Year 7s towards the end of term last year, and that didn't happen, we ended up being… you're just overrun with things, and so it was too busy" (P2: T2: Teaching assistant).*

School 4 were under special measures and had improvement targets. They explained that academic attainment was the priority: *"so we've got quite a bit of pressure on us to make*

sure that the kids achieve exam results as well so it's getting the balance" (P3: T1). There was a sense of implementation being top-down, where leadership acted and made implementation decisions alone according to what it assumed to be important, whereas, in the more successful schools, the drive to implement was driven more by a set of collective values and involved people from all levels of the organisation. School 4 was also introducing multiple interventions simultaneously. By T2, mindfulness was no longer in the curriculum, *"it just hasn't happened in the end, so it obviously hasn't been a priority" (P1: T1: head of year 7).*

In School 5, one participant felt solely responsible for making the intervention a priority, but this was in competition with a major new school curriculum initiative. By T2, the participant had been unable to prioritise MT, *"unfortunately life takes over, as it does at a school and unfortunately I couldn't prioritise it any more" (S5, P1: T2: Teacher).*

3. Networks & Communications

'Networks and Communications' was another strongly distinguishing construct. More successful schools had more effective networks of communications *"our team regularly meets on a weekly basis"* (S1: T1, Headteacher). *"as a team […] we use each other's strengths, and we talk, and we work hard"* (S1, P1: T1: Asst head). School 2 participants reported effective communication: *"We've had a lot of meetings and discussions about how to go forward" (S2, P1, T1, head of SEN).*

In the less successful schools 4 and 5, more barriers to communication were reported, which was perceived to hinder implementation. In these schools, participants responsible for implementing the intervention had only convoluted communication pathways to senior leaders: *"it goes through me and x to x who then puts it to the senior leadership at their meetings, and they then have to decide what is going to happen (S4: P2: T1: head of year 8)*

Participants felt they could not champion the intervention which was felt to be disempowering and inhibiting of progress. Although Schools 4 and 5 had weekly staff meetings, the intervention was either not bought forward as meriting discussion, or people involved in its implementation were not able to attend these meetings. Schools 1-3 were able to utilise existing effective communication structures to foster implementation.

4 Formally Appointed Internal Implementation Leaders

This construct was strongly distinguishing and related to whom the school appointed to be responsible for implementing mindfulness. It links to leadership engagement as leadership was perceived to be influential in the selection of appropriate people to implement the intervention. School 1 reported that the selection of people *"in the best place to have the biggest impact" (P4: T2: Headteacher: 7-8)* was as a natural response to achieving their intervention specific and global school aims.

> *"it was meshed with our whole approach to support, our whole approach to personal development and behaviour and safety and as a consequence of it being part of that greater whole, our approach to supporting students and staff…that then determined who was going to be involved from a staff point of view" (S1, P4:T1: Headteacher).*

School 2 similarly reported attention to the right set of people

> *"Who do you really want to target to go on your courses, to deliver this and take this back? Because that is the key to whether it's in there long term or not" (P1: T1: Curriculum leader)*

In School 3, the process of selecting staff was perceived to be less evident, and staff exchanged responsibilities for implementation between themselves. Leadership was not involved in this decision. At T2, there was no intervention activity although there had been in the school term previously. In School 4, there was no management decision to appoint implementation leaders. Although two teachers were motivated in School 4, most were not *"because the training was over the weekend" (P2: T2: Head of year 8)*. There was a feeling by one participant that: *"perhaps they're not necessarily the right people to be delivering it anyway" (P2: T2: Head of year 8).* Ultimately no one with any decision making power *and* who had a personal role or interest in MT was involved in MT implementation.

In School 5, the lack of communication between management and staff meant that, although management would *"decide which teachers would carry mindfulness out […] these teachers just didn't want to do it, because they weren't involved in the decision-making process."*

5 Knowledge & Beliefs about the Innovation

The data painted a picture of staff across the schools holding varied levels of knowledge and beliefs about the intervention and its effectiveness. As one head teacher said:

> *"you're gonna have people who are negative, you're gonna have people who are sceptical, you're gonna have people who are awkward, you're gonna have people who are not keen, you're gonna have people who are very keen, you know?" (School 1: P4: T1: head teacher)*

However, it was not the nature of knowledge or beliefs that appeared to shape implementation activity but rather who held those beliefs. In the more successful schools, leadership and management reported a good understanding of mindfulness and 'believed in it': *"There is nothing that would prevent me from doing it, you know, or trying it" (S2: P1: T1; head of SEN).* In less successful schools, leadership knowledge and beliefs appeared less favourable to its implementation. In School 4 the assistant headteacher perceived the personal training and practice of mindfulness as an unnecessary condition for teaching it to students, *"I refute the fact that a teacher who doesn't find it useful as a person can't actually put over to children that they might find it useful because of course, we can do that (S4, P4: T1).* The leadership team in School 5 was perceived by participants to have a poor understanding of mindfulness and little belief in its potential for their students.

Thus, when individuals with power in the school did not believe the intervention would help the students or did not value the training process implementation was weaker.

6. Executing

Executing was the final strongly distinguishing factor and refers to carrying out or accomplishing the implementation according to plan. Participants in more successful schools tended to perceive that their plans had been executed more effectively than participants in lower activity schools. And this construct corroborated well with schools implementation activity over time (Table 10).

5.5.2 Weakly distinguishing constructs

Table 12 - Weakly distinguishing constructs

School	Weakly Distinguishing Constructs				
	7.**Structural characteristics** *The social architecture, age, maturity, and size of an organization*	8. **Learning Climate** *A climate in which: a) leaders express their own fallibility and need for team members' assistance; b) team members feel they are essential, valued and knowledgeable in the change process; c)individuals feel psychologically safe to try new methods d) there is time to reflect and evaluate*	9. **Complexity** *Perceived intricacy or difficulty of *the innovation*, reflected by duration, scope, radicalness, disruptiveness, centrality, and intricacy and number of steps required to implement*	10. **Compatibility** *The degree of tangible fit between meaning and values attached to the intervention by involved individuals, how those align with individuals' own norms, values, and perceived risks and needs, and how the intervention fits with existing workflows and systems*	11. **Planning** *The degree to which a scheme or method of behaviour and tasks for implementing an intervention are developed in advance and the quality of those schemes or methods*
School 1	Continuity in structure (i.e. no restructures). Headteacher supported by deputy head teachers and implementation team.	All participants were given clear roles in terms of implementing mindfulness. Participants were valued by leadership *"I couldn't do it without (name of team member)"* (P1: T1: Asst Head: 417-418), able to trial mindfulness, make changes as appropriate as well as put forward new ideas *"some of our job is to find different things that we can bring in"* (P1: T1:	Participants perceived the training as highly complex, i.e. in its duration, scope, training expectations. Due to good teamwork, making MT a priority, good organisation, planning and execution the complexity of mindfulness did not hinder its implementation.	MT perceived as compatible with their current timetabling plan *"I have been able to just get on and put it in, and we've had the support to make sure that we've got timetable time,"* (P1: T1: Assistant head: 171-172).	Participants described collective, mindfulness focused planning meetings, *"we were having a mindfulness meeting about where we're going next with it"* (School 1: P1: stage II: assistant head:). Decisions were made together: *"we put together a little plan"* (School 1: P1: stage I: assistant head:), and participants knew which direction the school was

		Asst Head: 555-556)			headed in, "*I know next year we're starting with Year 7*".
School 2	Underwent restructuring. Implementation leader ensured *"resilience in the system" (P1: T2: head of SN, 15-17)* by training two more teachers.	Teachers felt valued, were appreciated by leadership, able to make appropriate changes to MT when needed *"I've brought the bigger picture in, and we've had to put some fillers in"* (P1: T1: head of SN: 58-60), as well as take time to reflect *"it's been carefully thought through"* (P1: T1: head of SN: 483-484)	The intervention was experienced as unusual so required a bit more thought and planning to teach the students but there was no evidence that the complexity of MT diminished its implementation	Successfully introduced MT to year 7's but were unable to introduce it to year nines as originally planned due to academic commitments, *"you can imagine in a secondary school once you get to Year 9 and you're onto your GCSE years that curriculum time is absolutely precious. So we weren't able to take that into the Year 9 and above which is where that .b was aimed at really (P1: T2: Head of SN: Teacher: 78-84)".*	There was a perception of a collective effort of where to take MT next, *"Today was the S band. The next round is going to be with the W band, and they're the high ability students"* (P1: T1: head of the SN: 374-376).
School 3	Relatively stable environment, no restructures but centralised decision-making and one head teacher acting alone slowed down the implementation of MT.	Teachers felt supported *"we're not doing it in isolation so there's quite a few of us supporting each other"* (School 3: P3: T1: Teaching assistant 252-253) but staff felt they couldn't make appropriate changes to MT and that there wasn't time to reflect, *"we need time for staff to offload and there isn't that at the moment and able to make changes to lessons".* By T2 interviews, evidence of a learning climate had decreased as teachers were	Training for the teachers was perceived to be a long and complex process with some staff struggling to complete the self-practice component. Leadership made a big effort to ensure staff could attend the training, *"So we have to publicise how we would manage their directive time commitment to enable them to go to their mindfulness sessions which is 16 hours, and offset that commitment with their other directed time hours (P2: T1: Headteacher, 67-69).*	Perceived MT to be compatible with their workflows *"I mean Andy will put it in the timetable and it's during my PSHE lessons, so it's great, it just fits in really well there"* (P3: T2: teacher: 66-67) but they did not manage to maintain its presence in the timetable after its initial introduction in calendar year one. Putting MT in the timetable was believed to cause some tension amongst teachers not involved in MT, *"he was really angry about that"* (P4: T2:	There was a collective sense of meetings being held and decisions being made in regards to who to teach first: *"we have a team come together, and we put together a plan for the spring term"* (P2: TI: headteacher: 41-43). By T2 interviews perception was that collective planning and awareness of future steps had stopped, "Maybe the head has decided not to continue things, he felt he couldn't justify, but I don't know I've

		unaware of the plan going forward, *"I trust that Andy knows what he's doing in terms of timetabling it in, and I'd be happy to, you know, to carry on with the teaching of it"*.		teaching assistant: 179-182).	not had that conversation with him. So this year nobody has had mindfulness" (P4: T2: Teacher: 40-42).
School 4	Underwent restructuring, implementation roles disappeared. Re-structure led to a shift away from mental health to academic achievement: *"there is no emotional type focus or anything like that left in the school" (P2: T2: Head of year 7).*	Clear evidence of teachers feeling unsupported, *"I don't know what the solution is, I need some advice really"* (School 4: P2: T1: head of year 8: 59-60). There was little time to reflect and evaluate, "(we are) *kind of doing everything off the cuff, (*rather than) *planning properly in advance"* (School 4: P3: T1: Inclusion Leader, 71-73).	Staff found the extent of the training difficult to abide by and many did not complete the self-practice requirements. MT was perceived as a "*massive commitment",* (School 4: P3: T1: Inclusion Leader, 548) and that *"having it like four till six is a big cut into people's times" (543).* Large numbers of teachers dropped off the course.	There was evidence of an incompatibility of MT with some participant's values including leadership: *"I refute the fact that a teacher who doesn't find it (MT) useful as a person can't actually put over to children that they might find it useful, because of course, we can do that"* (P4: T1: deputy head: 36-38).	Although participants described the school as having successfully piloted MT with a "*Year 7 personal development class"* (P3: TI: execution leader: 33), they were not able to refine it later on, and the next year 7's did not receive MT.
School 5	Stable structure; no effect on implementation.	Reluctance from leadership to include staff who delivered MT in management meetings, "*There was a suggestion to make people that have done the MT to put them on the management team and HeadStart would pay for that…the head wasn't keen on that idea at all" (P1: T2: Teacher: 35-37).*	In school 5, the complexity of the MT was largely too much for its special needs students, *"They don't get it, I must admit, the youngsters with learning difficulties aren't getting all of the information, but they do get the breathing part of it and the relaxing part of it, and I, yeah, and I use it myself pretty much a daily, a daily practice"* (School 5:	MT was compatible with workflows but not with the students: *"it just didn't fit. It just didn't fit our youngsters; it was never designed for youngsters with learning difficulties"* (School 5: P1: T2: teacher: 3-4). They did not keep it in the curriculum after year one.	Participants indicated that there was very little collective sense of a plan going forward. S/he had taught her own students: *"I use it with myself and I have diluted a version in school for the youngsters I work with" (P1: T1: Teacher: 62-63). S*he described a plan of how to proceed, but there was no indication or effort from

			P1: T1: Teacher: 62-65).		leadership to acknowledge this plan and put it into action.
Summary	Low success schools were affected by change, had no succession planning or risk management.	High success schools reported demonstrating and fostering more aspects of a learning climate than low success schools.	All schools felt MT was a highly complex intervention. Its duration, scope, training expectations (six months of self-practice, eight weeks training), made implementation difficult. High success schools were able to deal with this complexity more than low success schools.	More successful schools perceived MT to be more compatible with their workflows and/or values.	Higher success schools had a greater collective sense of the initial plan and future plans moving forward than lower success schools

5.6   Discussion

The aim of this study was to identify if, how and why the quality and extent of early implementation of a M-WSA varies across schools as well as how usable and useful the CFIR might be in capturing the determinants of implementation success of a mental health intervention in a school setting. The CFIR demonstrated a high degree of applicability to the data with 11 constructs distinguishing between high success and low success schools over time. Six of these constructs were strongly distinguishing. In less successful schools, distinguishing constructs tended to fluctuate towards a more negative valency over time.

5.6.1   Strongly distinguishing constructs

Leadership was arguably the most influential construct because it was consistently reported as determining the valence (whether positively or negatively) of the other constructs. Wilde et al. (2018) who also interviewed school staff about their experiences of implementing MT (See Chapter 2 for more details on this study), also highlighted leadership engagement as important. Their specific finding was that support from leadership towards those responsible for implementing MT in their school was perceived to contribute to implementation success. Literature elsewhere has found a lack of leadership engagement can substantially reduce the chance of successful school program implementation (Dyssegaard, Egelund, & Sommersel, 2017; Langley et al., 2010; Moullin, Ehrhart, & Aarons, 2017; Short, 2016). School leaders have been shown to be key facilitators of implementing mental health programs (Langley et al., 2010) and comprehensive school reform efforts (similar to WSA's) elsewhere (Desimone, 2002).

Successful schools in the present study had more engaged leaders who tended to support and encourage staff in the use of the intervention more than less engaged leaders. In less successful schools, there was little encouragement from school leaders during the initial period of 'buy-in' which can hinder the use of research-based knowledge in secondary schools (Dyssegaard et al., 2017). Leaders in more successful schools believed in their staffs' abilities, communicated clear goals regarding implementation, chose MT because they felt it was compatible with their school's needs and in the face of funding cuts ensured resources were available to continue implementing MT. These behaviours have been reported by Wong and Rutledge (2006) as elements of 'strong' rather than 'weak' leadership. It seems that strong leaders are the ones who create a school climate conducive to change (Ehrhart, Torres, Wright, Martinez, & Aarons, 2016).

Strong leaders also demonstrate high levels of support for new programs which can have a significant impact on program outcomes and program sustainability. In a study of six inner-city schools that all had high levels of SEL implementation quality, the schools with the highest levels of publicly demonstrated principal support were twice as likely to see significant improvements in students' social and emotional development (Kam, Greenberg, & Walls, 2003). High levels of leadership support seem to determine program impact and program sustainability.

Previous qualitative research into the barriers to implementing a trauma-based mental health program across 8 schools in the USA found that 'competing responsibilities' was the strongest barrier to implementation (Langley, Nadeem, Kataoka, Stein, & Jaycox, 2010) and leaders in successful schools were able to protect mindfulness from these. Leadership in schools 1,2 and 3 portrayed a more 'adaptive' leadership style than leaders in school 4 and 5 where dialogue, involvement, negotiation and collaboration were used to develop solutions to barriers when no ready-made, routine solution was available (Heifetz, Grashow, & Linsky, 2009). A strong perception of school mission, vision and goals around MT implementation, e.g. "We're aiming to be a mindful school" was also more evident in high success than low success schools which can make the implementation of EBPs more likely (Aarons, Ehrhart, Farahnak, & Sklar, 2014).

Leaders in schools 1 and 2 actively employed staff to oversee the implementation of mindfulness (as captured by the CFIR construct 'formally appointed implementation leaders'). However leaders in these schools were careful to make sure these staff had autonomy and decision making power. By selecting staff with decision-making power school leaders created a culture of 'shared leadership'. In schools 3, 4 and 5, no formalised selection of staff occurred and it was left up to staff to volunteer themselves. The staff that did volunteer themselves to train in mindfulness and implement it had no decision-making power. This is a slightly different finding to Wilde et al. (2018) who found that schools needed a committed individual, supported by leadership, to champion MT in order to drive it forward but the authors did not find evidence that these individuals needed autonomy or decision-making power themselves. This difference in finding may have something to do with the fact that this study and the study by Wilde use different implementation frameworks to code the data for implementation constructs. Wilde et al., (2018) used the PARiHS framework (Kitson et al., 2008). PARiHS has three core domains (evidence, context and facilitation) with 11 sub-constructs in total compared to the CFIR's

five core domains and 38 sub-constructs used in this study. The CFIR may have penetrated the interview data more deeply than PARiHS resulting in the finding that supported champions are not enough to drive implementation forward over time. Wilde et al. (2018) also interviewed schools at one time point whereas this present study interviewed them at two time points, over six months. The important role of formally appointed implementation leaders and their need for autonomy in decision-making power became much clearer by stage II.

Wilde et al. (2018) did report that when implementation leads had no obstructions from staff higher up the hierarchy; implementation was more readily achieved which does support the findings in this study. Research into the implementation of MT within healthcare settings also found that although initial implementation was often driven by one or two champions in a bottom-up way, over time, it was top-down influences that ensured mindfulness was sustained over time. Allowing for some level of distributed leadership (where leadership practices are distributed across a number of individuals in a school) is thought to be a key way school leadership can ensure change processes are successful in their schools and sustained school improvement programs can be accomplished at scale (Michelle & Alma, 2014).

Creating a well specified plan is an important first step to any implementation process in schools (Nadeem, Saldana, Chapman, & Schaper, 2018), and all the schools in this study had an initial implementation plan (planning). However, more successful schools were better at maintaining this plan over time and also tended to execute (executing) MT implementation more effectively than lower success schools. The schools ability to plan and execute was driven largely by the other distinguishing constructs e.g. in successful schools strong leadership would keep driving the implementation plan forward and ensure execution, MT was kept a priority (relative priority) and a topic of conversation in meetings (networks and communications), and leaders ensured someone was responsible for seeing it through (formally appointed implementation leaders).

Wilde et al. (2018) found that the perceptions of school staff towards mindfulness was perceived as being important to implementation. The present study also found the CFIR construct 'knowledge and beliefs' to be an important implementation construct within the data. However, the knowledge and beliefs of school leaders in regards to MT had a far greater impact on implementation than the knowledge and beliefs of staff. It was the knowledge and beliefs of leadership which made the difference, not necessarily the

knowledge and beliefs of the rest of the school staff, which tended to vary considerably within each school but had less impact on implementation and the beliefs of their school leaders.

Leaders in successful schools tended to have positive personal beliefs about the effectiveness and suitability of MT to their school as well as an accurate understanding of it (construct: knowledge and beliefs) whereas leaders in the less successful schools did not. Headteacher beliefs have been shown to impact implementation of school health programs elsewhere (Todd et al., 2015). This highlights the need for program designers and external program funders to ensure school leaders are provided with accurate and easy to digest evidence about an intervention and that any myths around it are challenged.

5.6.2   Weakly distinguishing constructs

Structural characteristics, learning climate, and compatibility were *Inner Setting Domain* constructs which weakly distinguished between schools. Strong leadership engagement appeared to facilitate a positive learning climate. A positive learning climate represented a school climate where head teachers appreciated the help of staff in reaching the early implementation goals the school had set out and agreed with the SG e.g. ensuring MT was placed within the curriculum and offered to at least year 7 or 9. A learning environment also meant staff felt psychologically safe to try new methods, and where staff felt they were important and able to contribute to the implementation process. These aspects of a learning climate have been shown to make the adoption of EBPs in organisations easier (Aarons, 2006). However, there is no research which has looked at 'learning climates' in schools per se. Despite this, there has been considerable work on the features of school cultures and how these allow for school improvement and greater student achievement. One such aspect of school culture is the idea of 'teacher professional learning communities' where staff collectively work together in an ongoing process of inquiry and action research to ensure better results for the students they serve (DuFour & DuFour, 2013). Any form of school improvement initiative, whether mental health promotion or student achievement is likely to be more successful if a professional learning community is fostered in the school by leadership (Carpenter, 2015). School leaders must provide supportive and shared leadership structures for teachers if professional learning

communities are to be implemented thus further highlighting the interaction of constructs in this study and the key role of leadership.

That structural characteristics was a distinguishing factor highlights the importance of structural stability in implementation success. More successful schools either had more stable structures than less successful schools or were more able to deal with structural instability. Team changes were particularly damaging to the implementation efforts of school 4 and perhaps reiterate the importance of leadership ensuring a safe, supportive, learning climate that has been mentioned in regards to other constructs.

A third weakly distinguishing construct was *Compatibility*, which appeared to capture school's perceptions of barriers. Compared to high success schools, low success schools reported the intervention as a more costly, time-consuming or student-incompatible intervention. This may have something to do with the organisational and system influences of schools something which Fixsen et al. (2005) points to as a key driver of implementation. In their case study, Kremser (2011) looked at the implementation of a whole school health-promoting program through the lens of complexity theory which posits that school programs are more likely to be successful if they 'fit' the school system. They found implementation took place over four chronologically overlapping phases which occurred on different system levels. In each phase, the original health promotion concept had to be adapted to fit into the needs and characteristics of each level, which changed it considerably. This suggests that the implementation of WSA's relies on existing school structures which if not in place may result in a failure of implementation due to a lack of adaptation to the intervention, and this seems to have been the case in the less successful schools in the present study.

5.6.3   Important but non-distinguishing constructs

A significant number of CFIR constructs appeared to be relevant to reaching early implementation goals but did not distinguish between schools (Appendix C1). The majority of these fell within the *intervention characteristics domain* of the CFIR. These findings have implications for which school programs we decide to use and how they are designed. Ensuring that school programs are EBPs, perceived as sustainable, trialable, adaptable and fit the school's current needs are likely steps to increase the chance of successful implementation. So will steps by external stakeholders to engage the schools, and steps by schools to engage their students. The external environment is likely to affect

implementation too (tension for change, external policy and incentives) as well as the characteristics of school staff, e.g. the 'readiness' of staff (stage of change) and their personal attributes and these may be more significant barriers to implementation as they are a lot harder for researchers, commissioners and anyone external to the school to change or influence (see thesis Study 2). It seems to be unlikely that schools will track their implementation progress using qualitative or quantitative means nor have the resources or time to do so. This may have implications for commissioners who want to know that their investments are being implemented well.

Available resources was an important construct across schools. This finding was echoed by Wilde et al. (2018) who found resources, including money and time, were perceived to be strong determinants of implementation by participants.

5.6.4   Using the CFIR for a school mental health intervention

For the most part, applying CFIR constructs was straight-forward, but there were instances where deciding which construct to apply was difficult, e.g. distinguishing between complexity and compatibility, or design quality and packaging as opposed to access to knowledge and information. For researchers using the CFIR, the online technical assistance from www.cfirguide.org can be an invaluable source of guidance. Through discussion, raters were able to agree on which construct to assign.

Notably, the construct of 'culture' was not assigned during the coding process, i.e. the norms, values, and basic assumptions of a given organization (Gershon, Stone, Bakken, & Larson, 2004). This was surprising given previous findings of the importance of organisational culture to the implementation of school health programs (McIsaac, Read, Veugelers, & Kirk, 2017). It is possible that the importance of culture was implicit rather than explicit in interviewee accounts, or that it was more easily coded as other 'inner setting' constructs that could be seen as proxies for culture, e.g. learning climate or networks and communications.

A key finding from the interview data was the 'need for momentum maintained over time' in order to achieve implementation success. The CFIR does not have a construct which captures this well. The CFIR seems usable and useful for analysing a snapshot of implementation or one point in the implementation cycle but is a less useful coding system for examining the degree of sustained implementation. Conducting interviews at two-time points allowed us to capture the idea of growth and momentum.

The construct 'personal impact' needed to be created to capture the requirement that trainers personally experience the intervention before delivering it. This strongly influenced the valency of 'knowledge and beliefs' and 'evidence, strength and quality' amongst participants.

5.6.5   Study Evaluation

This is the first study to apply the CFIR to school-based implementation research. The constructs are considered applicable to public health implementation activities in general (National Collaborating Centre for Methods and Tools, 2014), and we found its application to school settings a useful and fluid process. Using the CFIR allowed for results to be generalizable and therefore applicable to other school settings using other school mental health programs, something which has been advocated as a key reason to involve implementation theories and frameworks in implementation research (Kirk et al., 2016). Our study gives an indication of the facilitators and barriers to the early implementation of a M-WSA. The number of schools in the study was small, thus limiting generalisability. However, the interviewee sample was appropriate for qualitative analysis. We did not interview other stakeholders (i.e. students, parents, staff) not involved in implementation or interview stakeholders based within HeadStart who were funding the SG. These additional perspectives would have added an additional dimension to the research.

Although initial coding was checked by my supervisor and interrater reliability checks conducted, there is still the potential for interpretation of the data to be affected by unconscious bias. Analysts were not blind to the implementation success of schools, presenting another possibility of bias in the ratings. Being part of the SG and part of the Mindfulness in Cumbria project could have affected the perceptions and willingness of staff at the schools I interviewed to participate as well as bias their answers to my questions. This study also examined schools in a particular context (i.e. where a charity, HeadStart offered schools a range of programs to improve the resilience of 10-16 year-olds, and it may be that different offers of support, within different contexts hold different barriers and facilitators to implementation). I was unable to obtain any long-term outcomes from my studies beyond six months due to time constraints. It would have been highly valuable to see how well schools were able to continue implementing MT and what the impact on student outcomes were as a result.

Care was taken to ensure interview questions did not tap into specific constructs. Otherwise there may have been a risk of bias, whereby interview questions increased the chance of some constructs appearing in the data over others. For example, participants were never specifically asked about the importance of leadership engagement or ensuring the program was made a priority. The three conditional implementation goals set out by HeadStart which schools had to agree to in order to receive the MT offer may have had an impact on which constructs arose from the data. For example, schools had to agree to train teachers first in MBSR and then .b. This may have, for example, impacted the non-distinguishing construct planning.

5.7   Conclusion and Implications

The CFIR seems to be useful for identifying barriers and facilitator to EBPs in schools. The results from this study suggest that in order to maximise the implementation of mental health programs in schools, it may be worth targeting school leaders. Leaders who want to implement MT need to take responsibility for ensuring the stages of implementation are supported and achieved in school (Ehrhart, Torres, Wright, Martinez, & Aarons, 2016). Future studies could, therefore, seek to understand whether school leaders can be trained to apply findings from implementation science research to the implementation decisions they make when implementing an EBP. Future studies could also explore whether the behaviours of leadership in schools can be steered towards being more in support of successful implementation. Behaviour change is what drives implementation (Michie, 2014). In order to navigate the implementation process, the National Implementation Research Network (NIRN) recommends school leaders adopt both technical and adaptive leadership styles as different implementation problems often require different leadership approaches (Blase et al., 2015; Fixsen et al., 2005).

Who should be responsible for implementation is less clear. It is possible that a concerted effort on the part of program designers, program funders and school leadership might be needed to ensure schools have the capacity and knowledge to implement mental health programs well. This idea is echoed by Metz (2015) who suggests successful uptake of EBPs across service settings will require 'co-creation'.

Chapter 6 **- The development of an implementation framework for whole school mindfulness programs in secondary schools**

A key aim of this thesis was to develop an evidence-based implementation framework to support secondary schools attempting to deliver a whole school mindfulness program. This chapter details Study 4 which involved the development and preliminary review of such a framework, known as the mindfulness in schools framework (MISF). The chapter starts by explaining why a new, mindfulness specific implementation framework is needed. It then explains how a number of key pre-existing implementation frameworks informed the development of this framework. The chapter then explains why and for whom a new mindfulness specific framework was designed. The MISF is then presented, connecting each aspect with underpinning data or sources. Preliminary feedback on the framework provided by two headteachers and two mindfulness trainers is examined, before a final review of MISF.

6.1 Why is a new specific implementation framework for mindfulness needed?

The success of school mental health programs has been shown to be related to their level of implementation (Durlak & DuPre, 2008). When it is ultimately left up to the school leaders to fully implement programs without any implementation support or guidance, program outcomes have been highly variable (Banerjee, 2010; Durlak & DuPre, 2008; Fixsen et al., 2013; Humphrey et al., 2010; Moss et al., 2008; Vernez et al., 2006; Weare & Nind, 2011). There is currently no tested, official evidence-based guidance available for school leaders on how to implement MT in their schools apart from the generic encouragement to take a whole school approach (WSA; (Mindfulness All-Party Parliamentary Group, 2015). However, schools in the UK, in Europe and in the States continue to try to implement MT (Semple et al., 2017).

Implementation frameworks, models, and theories suggest leaders of service organisations are able to improve the sustainability and long-term outcomes of new programs being implemented across the whole organisation (Moullin et al., 2017). Implementation guidance, designed specifically for school leaders attempting to

implement MT may help them to make better informed implementation decisions which may improve the sustainability and long-term outcomes of MT in their school, e.g. they may encourage buy-in amongst staff, ensure MT is a priority and direct resources towards MT. Implementation guidance may also help school leaders ensure their schools are ready for MT and not waste money on something doomed to fail.

The majority of implementation frameworks currently available are generic with context playing a minor role (Pfadenhauer et al., 2017). They either describe and guide the process of translating research into practice (process models), highlight the determinants of successful implementation (determinant frameworks, classic theories, implementation theories) or guide the evaluation of implementation (evaluation frameworks; (Nilsen, 2015). These frameworks are useful and mostly used by researchers to help them frame study aims, questions and hypotheses. These frameworks provide a common implementation language, and therefore support evidence comparison. However, the frameworks, along with their highly academic nature, may be less useful to people in different workforces who are trying to implement a program within their organisation. A small number of frameworks have been designed for specific contexts, for example, healthcare (Damschroder et al., 2009; Stetler et al., 2011).

It is unlikely that school leaders will use currently available implementation frameworks because:

- It is unlikely they will read the academic journals they are reported in or even know that they exist

- They may not feel these frameworks are applicable to school settings because they do not take into account school context or have not been tested in such contexts

- They may not have time to learn and understand these frameworks which are very often not user-friendly

- They may not feel they need a framework to help them implement a program

There is as yet no peer-reviewed, mindfulness specific, implementation framework or guidance available for school leaders to use when implementing MT.

6.2 Aims

The aim of this study was to produce an implementation framework for school leaders implementing a whole school mindfulness program in their school. It is based on a WSA because there is evidence (discussed in Chapter 2) that this approach leads to better program outcomes (Thomas & Aggleton, 2016).

The framework was also designed to be useful to:

- School staff who want to know more about how they can support the success of whole school mindfulness programs or practices being introduced into their school.

- Commissioners, policymakers and charitable funders interested in securing the best return on investment in mindfulness-based programs.

This study set out to develop the framework by referring to the implementation science literature, focusing particularly on implementation within educational settings. It also referred to generic implementation frameworks, searched for and assessed the usefulness of any current school specific and/or mental health program-specific implementation guidance/frameworks; and referred to the results of thesis studies one, two and three.

6.3 Framework development

In order for something to be considered for the MISF framework, it had to be evidence-based. The more evidence-based it was the greater chance it had of being included. If something was evident across all domains i.e. the implementation literature, the CASEL framework, the CFIR, and the thesis studies, it had a very high chance of being included e.g. leadership engagement. The steps of the CASEL framework provided a good starting point and checks were made to see what recent evidence was available to support them. If the steps had a good evidence base they were likely to be modified accordingly (for the MT program) and included. The CASEL framework also gave some idea of the order the MISF steps might progress in, although this was influenced far more by NIRN's stages of implementation, and findings in the thesis studies. For example, CASEL advises school leaders to let everyone know about the SEL and communicate implementation goals to school staff earlier than the MISF framework. The MISF framework advises school leaders to have a clear action plan first and this was driven by important findings in the thesis studies. The CFIR was also checked to see if any distinguishing constructs had not been

accounted for by the CASEL framework or thesis study findings. Additional steps, not present in the CASEL framework were therefore added. For example, there is no concept of creating a learning climate in the CASEL framework, and this was found to be a distinguishing construct amongst the implementation success of schools (Study 3) and also something promoted by the implementation literature. Ultimately, the development of MISF was driven by the available evidence with guidance and clues from the CASEL framework, thesis studies and the CFIR. The sources the framework drew from are now presented in more detail starting with the implementation literature, then determinant frameworks, and finally the thesis studies.

A number of reviews regarding implementation in education were found to be useful in developing MISF (Aarons et al., 2014; Cordingley et al., 2015; Dyssegaard et al., 2017; Heifetz et al., 2009). While the evidence base for implementation in education is evolving, the impact of some implementation determinants in educational contexts are unknown. For example, areas such as training and professional development have a relatively robust evidence base (Cordingley et al., 2015; Kennedy, 2016; Kraft, Blazar, & Hogan, 2018), whereas others, like implementation climate, have not been studied extensively (Ehrhart et al., 2016). MISF, therefore, draws evidence together from domains such as social work and health care as well as the wider implementation science literature. For example, advising schools to set implementation goals stemmed to a large extent from implementation research conducted within healthcare (Jamtvedt, Young, Kristoffersen, O'Brien, & Oxman, 2006; Kochevar & Yano, 2006).

It was decided that determinant frameworks, would be most useful for informing MISF as they list many factors which can influence implementation success (Nilson, 2015). The Consolidated Framework for Implementation Research (CFIR) was introduced in chapter 5 and is a comprehensive, organising taxonomy of operationally defined constructs that may impact the implementation success of complex programs (Damschroder et al., 2009). It was felt that the CFIR held the most potential to inform MISF, as it consolidates the findings from 25 previous implementation frameworks to provide an extensive set of research-based determinants thought to facilitate the implementation of new innovations across an organisation. The CFIR's focus on implementation at both the individual and organisational level was thought to be particularly important as schools were likely to need implementation guidance in relation to all levels, i.e. organisational and individual. There is another framework which provides a set of determinants of implementation

known as the Theoretical Domains Framework (TDF)(Atkins et al., 2017) but it has been argued that unlike the CFIR, the TDF does not take a 'meta-view' of implementation (Murphy et al., 2014; Prior et al., 2014; Sales et al., 2016). The TDF attempts to understand organisational factors related to implementation by starting at the individual level. Ultimately organisations are collections of individuals. However, some have argued, that due to its focus on individual factors, the TDF may be more suited to studying individual-level behaviour change (Murphy et al., 2014; Prior et al., 2014; Sales et al., 2016). There is evidence that organisational factors are likely to have more impact on the successful implementation of EBPs compared to individual factors (Jacobs, Dodson, Baker, Deshpande, & Brownson, 2010). Many barriers and facilitators to school programs are organisational (Langley et al., 2010) and the CFIR was therefore deemed to be the most appropriate framework to draw on when developing MISF.

At the time of MISF's initial development, only one implementation framework had been created which targeted school leaders, and which gave guidance for implementing an evidence-based, emotional well-being program. This is known as the 'Sustainable Schoolwide Social and Emotional Learning (SEL) Implementation Guide and Toolkit' created by the Collaborative For Academic, Social, And Emotional Learning (CASEL; (Devaney et al., 2006). CASEL published this guidance specifically for educators trying to implement SEL programs. It aims to guide school leaders who had chosen an SEL program on how to integrate it into their school workflows and sustain it into the future and was, therefore, a highly valuable resource for developing a similar framework for MT programs. The guide draws from research on implementing school prevention programs as well as SEL, school reform and organisational change research literature. It aims to summarise what is known about maximising the likelihood of high-quality implementation and sustainability. It is 272 pages long (https://casel.org/in-action/). Within the guide is an implementation rubric CASEL developed for schools to use when implementing SEL programs. The rubric, shown in Figure 16, is made up of 10 sequential steps and an additional set of variables (known as sustainability factors) that can promote the implementation of SEL programs.

Figure 16 - CASEL rubric for schoolwide SEL implementation

Source: Devaney, O'Brien, Resnik,
Keister, and Weissberg (2006)

No research has been conducted on the usefulness, feasibility or effectiveness of the CASEL implementation guidance to schools. However, it was deemed to be useful for the development of MISF because it targets a complex mental health school-based program like mindfulness (SEL), and was developed to be used by school leaders within school contexts. The CASEL guidance also advocates the use of evidence-based SEL programs within the context of "school-wide" and "district-wide" approaches (Devaney et al., 2006). However, the CASEL guidance was not deemed to be a sufficient implementation framework for MT because MT programs differ from SEL programs in a fundamental way, requiring a different implementation process. SEL programs teach skills "from the outside in." That is, students, learn through psychoeducation, behavioural skills, and a positive school environment to self-manage their emotions, with the hope of reducing risky behaviours in improving their academic performance. Mindfulness-based approaches, on the other hand, teach students "from the inside out" to cultivate self-management of attention and increase self-awareness by focusing on internal experiences such as thoughts, emotions, the breath, and bodily sensations (Semple, Lee, Rosa, & Miller, 2010).

These are difficult skills to understand and teach unless you have experienced them yourself. School teachers are therefore encouraged to learn mindfulness themselves first before teaching their students which creates a very specific difference in the implementation process.

The other reasons for not using the CASEL framework in its entirety (some parts were incorporated into MISF) included:

- The CASEL framework is based on evidence from over 12 years ago. New implementation research, particularly within schools has been conducted since then, presenting an opportunity to create a framework with more up-to-date and school-specific research base.

- The CASEL framework is expensive to access and not widely available on the Internet, i.e. educators have to pay $80 to access it.

- Although the CASEL rubric is short, the full guidance appears prohibitively long.

- CASEL doesn't draw from qualitative data and interviews conducted with school leaders and school teachers. It is, therefore, not a user-informed framework and I felt that in order for a framework to be relevant to school leaders implementing MT, it would need user input.

The results from thesis studies one, two and three were also useful in developing MISF. Studies two and three, in particular, highlighted which determinants of implementation both the SG and schools felt were the most important determining implementation activity levels in the schools and these will be specified later on.
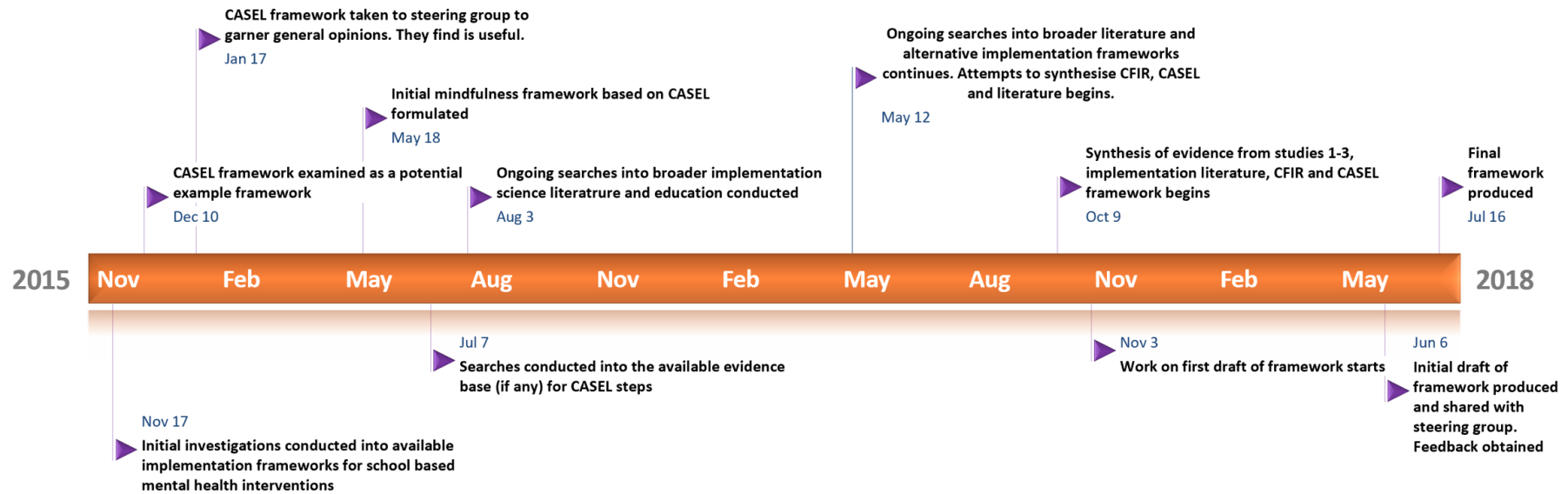
6.4 The MISF framework

Figure 17 shows key steps in the development of the MISF framework. The process took 2 ½ years. The timeline shows how initial investigations into available implementation frameworks for school-based mental health interventions began in November 2015. This led to the discovery of the CASEL framework which was then studied and used to make a preliminary mindfulness framework in August 2016. No study was conducted on the CASEL framework, but it was shown to the MTCHP SG and used in Study 1 to help share implementation knowledge to the SG. The thesis studies and implementation literature were then used, along with the CASEL framework and the CFIR framework, to develop the MISF framework. Feedback was then obtained on the final framework from a number of

SG members. The application of thesis studies, implementation literature and the CASEL framework is shown in detail throughout tables 13 to 17.

MISF has a pre-implementation stage (Table 13), followed by four more implementation stages, namely getting the foundations in place (Table 14), preparing for implementation (Table 15), delivering mindfulness in the school (Table 16), and sustaining mindfulness over time (Table 17).

The framework in its entirety is available in Appendix D1.

Figure 17 - Framework Development Timeline

CASEL framework taken to steering group to garner general opinions. They find is useful.
Jan 17

Initial mindfulness framework based on CASEL formulated
May 18

Ongoing searches into broader literature and alternative implementation frameworks continues. Attempts to synthesise CFIR, CASEL and literature begins.
May 12

CASEL framework examined as a potential example framework
Dec 10

Ongoing searches into broader implementation science literatrure and education conducted
Aug 3

Synthesis of evidence from studies 1-3, implementation literature, CFIR and CASEL framework begins
Oct 9

Final framework produced
Jul 16

| 2015 | Nov | Feb | May | Aug | Nov | Feb | May | Aug | Nov | Feb | May | 2018 |

Jul 7
Searches conducted into the available evidence base (if any) for CASEL steps

Nov 3
Work on first draft of framework starts

Jun 6
Initial draft of framework produced and shared with steering group. Feedback obtained

Nov 17
Initial investigations conducted into available implementation frameworks for school based mental health interventions

Pre-implementation stage

In this initial, pre-implementation stage, school leaders are informed about the importance of taking a whole school approach, the fact that implementation occurs in stages, and also the importance of training the teachers first before having teachers train their students.

Table 13 - The MISF framework, Pre-implementation stage, component and underpinning evidence or influence

Key component of framework	Underpinning evidence or influence			
	Research evidence	CASEL framework (Devaney et al., 2006)	Evidence from thesis studies 1,2,3	CFIR (Domain)
Pre-Implementation advice				
MISF is based around schools taking a whole school approach and encourages the inclusion of teachers, parents, and the wider community in the implementation process.	Whole school approaches have been associated with greater program outcomes (Thomas & Aggleton, 2016; Weare & Nind, 2011).	Step 1 advises school leaders to commit to a 'schoolwide' SEL initiative, i.e. a whole school approach.	No relevant data.	Key stakeholders
MSIF advises teachers are	Having experienced mindfulness oneself	The toolkit suggests "The principal and steering	No relevant data.	No relevant

trained in mindfulness practice before they teach their students.	before teaching it is thought to be a necessary prerequisite to teaching mindfulness effectively to others (Albrecht, 2014; Crane et al., 2014; Hennelly, 2011). It is also an approach preferred by schools (Hugh-Jones, 2014).	committee must develop a deep understanding of the rationale and theory behind SEL" (Devaney et al., 2006, p. 70) but they are not encouraged to experience it themselves *		data.
MISF encourages leaders to implement mindfulness in stages via the 'stages of implementation'.	Implementation occurs in stages, and each stage must be passed through in order for implementation to be successful. Each stage brings its own set of implementation challenges (Fixsen et al., 2005; McIntosh et al., 2016; Metz et al., 2015; Nadeem et al., 2018; Nese et al., 2016).	Follows its own stages of readiness, planning, implementation, sustainability.	No relevant data.	No relevant data.

Stage I: Getting the foundations in place

This stage of the framework encourages school leaders to 'set the stage' for implementation by ensuring strong leadership engagement, involving additional people in the implementation process and ensuring the school climate is supportive of implementation.

Table 14 - The MISF framework, Stage 1, component and underpinning evidence or influence

Stage 1: Get the foundations in place	Research evidence	CASEL framework (Devaney et al., 2006)	Evidence from thesis studies 1,2,3	CFIR (Domain)
Step 1: Ensure ongoing leadership engagement	Ongoing leadership engagement is thought to be vital to implementation success (Devaney et al., 2006; Ehrhart et al., 2016; Langley et al., 2010; Moullin et al., 2017; Short, 2016).	Leadership engagement is fundamental to the CASEL rubric. *"Leadership is probably the single most important factor in the successful implementation and long-term viability of SEL programming"* (p. 27).	Study 2: The SG felt that that the readiness of schools depended to a large extent on the degree of leadership engagement. Without leadership, engagement implementation was a lot more difficult. Study 3: Leadership engagement was found to be a strongly distinguishing CFIR construct between the schools and something that school leaders felt was vital to implementation success.	Leadership engagement
Step 2: Involve key people in choosing a mindfulness approach /	This is regularly advised by other implementation frameworks and	Schools are advised to select an evidence-based program in step 6 after a steering committee has	No relevant data.	Key stakeholders

program	guidance because it is thought to be a key determinant of implementation success (Damschroder et al., 2009; Sharples et al., 2018). It is also an important aspect of a whole school approach (Thomas & Aggleton, 2016).	been formed to do this in step 2.		
Encourage choice of a program / approach that 'fits' school system and school needs	Evidence suggests that the more compatible an EBP is with a school's needs (Fixsen et al., 2005) and a school's systems (Greenhalgh et al., 2004; Kremser, 2011) the greater the chance of successful implementation will be	Schools are encouraged to trial their chosen SEL program and make adaptations to it in the initial implementation stage	Study 2: Theme 3 revealed how every school had different requirements and needs in order to implement MT Study 3: Compatibility was a weakly distinguishing construct between schools, and teachers reported extensively on barriers to implementation when MT did not fit well with school workflows	Compatibility
Step 3: Develop and sustain an implementation team	The central way to 'make it happen' is via the creation of expert implementation teams who actively support	Step 2 advises school leadership to form an implementation steering committee	Study 3: The headteachers interviewed in this study were clear about the importance of strategically selecting appropriate staff in the school to carry MT implementation forward. Schools which actively selected key individuals to	Formally appointed implementation leaders

			implement mindfulness and created an implementation team were more active in implementing mindfulness than in schools which did not.	Learning climate
	the movement of a program through *all* the stages of implementation (Blase et al., 2015; Fixsen et al., 2005; Greenhalgh et al., 2004; Harris, 2013; Metz et al., 2013)			
Advises leaders to create a 'learning climate'	The interrelated practices and beliefs associated with a learning climate support an organization's absorptive capacity for new knowledge and methods (Aarons, 2006; Damschroder et al., 2009; Greenhalgh et al., 2004)	The rubric does not talk about creating a learning environment. Strategies for handling staff resistance and a literature review about leadership styles is provided in the 2nd chapter of the guide.	Study 3: Schools which had leaders who created a learning climate were more active in implementing mindfulness than schools which did not.	Learning climate
Step 4: Ensure sufficient resources are available to complete the implementation process	Sufficient resources must be available for ongoing program implementation (Han & Weiss, 2005)	Step 4 advises that the steering committee conduct a needs and resources assessment and that school leaders commit resources for ongoing SEL development	Study 1: Not receiving phase III funding ultimately stopped the implementation process in its tracks Study 2: It was clear to the SG that schools often had few resources to implement MT and that this could halt the implementation process.	Available resources

			Study 3: School staff and leadership reported extensively that lack of resources was an issue.	
Step 5: Make the mindfulness program to be implemented a priority across the school	The higher the relative priority of implementing an intervention, the more effective the implementation is likely to be (Helfrich, Weiner, McKinney, & Minasian, 2007; Langley et al., 2010)	Throughout the rubric, there is talk of implementing SEL as a 'schoolwide priority' and keeping it that way (sustainability factor C)	Study 2: Theme 2 revealed how the SG learnt that schools were extremely busy and needed ongoing encouragement and support in order to keep MT a priority. If support and encouragement ended, the implementation process tended to suffer. Study 3: Relative priority was a strongly distinguishing construct between the schools. Schools which kept MT a priority were more active in implementing mindfulness, whereas schools which did not keep MT a priority were less active.	Relative priority
Step 6: Create and communicate implementation goals to staff	When leaders create a common understanding of what is to be expected, successful implementation of evidenced-based practices such as school mental health programs is more likely (Aarons et al., 2014; Dyssegaard et	Step 3 talks about developing and articulating a shared vision to the rest of the school	Study 2: The SG noticed the importance of leadership engagement and in particular the need for headteachers to communicate to school staff implementation goals Study 3: Leadership engagement and the quality of networks and communications in schools were felt to be related to implementation success as goals were more clearly communicated. Schools which were more effective at implementing and sustaining MT had staff which were more aware	Goals and feedback Networks and communications

			of implementation goals than staff in less successful schools.	
al., 2017)				

Stage II: Preparing for implementation

This stage of the framework encourages school leaders to prepare for implementation by making a plan, setting implementation goals, measuring school readiness for MT and taking some practical steps to prepare for implementation.

Table 15 - The MISF framework, Stage 2, component and underpinning evidence or influence

Stage 2: Prepare for implementation	Research evidence	CASEL framework (Devaney et al., 2006)	Evidence from thesis studies 1,2,3	CFIR (Domain)
Step 1: Create an implementation action plan	Creating a well-specified action plan is an important first step to any implementation process and pre-implementation activities such as an action plan have been related to readiness, and predicted program start-up (Nadeem et al., 2018).	Step 5 advises schools to develop an implementation action plan. CASEL provides an action plan template and recommends key actions associated with each implementation step.	No relevant data	Planning

Step 2: Decide on some short-, medium- and long-term implementation goals	Organisational goal setting has been associated with organisational behaviour change (Gagné, 2018). Reasonable, attainable and specific incremental goals can increase implementation effectiveness (Jamtvedt et al., 2006; Kochevar & Yano, 2006).	In step 5, schools are advised to develop an action plan for implementing the SEL program which includes setting implementation goals.	No relevant data	Reflecting and evaluating
Step 3: Decide if your school is ready to implement mindfulness	The 'readiness' of an organisation to implement a new program is thought to be a strong predictor of implementation success (Hustus, 2017; Scaccia et al., 2015; Wanless & Domitrovich, 2015).	In step 4, schools are advised to assess how ready they are to implement an SEL program. The 1st 2 steps of the rubric are labelled as the 'readiness' phase.	Study 1: The readiness of schools was found to be extremely important to the SG's implementation strategy because they felt it would determine whether MT was successful in the school or not. Study 2: The readiness of schools was a sub-theme of Theme 3 and showed how the SG felt the readiness of schools was paramount to implementation success. Study 3: Many of the constructs which were	Readiness for implementation

			found to distinguish between schools relate to aspects of school readiness, e.g. leadership engagement, relative priority, compatibility.	
Step 4: Take practical steps to prepare the school for implementing mindfulness.	(See the two substeps below)	There is not a specific step for this in the CASEL framework, but schools are expected to prepare for implementation via their action plan set out in step 5	The experiences of the SG in study 2 made clear the importance of engaging with schools and providing them with support and encouragement.	
Ensure everyone is aware of the implementation process, and that they will be supported.	When leaders ensure everyone is aware of the implementation process and that they will be supported, they create a positive implementation climate, ensure the environment is supportive of adopting the new program, and increased the chance of implementation success (Aarons, Ehrhart, Farahnak, & Sklar, 2014).	In step 3, the CASEL framework talks about developing and articulating a shared vision.	Study 3: The development of a learning climate in schools, which included school staff feeling supported in the implementation process, was found to be a weakly distinguishing construct between the schools.	Goals and feedback

Learning climate |
| Prepare the infrastructure: | These organisational factors determine the | Sustainability factor C advises schools to | Studies 2 and 3 both highlighted the importance of schools being ready for MT implementation. | Available resources |

admin support; materials available; timetable changes, reorganising	implementation climate and have been associated with implementation outcomes (Bessems et al., 2014; Blase et al., 2015; Fixsen et al., 2005; Metz et al., 2013).	develop an infrastructure to support implementation.	Encouraging schools to prepare their infrastructure for MT is a direct way to increase their readiness.	Relative priority

Stage III: Delivering mindfulness in the school

This stage of the framework takes school leaders through the steps needed to actually deliver MT in their school.

Table 16 - The MISF framework, Stage 3, component and underpinning evidence or influence

Stage 3: Deliver mindfulness in the school	Research evidence	CASEL framework (Devaney et al., 2006)	Evidence from thesis studies 1,2,3	CFIR (Domain)
When starting to deliver mindfulness leadership should ensure 'buy-in'	A lack of leadership support has been associated with low implementation success. When leaders ensure 'buy-in' they have been shown to simultaneously	In step 2, the rubric advises school leaders to share information about SEL to school stakeholders in order to get them interested in it.	Studies 2 and 3 both highlighted the importance of leadership, not just at the beginning of the implementation process but throughout it. Study 2 showed how leaders could facilitate the training process by making it easier for teachers to attend. Study 3 also highlighted the importance of leadership engagement in implementation success, and leaders ensuring 'buy-in' was a key	Leadership engagement

			part of this.	
	remove barriers to implementation (Ehrhart et al., 2016; Langley et al., 2010; Moullin et al., 2017; Short, 2016).			
Step 1: Train staff	Training staff is a key driver of implementation (Fixsen et al., 2005).	At the start of the implementation phase, in step seven, rubric advises school leaders to train their staff in the SEL program, so they understand its theory, principles and strategy.	No relevant data	No relevant data
Step 2: Ensure ongoing training or coaching	Ongoing coaching and training is an effective way to ensure the sustainability of newly adopted EBPs and many implementation frameworks recommend implementers be thinking about sustainability throughout the implementation process (Cordingley et al., 2015; Domitrovich	In sustainability factor A, the rubric advises schools to ensure ongoing professional development for staff.	Study 2: Theme 1 shows how the SG learnt the importance of maintaining implementation over time and a key learning, in particular, was the need to offer booster sessions to staff and give ongoing support.	No relevant data

	et al., 2008; Dyssegaard et al., 2017; Kraft, Blazar, & Hogan, 2018).			
Step 3: Use the implementation outcomes you decided on using in stage 2 to monitor progress and identify barriers.	Organisational goal setting has been associated with organisational behaviour change (Gagné, 2018). Reasonable, attainable and specific incremental goals can increase implementation effectiveness (Jamtvedt et al., 2006; Kochevar & Yano, 2006).	In sustainability factor B, the rubric advises schools to evaluate their practices and outcomes for continuous improvement.	No relevant data	Reflecting and Evaluating
Step 4: Only make needed adaptations when the 'key ingredients' of mindfulness are understood and implemented	Greater fidelity has been associated with greater implementation and greater student outcomes (Albers & Pattuwage, 2017; Dyssegaard et al., 2017). Too much adaptation to core	In step 9 teachers are expected to have reflected on initial implementation and made adaptations as appropriate. No mention of understanding the key ingredients of SEL. *	Study 1: Managing the needs of schools with the need to ensure program fidelity was a key talking point of the SG. It led to them forming their 'stakes in the ground' where they would give schools relative freedom over how they implemented MT but with some core expectations in place.	No relevant data

	program components can result in a lack of impact (Domitrovich et al., 2008). Some adaptations to 'fit' mindfulness into the school may be needed and can aid implementation by increasing buy-in, ownership and enhancing 'fit' (Lendrum & Humphrey, 2012). (Albers & Pattuwage, 2017; Domitrovich et al., 2008; Dyssegaard et al., 2017; Lendrum & Humphrey, 2012)			

Stage IV: Sustaining mindfulness over time

This stage of the framework guides school leaders through ways of sustaining MT within their school over time.

Table 17 - The MISF framework, Stage 4, component and underpinning evidence or influence

Stage 4: Sustain mindfulness over	Research evidence	CASEL framework	Evidence from thesis studies 1,2,3	CFIR (Domain)

time		(Devaney et al., 2006)		
Step 1: Plan to sustain mindfulness over time	If efforts to sustain EBPs are not made, their expected outcomes are less likely to be achieved. Sustainability is a core recommendation from many implementation frameworks (Bryce et al., 2010; Chambers, Glasgow, & Stange, 2013; Fixsen et al., 2013; Fixsen et al., 2005; Glennan, Bodilly, Galegher, & Kerr, 2000).	The CASEL rubric has 6 'sustainability factors' dedicated to the sustainability of SEL programs	It was clear from study 2 that if schools were not encouraged and supported to maintain a focus on MT implementation over time that the implementation process would come to a halt. Encouraging schools to plan to sustain mindfulness over time was perceived to be vital.	Planning
Step 2: Once embedded, start to scale MT up	Scale up is recommended as a way of sustaining an EBP and can be seen as a new implementation process (Blase et al., 2015; Fixsen et al., 2013; Metz et al., 2015; Sharples et al., 2018).	In step 9, schools are advised to expand classroom-based SEL programming and integrate SEL schoolwide.	No relevant data. The MTCHP project was unable to reach this stage due to funding cuts.	No relevant data

Step 3: Make sure implementation outcomes set up in stage 3 are still useful	Schools should review their capacity to collect and review implementation data on a regular basis to ensure it is being measured accurately over time (Jacob et al., 2017).	In step 10, schools are advised to revisit implementation activities and adjust for continuous improvement.	No relevant data	No relevant data
Step 4: Leadership remains important in the sustain phase	Leadership engagement remains an essential implementation component throughout the implementation process (Moullin et al., 2017).	The school leader is instructed to take responsibility for ensuring the sustainability factors are carried out.	Studies 2 and 3 both highlighted the importance of leadership, not just at the beginning of the implementation process but throughout it.	Leadership Engagement

6.5 Initial framework feedback

A small study was conducted to gauge the perceived usefulness of the MISF framework.

Design

This was a questionnaire study whereby data was collected from four SG participants after they had read a beta version of the MISF implementation framework as a preliminary determination of its perceived usefulness. Interviews would have allowed for a deeper analysis of the participants views; however, due to the constraints of the PhD timescale a relatively quick method of data collection was needed and a questionnaire approach provided this (Ponto, 2015).

Ethics and recruitment

The study recruited participants from the MTCHP SG. A participant information sheet (see Appendix D3) was e-mailed to the key SG members from study 1 (n = 6). The participant information sheet detailed the purpose of the study, what participation involved, ethical considerations, expected outcomes and opt-in / out procedures. Willing participants were asked to email the researcher directly. Signed informed consent was obtained before data collection (See Appendix D4). Four out of six members of the SG agreed to take part. The sample, therefore, included two headteachers who had attended the SG meetings and been involved in implementing mindfulness in their schools, and two mindfulness trainers from the SG, one of whom was a GP who had received funding to train more teachers in schools. She was, therefore, approaching schools with an offer of mindfulness, and was using MISF to guide her approach and help the schools. The other mindfulness trainer had offered MT to schools in the past. Participants were asked to return their questionnaires (see Appendix D2) in a stamped addressed envelope to the researcher once they had completed them.

Participants had the right to withdraw from participating in the study at any time. They could choose to withdraw their data up until two weeks after the main researcher had received their completed questionnaire, after which point combined analysis of this interview with other data had begun. There were no risks to the participants. Ethical approval was obtained from the University of Leeds Faculty of Medicine and Health (School of Psychology) Research Ethics Committee (reference: 16-0089; dated 15/03/16; 17-0072, dated 23/02/17). Group members' identities are anonymised, but their job titles

are not. The personal details of participants were stored securely and separately to study data. Transcripts were assigned a code known only to the PhD student and supervisor, and personal information was anonymised. Participants were not aware in advance of which others members of the SG had consented to take part; however, they may have shared this information with each other post-interview.

Data collection

Participants were sent a questionnaire to fill out in June 2018 (see Appendix D2 for the full questionnaire). All questionnaires were received six weeks later. They were asked 12 questions regarding the framework which are shown in Figure 18.

Figure 18 - Questions given to participants regarding the usefulness of the MISF framework

1. In principle, this framework would be useful to schools
2. I would recommend it to other school leaders or people involved in implementing mindfulness in schools
3. I think schools will use it
4. I will use this framework in the future if implementing mindfulness
5. Please explain why you think the framework would be useful/not useful?
6. Why you would/would not recommend the framework to school leaders or people involved in implementing mindfulness in schools?
7. Why do you think schools will actually use/not use the framework?
8. Please explain why you suck me wasn't very nice will use/not use this framework in the future if implementing mindfulness?
9. What a defined most useful/least useful about the framework?
10. List the top three things that could be done to improve the framework or the likelihood of schools using it
11. How feasible and/or practical do you think this framework would be to use and why?
12. Is there anything else you would like to share?

The questions were designed to explore participants' attitudes, and beliefs in regards to the usefulness of the framework as a guide to help implement mindfulness in secondary schools. The first four questions with statements regarding the usefulness of the framework, asked participants to rate their agreement with the statements from a choice of strongly agree, agree, uncertain/not applicable, disagree, strongly disagree. The remaining questions were open questions, giving the participants a chance to expand on their answers to the first four questions.

Results

Participants answers to each feedback question are summarised in Table 18 below.

Table 18 - Participant responses to framework feedback questions

Participant and role versus feedback question	Headteacher 1 currently implementing MT in their school	Headteacher 2 currently implementing MT in their school	GP/Mindfulness trainer currently offering MT to schools	Mindfulness trainer who had offered MT to schools in the past
1. In principle, this framework would be useful to schools	Strongly agree	Agree	Strongly agree	Strongly agree
2. I would recommend it to other school leaders or people involved in implementing mindfulness in schools	Strongly agree	Agree	Strongly agree	Strongly agree
3. I think schools will use it	Agree	Uncertain	Uncertain	Agree
4. I will use this framework in the future if implementing mindfulness	Agree	Uncertain	Agree	Strongly agree
5. Please explain why you think the framework would be useful/not useful?	Simple, sub-headings, charts journey, sparks discussion, helps avoid implementation pitfalls. *"The key stages of implementation enable leaders to consider how to introduce and sustain the Mindfulness program in the context of their own school;*	*"Provides a clear approach to the implementation of Mindfulness – step by step guidance".* But won't be useful unless school leadership prioritises mindfulness School leaders are under great amounts of pressure to implement curriculum	Gives a clear pathway at the very start and shows schools what they are signing up for. Save school leaders time as they do not have to invent an implementation plan themselves.	Makes the point that proper implementation is required for success. Encourages the school to make it a priority which is vital.

	staff, culture, students, and readiness for acceptance of the program".	changes which the framework is in *'competition'* with.	If implementation does not succeed she as a funder and implementer can use the framework as an evaluation tool to see what went wrong. If someone does not take ownership of this plan, it will not succeed in schools.	
6. Why you would/would not recommend the framework to school leaders or people involved in implementing mindfulness?	Would recommend it because it encourages school leaders to spend some time planning before starting the implementation process Thinking and talking about the specifics of the framework will lead to discussion and solutions	*"The framework provides an implementation action plan which is well considered and therefore useful as an introduction to whole school approach"*	Would recommend the framework if the school was struggling to implement mindfulness because it gives them a pathway forward and something keep referring to Would not recommend if they were implementing mindfulness well on their own. I would not want to dictate policy to them.	*"I wouldn't not recommend it, as to me a guide like this, backed up by research is invaluable"*
7. Why do you think schools will actually use/not use the framework?	If schools are serious about implementing mindfulness and leadership makes it a priority then they will most likely use the framework.	Schools are required to support students' mental well-being. *"Well-being is a focus of inspection"* so the framework provides a way to achieve this requirement.	One reason they might not use it is that it might be very difficult to inform them about it. Schools are inundated with offers and people contacting them. One needs to find a way	They will use it because it is *"workable and clear"*. Schools are unlikely to use the framework if they are bombarded with lots of new programs or believe they already know how to

			through the firewall.	implement mindfulness.
	They are likely to use it because it does not dictate a specific approach but *"helps leaders consider the factors that will lead to successful implementation within their own environment"*	Schools might not use it due to leaders having to support curriculum change which also must be implemented.	They also might not use it because they have something better or something else or mindfulness is just not a priority or kept a priority.	*"We need to be clear that mindfulness requires a high level of engagement from staff to other programs".*
8. Please explain why you will use/not use this framework in the future if implementing mindfulness?	*"We will definitely use the framework, and we will also use it throughout the implementation process, two, three and five years on, to ensure that we are thinking carefully about what is required to sustain the program".*	*"We already have a whole school approach to implementing Mindfulness"*	If the school was struggling, the participant would use the framework to help them but if they were doing okay without it, the participant may not. Sometimes intuition is just as effective as an implementation strategy.	Question left blank by participant.
9. What did you find most useful/least useful about the framework?	*"The stages of implementation are of particular interest. They are clear and succinct and are great prompts. These are particularly useful"*	*"The clear outline it provides"*	It's use as an evaluation tool. If something goes wrong with the implementation process, they can go back and use the framework as a reference point to identify what went wrong specifically.	The early stages of setting up prior to implementation The focus on implementation involvement The clear stages involved in

				the process
10. List the top 3 things that could be done to improve the framework or the likelihood of schools using it	Schools might need someone to help them use the framework – "*an implementation lead*" particularly in the early stages. An implementation lead would help schools understand what behaviours are required at each stage to ensure successful implementation and sustainability "*The window of failure exists where the right behaviours are not accurately deduced from the implementation stages*"	"*If school leaders acknowledge the usefulness of Mindfulness as part of their overall strategy to support students' emotional well-being they will use the framework. I think it is the minority of schools that will do this*".	The first thing is to get their attention and make them realise that if they do not follow some kind of implementation process mindfulness will not remain in the school very long "*If the framework is just given to schools are not sure it would work. They need someone to guide them through it. Otherwise it just ends up on a pile*". Whoever is helping them must 'co-create' an implementation plan with the school as they are always being told what to do and dictating policy doesn't result in a good response usually.	A timeline from beginning to full implementation Advice for how teachers can set clear timetabling space for mindfulness
11. How feasible and/or practical do you think this framework would be to use and why?	Highly feasible. Is easily accessible and provides practical headings to spark discussion.	It's easy to read and practical to use.	It's not difficult to understand, is laid out simply, it's not hard to use. "*You just need one person to*	It is feasible – because it's clear and staged. However, many teachers/staff will think

			get really familiar with the framework, and if that happens people will use it"	they know what mindfulness is, but not appreciate it's difference to other programs.
12. Is there anything else you would like to share?	Framework is succinct and clear. It provides a healthy approach for schools to develop their own blueprint for implementation, "Schools need to recognise they can't take another school's approach but they can trust in the framework to help them reach their own implementation process"	"Implementing Mindfulness as part of our whole school approach to supporting students' mental health and well-being has been very positive"		Framework like this could be very useful; however, it will depend on the support of leadership and other leaders in each school,

As Table 18 shows, there was strong agreement among participants that the framework would be useful to schools. All participants reported that they would recommend it. However, participants felt that schools would not necessarily use the framework by default. MT needed to be a priority. One of the headteachers described competing pressures such as implementing curriculum changes which were in 'competition' with the framework. She also commented that if schools already have an implementation approach they might also not use the framework. She felt that if schools do not acknowledge the usefulness of mindfulness as part of their overall strategy to support the mental health of students, they will not use the framework. The mindfulness trainers noted that schools might not use the framework because they are uninformed about it. Schools are inundated with offers and people contacting them and often have firewalls in place to stop communications getting through to decision-makers. For those implementing MT in schools or making an offer externally, the framework was perceived by one of the mindfulness trainers, to be useful for evaluating implementation progress and understanding what may have gone wrong. Improvements posed by the headteachers included having someone available to train leaders in using the framework and help them use it, i.e. "an implementation lead". "Co-creating" the plan with schools was perceived by one mindfulness trainer as far better approach than dictating to them what to do.

6.6   Conclusions and next steps

A small number of stakeholders involved in implementing MT in schools rated the beta version of the MISF framework as useful, feasible, practical and valid. However, these stakeholders had less certainty over whether schools would actually use MISF. It seems that if the framework is going to be useful, further research is needed to understand how to implement it into schools, i.e. how to implement an implementation framework. There was some indication from the participant feedback that having an implementation lead and someone to teach and take schools through the framework might be one possible way forward. Perhaps the next logical step in regards to implementation framework research is to understand how to raise school leaders' awareness that implementation frameworks exist and that implementation guidance is available, and then test to see why they will or will not use a framework like MISF. It is currently unknown how many school leaders know about implementation science.

Future naturalistic studies could raise school leaders awareness of the MISF framework and explore schools uptake of it if offered, and what difference it makes to those schools who do not use it. Isolating the effects of the framework, however, would be challenging as schools are all very different, e.g. those not using the framework may already have great structures in place and lots of experience in implementing EBPs.

Studies which have directly tested the use of implementation frameworks in practice settings and their impact on program outcomes are rare. A systematic review by Albers, Mildon, Lyon, and Shlonsky (2017) looked at the use of implementation frameworks in child, youth and family services and found that there is very little guidance on how to use these frameworks. The many generic implementation frameworks which exist are used by researchers to study implementation in practice settings (Nilson, 2015), i.e. to determine the determinants of implementation or to evaluate implementation success, but research into their usefulness to stakeholders who are actually trying to implement EBPs is unknown and under-researched. For example, researchers recently conducted systematic reviews of the CFIR and TDF to determine how and where researchers have been using these implementation frameworks in practice and their justification for this (Birken et al., 2017; Kirk et al., 2016). However, implementation research has not, up until now, gone about developing implementation guidance for stakeholders in real-world contexts, and testing the guidance for efficacy and usefulness. There are signs of change however.

Guidance for stakeholders in real-world contexts was recently produced by a charity. The Education Endowment Foundation, an independent charity dedicated to breaking the link between family income and educational achievement, recently released an evidence-based implementation guide for schools wishing to implement EBPs (Sharples et al., 2018). The guide draws from the implementation research literature but as yet has not been tested for efficacy, and feedback from stakeholders has not been obtained. It is also unclear whether schools are using it. CASEL has not updated its implementation rubric from 2006 but has released new guidance which focuses on helping schools select the most appropriate SEL programs and how to implement them (https://casel.org/guide/).

The determinant implementation frameworks which exist seem to be useful and valid (Birken et al., 2017; Damschroder & Lowery, 2013; Kirk et al., 2016; Moullin, Sabater-Hernandez, Fernandez-Llimos, & Benrimoj, 2015). There is now an opportunity for researchers to start evaluating these implementation frameworks as tools for creating real-world stakeholder specific implementation guidance rather than just as tools to

understand or evaluate implementation success in general. Stakeholders are likely to appreciate EBP specific frameworks and guidance on how to implement complex EBPs. This is the first study to do this. It is the first study to combine qualitative data and the experiences of schoolteachers in real-world practice settings, along with implementation science literature and frameworks to create implementation guidance for school leaders implementing a popular and complex EBP. It is also the first study to examine the experiences and opinions of members of a SG. Incorporating the views of stakeholders has arguably lead to more honed and pragmatic, practical implementation guidance. The MISF framework is short, easy to read and informed by school leaders. Further research is needed to test the efficacy of MISF and understand how to ensure schools actually want to use such frameworks. Other available frameworks available are long, often highly academic and could be, arguably harder to use. It may be that implementation leads/coordinators may be needed to help schools use such frameworks.

We may be able to learn from the domain of healthcare where the TDF has been used to develop a theory-informed implementation intervention to improve the triage, treatment and transfer of stroke patients in emergency departments (Craig et al., 2017). Once these behaviour change interventions have been developed, hospital staff need to be trained in them so they can modify their behaviours to improve patient safety. There is no standardised way to do this. The improvement Academy (http://www.improvementacademy.org), a research group which works with frontline services, patients and the public to deliver real and lasting change to patient safety, has, since 2013, delivered eight achieving behaviour change (ABC) for patient safety workshops at regional and national levels to support teams (900 staff members in total) in adopting evidence-based behaviour change interventions in order to improve patient safety. It may be possible to take a similar approach in schools and deliver implementation workshops to school staff in schools which are intending to implement evidence-based mental health programs for their staff and students.

Chapter 7 **- Final Discussion and Conclusion**

The primary aim of this doctoral work was to understand and examine existing MT implementation experiences in order to identify the determinants of, and potential ways to promote, the early implementation success of MT in schools. Four studies were completed, and this chapter reviews their aims and key findings. The thesis studies are evaluated, when appropriate, using Daly's hierarchy of evidence-for-practice in qualitative research (Daly et al., 2007). Then the National Institutes of Health (NIH) model is used to evaluate the contribution these studies make to mindfulness research (Onken et al., 2014). The chapter will finish by making recommendations for how research into the implementation of mindfulness in schools can move forward.

There are now a number of evaluation tools researchers can use when assessing the quality of qualitative research (Daly et al., 2007; Kornbluh, 2015; Leonidaki, 2015; Santiago-Delefosse, Gavin, Bruchez, Roux, & Stephen, 2016; Tracy, 2010). Daly's hierarchy of evidence-for-practice in different types of qualitative research (Daly et al., 2007) lists four levels of research; Level I: Generalizable Studies; Level II: Conceptual Studies; Level III: Descriptive Studies; Level IV: Single Case Study). Implementation research has the ultimate aim of not only understanding the determinants of implementation but in improving implementation in practice. I was therefore interested to know how far each thesis study's findings could be translated into practice as indicated by the generalisability of the findings. Daly's hierarchy of evidence-for-practice provides assessment criteria for this purpose (see Figure 19 for the hierarchy). The hierarchy predicts that the least likely studies to produce good evidence for practice are single case studies. Descriptive studies appear next in the hierarchy and are thought to provide helpful lists of quotations but not offer a detailed analysis. Descriptive studies are followed by conceptual studies that analyse all data according to conceptual themes but tend to be limited by a lack of diversity in their participant sample. Generalisable studies present the most generalisable qualitative study because they use conceptual frameworks to derive an appropriately diversified sample.
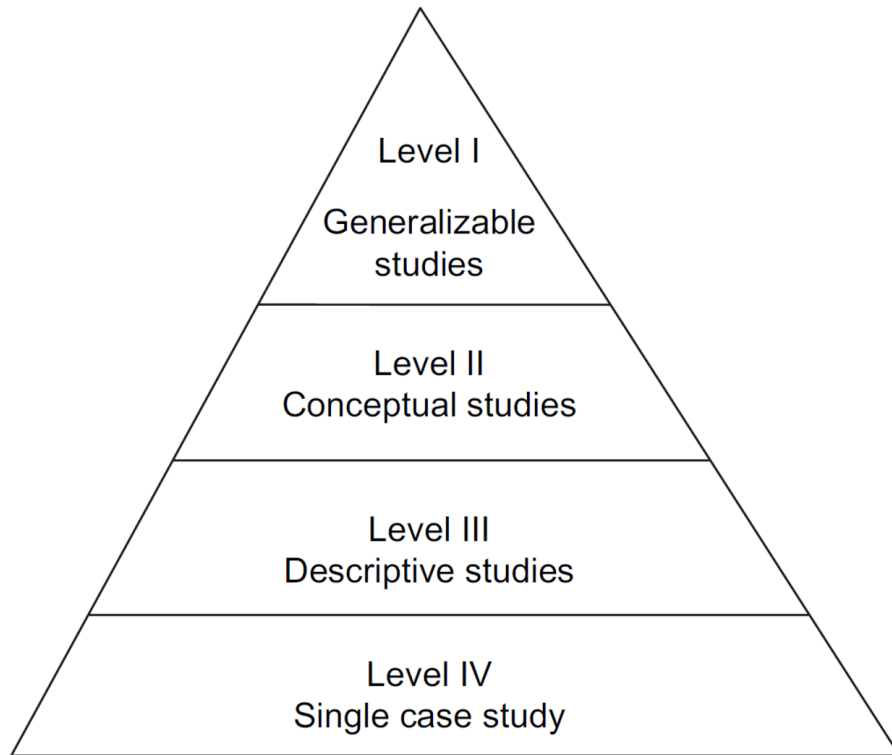
Figure 19 - A hierarchy of evidence for practice in qualitative research study types and levels. Taken from (Daly et al., 2007)

The NIH Stage Model was also used, when appropriate, to assess the thesis studies and is a model of behavioural intervention development composed of six stages. The model proposes that, in order for intervention research to develop and move forward, certain stages must be reached and passed through. The stages are basic science (stage 0); intervention generation, refinement, modification, adaptation and pilot testing (stage I); traditional efficacy testing (stage II); efficacy testing with real-world providers (stage III), effectiveness research (Stage IV) and dissemination and implementation research (Stage V) (Onken et al., 2014).

7.1 Thesis studies evaluation

The strengths and weaknesses of studies 1,2,3 and 4 were discussed at the end of each corresponding chapter in the thesis (Chapters 3 to 6). However, the contribution of each study to the field, and their overall generalisability will be discussed and evaluated here.

7.2   Study 1

Study 1 aimed to explore whether knowledge about implementation could be brokered to a SG responsible for a wide scale, public mental health, school-based intervention, and what impact this might have on the SG's implementation decisions. The result was that the SG made 10 evidenced-based decisions as a result of implementation knowledge being shared with them. The SG incorporated the majority of this knowledge into their phase 3 bid thus ensuring the MTCHP project encompassed practices and principles from implementation science going forward.

On a small number of occasions, the SG did not make decisions aligned with the implementation knowledge shared with them. This may have been to do with the personal beliefs of the SG, their limited resources, or their inability to persuade HeadStart that incorporating implementation science into the project going forward was worthwhile. Hostility and scepticism were rare towards the KB but arose when the KB suggested that offering other mental health promoting programs alongside MT might hinder its implementation success. The KB was also left outside of phase 3 bid decisions which took place outside of the group.

Daly et al. (2007) hierarchy of evidence is less applicable to Study 1 than Study 2 and 3 because it does not contain any interview data. However, I still attempted to apply it. Study 1 is based on a review of the implementation science literature. It is based in particular, on the theory that stakeholders involved in public health programs are likely to make more evidence-based decisions in regards to implementation if they receive knowledge from a broker. The selected sample of participants is therefore relevant to the research question and appropriate to provide a "rich" set of data. The study shared knowledge with one SG that existed within a larger system of stakeholders, and the diversity of the sample would have ideally been greater, e.g. could have included HeadStart commissioners. According to Daley et al. 's (2007) hierarchy, Study 1 lands at level II of the hierarchy and is a conceptual study. In order to be generalisable to practice, the study would need to be repeated with more SGs and more stakeholders. Nonetheless, it provides valuable insight into a possible approach to improving implementation.

Study 2 falls into category five of the NIH Stage Model because it explored the implementation of implementation knowledge into practice (instead of simply generating knowledge about implementation, i.e. determinants) and also explored the

implementation of mindfulness in schools (as opposed to just understanding whether mindfulness works or not). Most mindfulness research (as outlined in Chapter 2) currently corresponds to stages two and three. Study 2, therefore, adds to the development of both implementation science research and mindfulness-based research by producing evidence associated with stage V of the NIH model.

Study 1 is novel because for the first time a public health team has been informed about implementation using a KB approach. Study 1 tells us that teams responsible for rolling out public health programs can be successfully informed by implementation science, and make greater evidence-based decisions as a result. Traditionally, KB studies are focused on sharing knowledge in regards to EBPs but not in regards to implementation. Participatory action research is far more established in the literature and has been previously used to improve implementation outcomes in healthcare (de-la-Cueva-Ariza et al., 2018; Tetui et al., 2017). However, it takes a different approach in that researchers work with practitioners to actually carry out research, as opposed to sharing knowledge with stakeholders involved in implementing an EBP or policy.

7.3   Study 2

Study 2 sought to understand what were the perceived opportunities and barriers for the SG to act as an implementation team (supported by a KB). Specifically, it examined the experiences and attitudes the MTCHP SG members developed around implementation during the KB process, how far the members of the SG felt they had, and could influence, the implementation of MT across Cumbria and compared the SG's behaviours to suggested competencies and activities of implementation teams (Fixsen et al, 2005, 2010, 2012)

The SG held two out of three of the core competencies for implementation teams and carried out three of the five core implementation team activities proposed by Fixsen et al. (2012). The SG was able to increase school buy-in via its engagement strategy, provide schools with the resources they needed to install MT, and encourage schools to make the necessary structural instrumental changes to support the programs implementation, i.e. embed MT within their curriculums. The SG continually engaged in problem-solving and made sure it was continually engaging with schools.

The SG was less able to impact the readiness of schools which depended to a large degree on school leadership and resources. The SG did not collect data on fidelity and did not know how far schools were implementing MT according to its design. The SG's ability to

ensure mindfulness was sustained was hindered by a lack of funding, but they did offer booster sessions and additional mindfulness courses for school staff.

As per Daly et al. (2007) hierarchy of evidence, Study 2 falls within level II of the hierarchy and is a conceptual study. The study is structured around the theoretical concept that implementation teams play a vital role in the successful implementation of evidence-based practices and this drove the sample selection. The focus was on developing an overall account of the views of the SG then drawing appropriate conclusions. However, Study 2 only involved one SG responsible for one mindfulness program. The study was therefore unable to recruit a broad range of SGs from different demographic and sociocultural locations in the UK. The strength of the study was the composition of the SG it studied. There was a diversity of professionals from medical, public health and school-based settings. This diversity facilitated an opportunity for data collection which involved various perspectives in relation to the research question, which in turn increases the study's capacity to inform practice (Daly et al., 2007). A greater number of people in the SG may have added diversity to the opinions in the group. However, this may have also decreased the opportunity for all SG members to contribute. We cannot be certain that the findings from Study 2 are transferable to other school contexts or public health programs however previous studies have shown that similar challenges to implementation exist in other school-based programs (Durlak & DuPre, 2008; Fixsen, Blase, Metz, & Van Dyke, 2013). Although school contexts tend to differ, future SGs responsible for implementing public health interventions are likely to come across similar problems.

As per The NIH Stage Model, Study 2 is a stage V study because like study 1 its focus is on understanding the implementation of MT and again makes a valuable contribution to mindfulness research as a whole. By adding to the limited research in this area, of which there exists only a handful of studies (Dariotis et al., 2017; Mendelson et al., 2013; Powell et al., 2014; Sibinga et al., 2016; Wilde et al., 2018), Study 2 plays an important role in allowing mindfulness research to move forward and progress.

Study 2 is also novel because for the first time a public health team has been informed about implementation using a KB approach and has been interviewed regarding its use of implementing MT.

7.4 Study 3

Study 3 aimed to identify the determinants of early implementation success of a M-WSA and understand if, how and why the quality and extent of early implementation of a M-WSA might vary. It also aimed to determine how usable and useful the CFIR might be in capturing the determinants of a mental health intervention in a school setting.

The CFIR captured the data well, with 74% of CFIR constructs identifiable in the dataset. Of the 38 CFIR constructs, 11 appeared to distinguish between high and low implementation schools. The most essential construct was school leadership. It strongly distinguished between high and low implementation schools and appeared inter-related with many other distinguishing constructs. Other strongly distinguishing constructs included relative priority, networks and communications, formally appointed implementation leaders, knowledge and beliefs about the intervention, and executing. Five other constructs exhibited a weak distinguishing effect: Structural characteristics, Complexity, Compatibility, Learning climate, and Planning. Targeting leadership in schools might be a good implementation strategy.

Study 3 offers insights from schools themselves on what determines successful early implementation of MT. Strengths of the study include the diversity of the sample, with schools from a variety of demographic, characteristics including size, geographical location and percentage of students on free school meals. In addition, the school's accounts of implementing mindfulness provide rich and diverse descriptions of their implementation experiences. When examined within the CFIR framework and the existing implementation literature, the findings can make a useful contribution towards informing the implementation of MT in schools using a whole school approach (Daly et al., 2007). The study may, therefore, be generalisable to other schools implementing mindfulness, but a larger sample size and the opportunity to observe outcomes of other mental health programs would have made the results more generalisable. We therefore rated this study to be a level 2 conceptual study on Daly's hierarchy.

Study 3 is novel because it shows that a consolidated implementation framework, originally designed for use in healthcare settings, can be successfully applied to school settings to understand the key determinants of implementation and which determinants distinguish between highly implementation active schools and less implementation active schools. The CFIR is a highly detailed implementation framework and applying it to the

personal accounts of school staff involved are implementing mindfulness has produced the most detailed study of this kind so far. As per The NIH Stage Model, Study 3 is a stage V study because like Study 1 and 2 its focus is on understanding the implementation of MT.

7.5 Study 4

Study four aimed to create an implementation framework for secondary schools implementing a whole school MT program. To obtain potential feedback on the usefulness of the framework from stakeholders involved in MT implementation in schools. All stakeholders agreed that the framework would be useful to schools and that they would recommend the framework. Stakeholders were less certain if schools would use the framework. Some participants perceived that MT would need to be a priority in order for schools to use the framework and too much competition from other school demands might hinder its use. Stakeholders felt schools might need help understanding and using the framework. Future research could aim to understand how to implement, implementation frameworks.

The framework is currently not generalisable because it has not been tested amongst schools yet. Study four opens the door for future stage V studies (as per The NIH Stage Model) because studies testing the framework in schools would be progressing our understanding of implementing mindfulness forward.

Providing knowledge to implementers has been a significant contribution of this doctoral work. As McKeering and Hwang (2018) state in their systematic review, the implementation of MBIs requires knowledge and skills to deal with unexpected implementation challenges, and this knowledge should ideally be available to implementers before the implementation process starts. By giving school teachers, school leaders and a public health SG a voice, and by combining that with vast amounts of implementation science research, this doctoral work has, for the first time, produced implementation guidance for secondary school headteachers attempting to implement mindfulness. Feedback from key stakeholders has been obtained in regards to the framework (Study 4).

Conclusion

Taken together, the studies in this doctoral work make an important contribution to implementation science research around mindfulness and implementation science

research in general. Little work has explored the implementation of MT in schools despite the fact that it is now recognised as an area which future research should focus on in order to progress the field. The findings suggest that the implementation of MT in schools is a non-linear, ongoing, complicated and at times difficult process with a wide range of factors influencing implementation activity across schools. As well as understanding what drives implementation, it is also important to actively drive it forward and Study 1, with the use of KB, presents a possible way to do this. This thesis has identified a need for further research on SGs and has identified that to a large degree SGs can act as implementation teams which has implications for future public health initiatives. Another contribution is the finding of the need for caution around implementation when rolling out public health programs. It seems that many stakeholders are important in the implementation of mindfulness in schools and brokering implementation knowledge to a countywide mental health program may be most effective when knowledge is brokered to stakeholders across all levels of the hierarchy and not just at the level of the SG. One way to increase the use of implementation guidance may be through the use of knowledge brokers, or other individuals who fulfil the function of KB, with implementation knowledge. Commissioners and governments will need to be patient while we continue to understand the best ways of implementing MT into schools and be open to the idea of funding direct implementation support and guidance to schools throughout the implementation process and not just at the start.

7.6 Recommendations

The existence of MBIs does not automatically equate to their actual use and therefore a benefit to the mental health of school children and adolescents. In a similar fashion, the existence of implementation guidance does not automatically equate to greater implementation as there is no guarantee it will be used. The findings in this doctoral work do not indicate ways we can ensure implementation guidance is used and further research is needed to understand this. Qualitative research which takes into account school contexts and the experiences and views of school leaders is likely to be useful in this endeavour. As Williams and Beidas (2018) suggest in their recent review of implementation science in child psychology and psychiatry, in order to progress the implementation science field, implementation researchers need to progress from observational studies of implementation barriers and facilitators to not only developing

implementation guidance for stakeholders in real-world contexts but also test this implementation guidance and implementation strategies for effectiveness.

One way to increase the use of implementation guidance may be through the use of knowledge brokers with implementation knowledge. Public health teams involved in education, commissioners, and school staff, as well as mindfulness trainers, could be taught how to think more like an implementation team when driving forward the implementation of MT. A way to do this might be via improvement academies for schools (covered at the end of Chapter 6). The Improvement Academy recently produced a patient safety toolkit (http://www.improvementacademy.org/tools-and-resources/abc-for-patient-safety-toolkit.html) which hospitals can use to support the implementation of evidence-based patient safety guidelines. The Improvement Academy has since taken the lead in disseminating this information across the nation and have done this by delivering one-day workshops and providing light, ongoing support to NHS staff and managers. This approach could be taken by distributing implementation guidance to schools. Stakeholders involved in implementing MT, e.g. school teachers, headteachers, mindfulness trainers etc. could be trained extensively in the MISF framework and then given ongoing support to use this framework and distribute it across other schools in the region. This is very similar to Saldana and Chamberlain (2012) idea of developing Community Development Teams (CDT) which they developed to assist a number of counties in the United States in developing peer networks. These peer networks focus on problem-solving and resource sharing in order to enhance the possibility of successful implementation. The CDT model depends to a great degree on program developers, technical support staff, key stakeholders and service providers interacting and providing each other with essential information in regards to how to bring about successful implementation. Brown et al. (2014) compared community development teams to 'independent county implementation strategies' across 51 counties in the USA assigned with implementing a foster care program. There was no difference between conditions in terms of overall implementation (measured by implementation stages attained) however CDT counties served twice as many youths and were more thorough in completing implementation strategies.

7.7   Final thoughts

This thesis has led to a greater understanding of what might determine the early implementation success of MT in schools. It also found promising evidence of a way to

promote the implementation of MT and provides implementation guidance for school leaders, thus ensuring that the research findings, and previously unavailable implementation guidance, are accessible to those who need it most. There are some clear determinants of early implementation success among secondary schools implementing MT. It's been shown that SGs can act like implementation teams and successfully adopt implementation knowledge such as this. The effect of this and outcomes are still unknown in future research is needed to test and implement implementation guidance and see its effect on outcomes

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Appendix A   - Study 1 supplementary material

A.1   A summary of each KB action and the research it stemmed from

KB Action	Research action stemmed from
04/09/15: Shared foundations of implementation science with SG as well as the idea of 'helping it happen, letting it happen, and 'making it happen.'	The KB explained to the SG their need to focus on evidence-based implementation in order to obtain expected outcomes from EBPs. Combining EBPs with evidence-based implementation strategies can lead to better outcomes than providing EBPs alone. The concepts of diffusion, dissemination, and implementation were explained. These have been shown to align with three categories of research in Greenhalgh, Roberts, Macfarlane et al. (2004) systematic review of the diffusion of innovations in service organisations and three categories of scaling literature as summarised by Fixsen et al. (2005). The group was told that *'making it happen'* was when people (known as purveyors) or groups of people (known as implementation teams) supported and/or took responsibility for ensuring that the evidence, practice or program was taken up and applied to good effect. This was done by actively supporting practitioners, supervisors and managers in making use of the program on a day-to-day basis. Evidence was shared with them that 'making it happen' led to better program outcomes than *'letting it happen'* or the current most common approach of *'helping it happen'*.
18/09/15: Further explained the importance of implementation with examples, i.e. MT in healthcare (Crane 2013) and the vast implementation difficulties	Highlighted that MT is a complex intervention and not easy to implement. Used MT in healthcare as an example. In 2013 over a decade after NICE first recommended MBCT, only a small number of mental health services in the UK had systematically

that occurred when the world health organisation attempted to implement the post-surgical safety checklist into hospitals across the world	implemented the guidance. Even simpler EBPs like a surgical safety checklist can be notoriously tricky to implement and upscale.
02/10/15: Gave examples of whole school programs which had implementation difficulties provided to the group. Examples of better outcomes following implementation strategies were given. Gave a presentation on implementation and offered phone calls to SG members	Answered any questions the group had about implementation and conducted a presentation. This included evidence of previous whole school programs not achieving outcomes due to low levels of implementation; "Without substantially more support, it is not likely most schools will be able to faithfully adopt these models of school improvement" (Vernez, 2006). Reiterated the definition of implementation and that it was a process, and that when EBPs are combined with implementation strategies, the result can be far greater outcomes. Covered the stages of implementation, the drivers of implementation, asked the question who should so it, what does it look like? Then looked in detail at how we might go about ensuring the implementation of MT in Cumbria, i.e. having a plan, using an implementation framework, engaging with schools.
12/11/15: Taught group in detail about implementation success rates (what might success look like?), how to measure implementation outcomes, e.g. fidelity, reach, dosage, quality, the importance of sustainable interventions and other critical factors of successful implementation	Explained the various ways one can measure implementation, e.g. fidelity, reach, acceptability, dosage. Talked about what the group's implementation outcomes might be, e.g. that mindfulness continues to occur in the schools each year to at least one year group. Spoke about change fatigue and the importance of sustaining interventions after they are implemented. Talked about how engaging with school staff and stakeholders and addressing adaptive challenges by helping them to implement a program may increase the chance of implementation success. However, achieving full implementation and improving student outcomes also requires 'getting involved in system change' (Blase et al., 2015)p4 and "changing the actions and behaviour patterns of teachers, administrators, professional development providers, and policymakers" (Blase et al., 2015)p4. (O'Donnell, 2008; Proctor et al., 2011)

08/12/15: Shared Gould 2015, Zoogman 2014 and Zenner 2014 – systematic reviews on MT in schools. The authors refer specifically to the implementation of MT highlighting it as necessary. Also shared Faizel 2014	Gould (2015) emphasises how few mindfulness related studies take fidelity measures and point to a need for future research to "identify essential elements of these (MT) programs that should be faithfully implemented and how we might develop rigorous measures to capture them accurately". "Lack of uniformity in implementation (Zoogman, 2014). Guidance material for implementation of MT programs is lacking; implementation of MT can be difficult, information vital to preventing "unnecessary failure in implementation" (Zenner, 2014). Faizel (2014) talks about the need for school mental health programs to adopt implementation strategies.
07/01/16: Presented preliminary implementation framework based on CASEL	The collaborative for academic, social and emotional learning (CASEL) produced an "implementation guide and toolkit" designed to help schools implement social and emotional learning interventions (Devaney et al., 2006). The 158-page guide and 272-page toolkit was derived from the research literature on school reform and organizational change and summarised the state of the science of implementation and sustainability of interventions. The SG were shown just one part of the guide, an implementation rubric which included a series of steps they could take to implement MT into schools (Appendix 3). The rubric suggested that two critical sets of activities, combined with essential elements of effective leadership were vital to effective school program implementation and sustainability. The SG were therefore given a series of ten steps that make up a full implementation cycle as well as six sustainability factors that are essential to high quality, sustainable implementation. The group thought of ways these steps could be applied to MT across Cumbria and how they approach schools. The SG were not shown the rest of the guide as it was not particularly relevant to mindfulness, i.e. It included sections on how SEL works, case studies from schools that

	had used SEL.
04/02/16: Talked in detail about the 'readiness' of schools and readiness of individuals	Change management experts have emphasised the importance of establishing organisational readiness for change and recommended various strategies for creating it (Weiner, 2009). Scaccia et al. (2015) posit implementation readiness as a combination of three things: how motivated an organisation is to adopt an intervention, the organisations general capacity, and its innovation-specific capacity. Teachers 'readiness for change' also characterises the phase they are in, as he or she progresses toward skilled, enthusiastic, and sustained use of the intervention (Grol, Bosch, Hulscher, Eccles, & Wensing, 2007; Prochaska & Velicer, 1997).
04/02/16: Suggested the group avoid 1 to 1 MT in schools as zero evidence for it and that they need an evaluation process	Implementation is more effective if the programs being implemented are evidenced based (Fixsen et al., 2005).
20/02/16: Sent info to HeadStart about why more than one program was a bad idea on request of SG	Suggested that implementing more than one program at a time in a school is likely to hinder implementation efforts overall and hence outcomes. HeadStart was suggesting Cumbria offer multiple programs to schools as well as MT at the same time and the group suggested the KB write to them to try and change their approach.
14/04/16: Shared with the group research findings and the CFIR	The KB shared with the group the consolidated framework for implementation research (CFIR) and thought about ways the SG could use it to steer their implementation strategy. The CFIR provides definitions of five domains (intervention characteristics, outer setting, inner setting, characteristics of individuals, process) containing a total of 26 key constructs (e.g. networks and communications, culture) some with sub-constructs (e.g. implementation climate: compatibility, relative priority) leading to a total of 38 separate constructs and sub-constructs in total which relate in some way to effective implementation within an organisation. The KB had also interviewed school staff about implementation and discovered some barriers and facilitators and shared these findings with the group.

A.2   The 'guide for headteachers' created and distributed by MTCHP

Implementing a whole school approach to emotional resilience - a guide for Headteachers

The Cumbria HeadStart Collaborative is working with schools county-wide to improve the emotional resilience and mental wellbeing (ER & MW) of children and young people aged 10-16. Evidence suggests that whole school approaches to emotional resilience have the potential to improve pupils' academic achievement as well as their behaviour and mental health; and to bring about better staff wellbeing.

Research also tells us that these positive outcomes depend on good implementation. Cumbria HeadStart will provide you with resources and ongoing support to achieve these outcomes. You and your school community will need to '**make it happen'**, not just 'let it happen'. Change will not happen overnight. HeadStart is funded by the Big Lottery for 5 years: our expectation is that over this time period, your school will embed HeadStart in your culture and organisational systems to achieve longer-term, sustainable, change.

The HeadStart approach involves you and your whole school community committing to work with our team and the wider HeadStart Collaborative. This starts with a **baseline assessment** of your current approach against best practice in the following domains: LEAD, LEARN, PARTNER, SUPPORT, MEASURE AND CO-PRODUCE.

This will inform an **action plan**, itself central to a **memorandum of agreement** between your school and HeadStart, agreed through a validation process, the terms of which will include:

- Part funding for a HeadStart school lead for 2 years (secondary schools)/for seed monies for project(s) to improve emotional resilience (primary schools)
- access to HeadStart programs, such as Mates in Mind, Mindfulness and Advocacy, Online Emotional Support
- support to develop resources, such as pathways to access more help
- support to continuously learn and improve, with others in the HeadStart Collaborative.

In return this means a significant commitment from you and your school community. The questions that follow will help you decide whether you are ready to become a HeadStart school, and what it will take to implement and make sustainable your emotional resilience change program. They are based on guidance designed to help schools implement social and emotional learning interventions (Devaney et al., 2006) and adapted for Cumbria HeadStart by PhD student Kristian Hudson (2016).

1. Readiness to become a HeadStart school:

Do you have a clear understanding of the value of a whole school approach to emotional resilience as a framework for school improvement?

Are you and your staff committed to the effort required to implement and sustain a HeadStart whole school improvement strategy and action plan to enhance ER and MW successfully? (see **HeadStart whole school framework**, p3 below).

Can you bring together a team to plan and implement a whole school approach in your school, representing senior team, staff, governors, families/carers and pupils?

2. Making plans with your implementation team:

What's your vision as a resilient school? What will it look like? How will things be different? (e.g. calmer, happier, pupils and staff, getting on better with each other?)

How will emotional resilience fit within wider school strategies, priorities and plans? How will it meet identified need? What might get in the way?

What's your plan for achieving your vision? Over what time period? How will you know you've got there? How will you ensure sustainability?

3. Implementing a whole school strategy for ER in your school:

How will you implement and make sustainable your action plan?

How will you embed this plan in your key strategic documents? (e.g. SDP, OFSTED)

What resource will you invest in HeadStart, including named senior lead, and support for the school lead post after the initial 2 year period?

How will you integrate emotional resilience in your PHSE and subject-based curriculum?

How will you make available quiet space for advocacy drop-in sessions, mindfulness practice etc?

How will you include emotional resilience in CPD and support your staff to take part in HeadStart programs?

How will you partner with primary schools and parents to ensure a smooth transition?

How will you work with outside agencies and 'community assets' to build resilience?

How will you measure change across the school system and for individual pupils?

How will you involve your whole school community, including your senior leadership and students, in bringing about change?

4. Integrating your whole school strategy and ensuring sustainability

How will you integrate emotional resilience building into all school activities and the wider school environment and ethos over the longer term?

How will you review implementation activities and continuously improve delivery (e.g. robust measuring of success; QA integrated into SDP; learning through HeadStart)?

How will you provide ongoing professional development? With what resources?

How will you develop the infrastructure to ensure emotional resilience remains a visible priority in the school?

How will you nurture partnerships with families and communities that effectively support and integrate student's social and emotional and academic development?

How will communicate with the entire school community about emotional resilience?

How will you share information and celebrate successes with staff, families, pupils, and community members, in order to build support and maintain enthusiasm?

A.3   The Preliminary Implementation Framework (based on CASEL)

The collaborative for academic, social and emotional learning (CASEL) produced an "implementation guide and toolkit" designed to help schools implement social and emotional learning interventions (Devaney et al., 2006). They found that two key sets of activities (10 implementation steps and 6 sustainability factors) combined with essential elements of effective leadership were vital to effective SEL implementation and sustainability. The first set is a series of ten steps that make up a full SEL implementation cycle. The second set is 6 sustainability factors that are essential to high quality, sustainable implementation. These steps may be applicable to mindfulness interventions and I've tried incorporating mindfulness into the steps below.

Readiness Phase:

Step 1: The headteacher commits to a school-wide mindfulness initiative. The headteacher has reflected on, understands, and accepts the value of MT for both teachers and pupils as a framework for school improvement and has committed to the effort – including possible systematic sequenced classroom-based mindfulness instruction by teachers or a third party – required to implement and sustain school-wide mindfulness successfully.

Step 2: The headteacher engages key stakeholders and creates a mindfulness steering committee OR implementation team. He has shared information about mindfulness with key school and community stakeholder groups (e.g. teachers, families, student support personnel, support staff, and community members, students) and has created an implementation team consisting of representatives of some or all of those groups, which is authorized to make decisions. This is to ensure that there is a group of people **making it happen** rather than just giving a school an intervention and letting or helping it happen.

Planning Phase:

Step 3: Develop and articulate a shared vision. The steering committee/implementation team, including the headteacher, creates a vision of a school that has incorporated mindfulness fully across multiple domains and what that might look like, e.g. student social and emotional development, better well-being, less stress, calmer teachers, better teacher-student relationships etc.

Step 4: Conduct a schoolwide needs and resources assessment. A needs and resources assessment of current mindfulness programs is conducted: the policy context both locally and nationally, student and staff needs, school climate, readiness to implement mindfulness as a schoolwide priority, and possible barriers to implementation. The needs assessment creates an understanding of strengths and weaknesses.

Step 5: Develop an action plan for Mindfulness training implementation. The steering committee/implementation team will develop an action plan based on the results of the needs and resources assessment that includes goals, benchmarks, and a timeline for mindfulness training implementation as well as a plan for addressing the six sustainability factors (see below).

Step 6: Review and Select evidence-based programs / strategies. The steering group/implementation team has reviewed and selected evidence-based mindfulness programs/strategies that meet identified mindfulness goals.

Implementation Phase

Step 7: Conduct initial professional development activities. A trainer from the evidence-based program then provides initial professional development.

Step 8: Launch mindfulness instruction in classrooms. Teachers have begun to reflect on the instructional and implementation process.

Step 9: Expand classroom-based mindfulness training and integrate mindfulness schoolwide. Mindfulness practices should be integrated into other school activities. Integration and expansion create a consistent environment of support for students' social and emotional development.

Step 10: Revisit implementation activities and adjust for continuous improvement. The steering committee/implementation team revisits all mindfulness planning and implementation activities at regular intervals to determine if changes or adaptations are needed to improve programming.

Sustainability Factors:

Factor 1: Provide ongoing professional development. The headteacher commits resources for ongoing professional development and provides opportunities for reflection and feedback for all school staff (e.g. teachers, support staff etc.). Ongoing professional development and reflection keep mindfulness instruction and activities fresh and allow for continuous improvement.

Factor 2: Evaluate practices and outcomes for continuous improvement. The steering committee/implementation team continually monitors the school's mindfulness practices and outcomes, making appropriate adaptations and improvements. Regular and ongoing evaluation of practices and outcomes helps to ensure that the school is reaching its goals and implementing programming as intended.

Factor 3: Develop infrastructure to support Mindfulness programming. The headteacher creates an infrastructure, including policies, funding, time, and personal, to support mindfulness programming. Establishing an infrastructure for mindfulness ensures that it remains a visible priority in the school and is, therefore, more likely to be sustained.

Factor 4: Integrate Mindfulness practices schoolwide. The steering committee/implementation team works with staff to review all school activities (e.g. core academic classes, student support services) to maximise the integration of mindfulness into the school. Integration of mindfulness into all school activities provides numerous opportunities for students to practice and reinforce the mindfulness skills they are learning in the classroom.

Factor 5: Nurture partnerships with families and communities. The steering committee/implementation team establishes school-family-community partnerships that effectively support and integrate student's social and emotional and academic development. Family and community partnerships sustain mindfulness training and provide additional support for students to reinforce mindfulness skills they are learning in school.

Factor 6: Communicate with the entire school community about Mindfulness Training. The steering committee/implementation team regularly shares information about the school's mindfulness training and celebrates successes with staff, families, students, and community members. Ongoing communication through a variety of means helps to build support and maintain enthusiasm.

A.4   HeadStart Cumbria's whole school framework

HEADSTART CUMBRIA'S WHOLE SCHOOL FRAMEWORK AND WHAT IT MEANS TO BE A HEADSTART SCHOOL

Cumbria's HeadStart Collaborative has co-designed this framework with schools engaged in HeadStart phase 2, to support your school to take a consistent and holistic whole school approach to promote emotional resilience (ER) and mental wellbeing (MW), to prevent mental health problems, and to intervene early to change the trajectories of pupils at risk and/or displaying early symptoms.

Evidence tells us that happy learners are successful learners. Whole school approaches that improve ER have been shown to deliver not only improved mental health outcomes, but academic and other benefits. These include improved motivation, sense of commitment and connectedness with learning and with school; improved school behaviour; reductions in risky behaviour; and improved staff well-being, teaching

ability and performance. Becoming a HeadStart school will also help you meet the requirements of the OFSTED framework.

In partnership with the HeadStart Collaborative, this framework will help your school develop an ethos and environment that support learning and encourage participation of all within the whole school community, and bring about and embed cultural change. Your whole school community – pupils, families, staff, governors, and its wider support systems in the community – needs to be actively involved in assessing your current baseline and designing your HeadStart whole school improvement strategy and action plan to enhance ER and MW, with and alongside the HeadStart team.

The framework includes six domains: Lead, Learn, Partner, Support, Measure and Co-produce. These domains reflect the best available evidence and learning from HeadStart phase 2, which suggest that effective approaches to ER are multi-dimensional, and integrated across the whole school, include classroom level and individual level interventions, and reach into families and the wider community. Key sources used to develop this framework are listed in Appendix 1.

Many schools in Cumbria are already taking action that impacts positively on ER. HeadStart aims to build on what you are already doing well, and to help you work on areas that you identify for development. Please consider carefully what action you are now taking, and what you could do to improve your pupils' ER, across ALL HeadStart domains. Please also note the mandated areas in each domain: for example in the 'measure' domain HeadStart secondary schools are required to take part in the Common Measurement Framework in order to understand need and monitor impact. There is also a strong expectation that student voice and co-production will be central to your plans.

We encourage you to be realistic yet ambitious. Change can take time and you will need to prioritise. We will work with you so that your approach to improve ER becomes part of your existing 'school ecology' in a way that is feasible, low burden, can be easily integrated into your existing policies, practices and learning time and can therefore be sustained over time.

We know that some large-scale school improvement programs have failed to become sustainable in the past because they have not paid sufficient attention to implementation, with fidelity, of evidence-based interventions. For this reason, we have developed detailed descriptions of the interventions we are encouraging you to embed in your school, using the TIDieR framework[4]. These descriptions are based on piloting during HeadStart phase 2 and will enable us to evaluate fidelity and any

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[4] Template for intervention description and replication (TIDieR) checklist and guide, available http://www.equator-network.org/reporting-guidelines/tidier/

tailoring in your school.

This framework aligns best practice with the support you can expect to receive from HeadStart. Our HeadStart delivery team will help you design, and validate, this strategy and action plan and give you continuing support based on best practice in resilience approaches to improve MW, and established improvement methodologies and best practice. This offer will include advice, guidance, information, training, development of bespoke pathways into further support, and help to continuously improve the quality of your whole school approach. This ongoing 'test and learn' inquiry will involve collaboration with other schools, and with health and other providers, as we move together towards an integrated 'whole system' to support the mental health of your pupils.

Over an initial two year 'adoption' period, our Collaborative will provide funding towards a dedicated HeadStart school lead in secondary schools, and resources of up to £1,500 for primary schools, based on the HeadStart Memorandum of Agreement to implement your action plan. We will continue to support your school to embed your whole school approach throughout the duration of the HeadStart program. This will include coaching your HeadStart school lead in the use of improvement methods, taking part in school networks, where your school will be able to champion interventions that have worked best for you, and share best practice and factors that have contributed to successful implementation.

We will also commission interventions that will be made available in your school setting to improve ER. These include our Mindfulness in schools program; peer to peer learning program (Mates in Mind); digital badges; advocacy service; and online support (which will be offered to all secondary schools). Targeted support for families will include our primary school focused Family Resilience program and a self-harm helpline for parents.

A.5   Participant information sheet

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xx/xx/xx

Dear member of the mindfulness in schools Cumbria project steering group: (Participant

Re: invitation to take part in a study entitled:

Understanding implementation of a psychological intervention by exploring the perspective of a steering group: a case study from the Mindfulness in Schools (Cumbria) project **Researcher:** Kristian Hudson supervised by Dr Siobhan Hugh-Jones.

My name is Kristian and as you are aware I am undertaking a PhD in the School of Psychology at the University of Leeds. This letter invites you to take part in steering group monthly meetings which are recorded and which will be used for the study details below. Ethical considerations are also included below. Please take time to read these and to consider whether you would like to take part. If you are happy to be involved, then please let me know via email at ps14kgh@leeds.ac.uk. If all members of the steering group agreed to take part then recording will proceed at the next meeting. This study is being jointly funded by the University of Leeds and the Mindfulness in Schools Cumbria Project.

Kind regards

Kristian Hudson PhD student

What is this study about?

Identifying and understanding the implementation of mindfulness interventions in complex settings such as schools is likely to be pivotal to harnessing the potential of mindfulness to create good outcomes. A key part of this process is how an offer of mindfulness is created, packaged and then presented to schools. I'm interested in how this process might impact the implementation of mindfulness in schools. As you are someone who is part of this process, I am particularly interested in

your experiences and what you share and say in monthly project meetings. Understanding in detail what happens in these meetings will help to inform understanding of implementation successes, challenges and models of effective practice.

What is involved?

You are being asked to consent to the audio recording of future steering group monthly meetings until the fieldwork for this study ends in March 2017.

What are the ethical considerations?

This study has been approved by a University of Leeds Research Ethics Committee (Faculty of Medicine and Health; ref: 16-0089; dated 15/03/16) and the following practices are to promote safe participation of you in this study:

• The research team will not divulge your decision to participate or not participate in this study to another member of school staff, including the head teacher. It is completely up to you if you want to share this information.

• If you decide to take part, you will be asked to sign a consent form, a copy of which will be given to you to retain along with this information sheet.

• During the recorded steering group meetings, you can choose not to have what you say recorded and can end the recording at any time and without giving a reason.

• The audio recording and the meeting transcripts will be anonymised before being reported in research reports. All identifying details will be changed (e.g. names of people, places and details of very specific events). Transcripts will be assigned a unique identifier known only to the research team.

• Audio-recordings will be uploaded to the University and drive, a secure drive locked with a username and password. Transcripts will be stored similarly but separate to the audio- recordings.

• You can withdraw your data from any of the recorded meetings up to two weeks after the date of each meeting. You can do this by emailing me or my supervisor, and you do not have to give a reason for this. If you decide not to take part in future recorded meetings, your data from previous recorded meetings will still be include in the study unless you opt to withdraw it.

• There are some limits to confidentiality in research. If you disclose intention to harm yourself or others, I will be obliged to contact my supervisor to discuss what to do, which could mean informing relevant authorities. However, I can reassure you that my recording of these meetings does not actively seek such information.

• Interview data will not be shared directly with the projects or other project members. If requested, a broad summary of interview findings – without the potential to identify any participant – will be prepared for the project team. Only my supervisor and I will have access to the raw data. It will be deleted from our records after 10 years.

• If you have any complaints about my contacting you, or anything that happens during the recorded meetings, please contact my supervisor, Dr Siobhan Hugh-Jones, who will be happy to discuss what action to take

What do I do if I do / do not want to take part?

It is completely up to you to decide if you are happy to contribute to this research, and your decision in no way affects your participation in the Cumbria Project. Please feel able to ask me any questions you have about the research study before you decide – my e-mail address is at the top of this letter. If you do not want to take part, then you can decide just to ignore this letter, or you can let me know via email. If you do want to take part, then please contact me at ps14kgh@leeds.ac.uk

What will happen to the outcomes of the study?

It is hoped that the research outcomes will be distributed through presentations and publications, and to inform schools, psychologists and policy makers about the implementation of mindfulness in schools.

Thank you for taking the time to consider this study.

Kristian Hudson.

School of psychology

University of Leeds

ps14kgh@Leeds.ac.uk

Supervisor details: Siobhan Hugh Jones

School of psychology University of Leeds

T +44 (0)113 343 5744

E s.hugh-jones@leeds.ac.uk

A.6 Participant consent form

School of Psychology

University of Leeds

LS1 9JT, UK

Consent Form

Study title:
Understanding the
implementation of a
psychological
intervention by exploring
the perspective of a
steering group: a case
study from the
Mindfulness in Schools
(Cumbria) project.

UNIVERSITY OF LEEDS

Researcher: Kristian Hudson

E-mail: ps14kgh@leeds.ac.uk

Supervisors: Dr Siobhan Hugh-Jones

E-mail: s.hugh-jones@leeds.ac.uk

Address: School of Psychology, University of Leeds

The purpose of this form is to make sure that you are happy to take part in the research
and that you know what is involved. Please confirm each statement by putting your initials
in the associated box.

I have read the participant information sheet dated xx/xx/xx	
I have had the opportunity to ask questions and to discuss the study.	
I have received satisfactory answers to my questions.	
I grant permission for the SG meetings I attend and any interviews I take part in to be recorded on a voice recorder, subject to the ethical management of data as specified in the information sheet.	
I understand that I am free to choose not to answer any question during the recorded meetings.	
I understand that any data collected will be anonymised, only trackable by a unique identifier known by the research team only.	
I grant permission for my data to be included in the above named study, and in research outputs, with anonymity guaranteed.	
I understand that I can withdraw from this study at any point, and can withdraw my data up to two weeks after the date of each recorded meeting.	
I understand that if I do not take part in the second interview, then the data from	
I understand how the data will be stored, who can access it, and when it will be destroyed.	
I grant permission for extracts from the SG meetings and any interviews to be used in reports of the research on the understanding that my anonymity will be maintained.	
I agree to take part in this study.	

Participant signature Date
Name of participant:
Researcher signature Date
Name of researcher: Kristian Hudson

Appendix B – Study 2 Information letter and Consent form

B.1 Participant information sheet

School of Psychology

University of Leeds Leeds LS1 9JT, UK

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E   s.hugh-jones@leeds.ac.uk

xx/xx/xx

Dear steering group member

(Participant Information Letter)

Re: invitation to take part in a study entitled: Understanding implementation of a psychological intervention by exploring the perspective of steering group member: a case study from the Mindfulness in Schools (Cumbria) project. Researcher: Kristian Hudson supervised by Dr Siobhan Hugh-Jones.

My name is Kristian and I am undertaking a PhD in the School of Psychology at the University of Leeds. This letter invites you to take part in two interviews (six months apart) about your experience of being trained in mindfulness and thoughts about mindfulness in schools more generally.

The study is detailed below, along with ethical considerations. Please take time to read these and to consider whether you would like to take part. If you are happy to be involved, then please let me know via email at ps14kgh@leeds.ac.uk. I will then be in touch to arrange a convenient time to meet with you. This study is being jointly funded by the University of Leeds and the Mindfulness in Schools Cumbria Project.

Kind regards

Kristian Hudson PhD student

What is this study about?

Identifying and understanding the implementation of mindfulness interventions in complex settings such as a steering group is likely to be pivotal to harnessing the potential of mindfulness to create good outcomes. I'm therefore interested in tracking and examining the way the steering group forms, packages and offers a mindfulness offer to schools across

Cumbria and when it does, what factors might affect its implementation. As you are someone who is part of this process, I am particularly interested in your experiences of the Mindfulness in Cumbria Project, including being part of the steering group. A greater understanding of the benefits as well as the problems a steering group might face when creating and making available such an offer will help to inform understanding of implementation successes, challenges and models of effective practice.

What is involved?

You are being asked to part in two 30-40 minute, audio-recorded interviews about your experiences in mindfulness in your school. The first interview will be soon (hopefully in the next three to four weeks) and the second interview will be approximately six months later).

What are the ethical considerations?

This study has been approved by a University of Leeds Research Ethics Committee (Faculty of Medicine and Health; ref: 16-0089; dated 15/03/16) and the following practices are to promote safe participation of you in this study:

- The research team will not divulge your decision to participate or not participate in this study to another member of the steering group or HeadStart. It is completely up to you if you want to share this information.

- If you decide to take part, you will be asked to sign a consent form, a copy of which will be given to you to retain along with this information sheet.

- During the interview, you can choose not to answer any particular line of inquiry and you are free to end the interview at any time and without giving a reason.

- The audio recording and the interview transcripts will be anonymised before being reported in research reports. All identifying details will be changed (e.g. names of people, places and details of very specific events). Transcripts will be assigned a unique identifier known only to the research team.

- Audio-recordings will be kept on a University of Leeds computer and locked with a username and password. Transcripts will be stored similarly but separate to the audio-recordings.

- You can withdraw your data from one or both interviews up to two weeks after the date of the second interview. You can do this by emailing me or my supervisor, and you do not have to give a reason for this. If you decide not to take part in a second interview, your data from interview one will still be include in the study unless you opt to withdraw it.

- There are some limits to confidentiality in research. If you disclose intention to harm yourself or others, I will be obliged to contact my supervisor to discuss what to do, which could mean informing relevant authorities. However, I can reassure you that my interview does not actively seek such information.

- Interview data will not be shared directly with the steering group or other steering group members. If requested, a broad summary of interview findings – without the potential to identify any participant – will be prepared for the steering group. Only my

supervisor and I will have access to the raw data. It will be deleted from our records after 10 years.

- If you have any complaints about my contacting you, or anything that happens during the interview, please contact my supervisor, Dr Siobhan Hugh-Jones, who will be happy to discuss what action to take

What do I do if I do / do not want to take part?

It is completely up to you to decide if you are happy to contribute to this research, and your decision in no way affects your participation in the Cumbria Project. Please feel able to ask me any questions you have about the research study before you decide – my e-mail address is at the top of this letter. If you do not want to take part, then you can decide just to ignore this letter, or you can let me know via email. If you do want to take part, then please contact me at ps14kgh@leeds.ac.uk

What will happen to the outcomes of the study?

It is hoped that the research outcomes will be distributed through presentations and publications, and to inform schools, psychologists and policy makers about the implementation of mindfulness in schools.

Thank you for taking the time to consider this study.

Kristian Hudson.

B.2   Participant consent form

School of Psychology

University of Leeds

LS1 9JT, UK

Consent Form

Researcher: Kristian Hudson

E-mail: ps14kgh@leeds.ac.uk

Supervisors: Dr Siobhan Hugh-Jones

E-mail: s.hugh-jones@leeds.ac.uk

Address: School of Psychology, University of Leeds

Study title: Understanding implementation of a psychological intervention by exploring the perspective of a steering group: a case study from the Mindfulness in Schools (Cumbria) project.

The purpose of this form is to make sure that you are happy to take part in the research and that you know what is involved. Please confirm each statement by putting your initials in the associated box.

I have read the participant information sheet dated xx/xx/xx	
I have had the opportunity to ask questions and to discuss the study.	
I have received satisfactory answers to my questions.	
I grant permission for the SG meetings I attend and any interviews I take part in to be recorded on a voice recorder, subject to the ethical management of data as specified in the information sheet.	
I understand that I am free to choose not to answer any question during the recorded meetings.	
I understand that any data collected will be anonymised, only trackable by a unique identifier known by the research team only.	
I grant permission for my data to be included in the above named study, and in research outputs, with anonymity guaranteed.	
I understand that I can withdraw from this study at any point, and can withdraw my data up to two weeks after the date of each recorded meeting.	
I understand that if I do not take part in the second interview, then the data from	
I understand how the data will be stored, who can access it, and when it will be destroyed.	
I grant permission for extracts from the SG meetings and any interviews to be used in reports of the research on the understanding that my anonymity will be maintained.	
I agree to take part in this study.	

Participant signature Date
Name of participant:
Researcher signature Date
Name of researcher: Kristian Hudson

Appendix C   – Study 3 Supplementary material

C.1   Non-distinguishing constructs perceived as important to MT implementation

CFIR Construct	Findings	Effect on MT implementation (+ve or -ve) and valency across schools 1-5
Evidence Strength & Quality Stakeholders' perceptions of the quality and validity of evidence supporting the belief that the intervention will have desired outcomes.	Teachers perceptions of MT varied when initially adopted but because of the training requirements many went on to experience the benefits of MT themselves or witness benefits amongst students. By stage 2 the majority of participants viewed MT as something that worked and was helpful and that should be provided to the students.	Positive +2 +2 +1 +2 +1
Relative advantage Stakeholders' perception of the advantage of implementing the intervention versus an alternative solution.	After funding cuts by T2 participants from schools 1 and 4 both described MT having an advantage over other interventions. Alternative interventions tended to rely on external trainers to deliver them which meant that if funding ran out the intervention would stop. Because MT was something trained teachers could deliver, by T2, once funding had been halted, the relative advantage of the sustainability of MT became apparent, as a lack of funding did not mean their schools could not deliver MT	Positive +1 M 0 +1 M
Adaptability The degree to which an intervention can be adapted, tailored, refined, or reinvented to meet local needs.	Participants in all schools who taught MT to students perceived that it could be adapted and in fact needed to be in order for them to teach it effectively e.g. the inclusion of additional tasks to fill the time up, making it more interesting, simplifying it for special students	Positive +1 +2 +1 +1 +2
Trialability The ability to test the intervention on a small scale in the organization, and to be able to reverse course (undo implementation) if	The trialability of MT was perceived to be important to its implementation success. By focusing on one year group schools had a starting point and were then able to make modifications as needed and understand how to implement the intervention further. Introducing it across the whole school at once was just not an option for any of the schools mainly due to competing demands (i.e. a disruption to teaching) and not enough resources (e.g. time).	Positive

warranted		+2 +2 +2 +2 +2
Personal impact The degree to which stakeholders perceived the intervention to have had an impact on them having had an opportunity to experience the intervention themselves	No other interventions had previously required staff to experience them themselves. It was found that MT was perceived to be an unusual intervention in that it required school staff to experience it themselves before being able to train it to their students. This was perceived to have a positive effect on implementation. Very often experiencing MT would lead to school staff experiencing its benefits and this would mean they were more motivated to implement it due to them having a stronger positive belief regarding its efficacy and usefulness to their students. *"I absolutely realised what a change it had in me"* (School 1: P1: T1: Asst Head: 44-45)	Positive +1 +1 +1 +1 +1
Needs and resources of those served by the organisation The extent to which patient needs, as well as barriers and facilitators to meet those needs, are accurately known and prioritized by the organization.	All the schools participants held the perception that MT might allow them to provide for the needs of their students and ensure they got what they needed which was deemed to have a positive impact on its implementation.	Positive +1 +2 +1 +1 +1
Tension for change The degree to which stakeholders perceive the current situation as intolerable or needing change.	In three of the schools, which had varying levels of implementation activity there were strong perceptions by participants of a tension for change in regards to the mental health of their students. Mental health problems amongst students was a serious problem and teachers were desperate to do something about it. This desperation for something to help meant once MT was on the table it was more likely to be adopted as it was perceived to be something which might help bring about change.	Positive +2, M, +2, +2, M
Individual stage of change Characterization of the phase an individual is in, as he or she progresses toward skilled, enthusiastic, and sustained use of the intervention.	At every school, regardless of level of activity, there was always at least one member of staff who described themselves as having been actively looking for something to help themselves or their students in terms of mental health (preparation stage) either for their own well-being or because it was part of their role to do so. This was positively associated with implementation of MT because these individuals were more likely to attend the training and try to implement MT.	Positive X, +1, +1, X, +1
Personal attributes A broad construct to include other personal traits such as tolerance of ambiguity, intellectual ability, motivation, values, competence, capacity, and learning style.	This was not a distinguishing construct but may have been had it been possible to understand everybody's attributes within each school to a greater extent. Participants tended to report their own attributes and the attributes of other teachers who attended the training more than the attributes of teachers who did not. What was clear however was that the majority of participants who went on to teach MT described themselves as open-minded, interested in MT, agreed with its values, and could deal with ambiguity	Positive

		+1, +1, X, X, +1
Engaging: Champions Individuals who dedicate themselves to supporting, marketing, and 'driving through' an implementation, overcoming indifference or resistance that the intervention may provoke in an organization	In school 4 participants perceived champions for MT existed and were a key driving force in its implementation. Without them it would not have happened. School 4 was the only school where the formal appointing of implementation leaders had not happened. In the other schools there were formally appointed implementation leaders who had decision making power. This may suggest that when no one is formally appointed to implement MT in a school, champions are more likely to arise and attempt to ensure its adoption.	Positive M, M, M, +2, M
Engaging: External change agents Individuals who are affiliated with an outside entity who formally influence or facilitate intervention decisions in a desirable direction.	4/5 schools seemed to benefit to some extent from a number of external change agents who existed on the Cumbria project steering group. These included the MT trainer, a local GP and the HeadStart coordinator who would give ongoing encouragement, guidance and support to the schools. Having this kind of support was perceived as valuable by participants.	Positive +1, +1, +1, +1, 0
Engaging: Innovation participants The innovation participants (i.e. teachers and students) who received the program	Participants in all the schools commented on the importance of engaging both the students to be trained, and potential teachers to be trained in effective ways i.e. promoting MT in assemblies, providing a taster session to teachers. They all perceived their attempts to do this to be important for the implementation and success of MT.	Positive +1, +1, +2, +2, +1
Design, Quality and Packaging Perceived excellence in how the intervention is bundled, presented, and assembled.	Data from participants across 4 schools suggested participants found the training materials to be useful which has been positively associated with implementation. However participant also found the training to be highly confusing in its early stages. For many participants it wasn't clear why they were having to do mindful practices and it wasn't explained clearly how learning such practices would relate to them teaching MT in the classroom. In school 4 this had a direct impact on implementation as confusion and frustration over the course was perceived by participants to lead to a large number of teachers dropping off the training. Another teacher found having to learn MT in the presence of teaching colleagues challenging as she felt unsafe to share things	Mixed M, X, X, -1, X
External policy and incentives A broad construct that includes external strategies to spread interventions, including	In all the schools, no matter how active, the implementation of MT was supported by funding provided by external commissioners, growing public concerns over child mental health, and new Ofsted guidelines. However all the schools experienced a withdrawal of this funding by T2 and this impacted the implementation of MT in all of them	

policy and regulations (governmental or other central entity), external mandates, recommendations and guidelines, pay-for-performance, collaboratives, and public or benchmark reporting.	apart from school 5 which had already stopped trying to implement MT.	Mixed X, X, X, X, +1
Access to knowledge and information Ease of access to digestible information and knowledge about the intervention and how to incorporate it into work tasks.	Participants at all the schools reported having access to an external MT trainer so were able to ask questions and in some schools receive booster sessions for staff. However some staff in the highest activity school were denied entry onto the training course after completing the initial MBSR course for not committing to enough self-practice. In the second most active school there was confusion over which year group should receive the intervention and the participant here felt the wrong year group had received the .b training as it was too complicated for them. A course cancellation in 2016 also significantly slowed down implementation as participants from a number of the schools could not attend the training. Finally the program designers had very strict rules on how the materials could be used. There could be no photocopying or sharing of the lesson plans with teachers who had not trained in .b which prevented the involvement of MBSR trained teachers in school 4.	Mixed X, X, +1, X, 0
Available resources The level of resources dedicated for implementation and on-going operations, including money, training, education, physical space, and time.	The majority of schools regardless of activity level struggled to find time for MT. Participants were generally under varying amounts of pressure to achieve other tasks and school aims. Even though some schools such as School 1 were able to handle a lack of resources better than the others, all the schools including School 1 would have benefitted from more funding and more time. As soon as a school prioritised something other than MT this was reported as being able to stop implementation in its tracks. There was an overall perception of their being very little teaching time in curriculums for MT or teaching which again was a significant hindrance to MT implementation. Funding, and its eventual withdrawal by T2 affected all the schools.	Negative -1, -2, -2, -2, -1
Reflecting and Evaluating Quantitative and qualitative feedback about the progress and quality of implementation accompanied with regular personal and team debriefing about progress and experience.	None of the schools had any systems in place for collecting qualitative or quantitative data in relation to the implementation of MT. Participants focus tended to be on whether MT was helping or not, rather than whether it was being implemented well.	N/A 0, 0, 0, 0, 0

C.2 Non-distinguishing constructs which did not seem important to MT implementation

Constructs which didn't distinguish between schools or that there was no data for	
Innovation Source	This was not a distinguishing construct because it did not vary across sites and there was no evidence of it impacting MT implementation. All schools perceived the intervention as coming from an external source. This construct was coded neutrally as 'internal' or 'external'. Participants generally perceived HeadStart as credible, appropriate, and helpful for the majority of the time and obtaining funding and programs from an external source was a common occurrence.
Cost	This construct must be distinguished from 'available resources' which refers to money, physical space and time. Instead this construct refers to the costs associated with implementing that intervention, including investment, supply, and opportunity costs. It was a difficult construct to capture and it was not clear from the interviews the extent of any opportunity costs incurred by schools due to the implementation of MT or how this had affected its implementation. The more salient construct was 'available resources' because of constraints in staff time and supplied funding. It could be inferred from interviews from 3 of the schools that the introduction of MT training did increase teacher stress and workload but there was no evidence of it impacting MT implementation.
Cosmopolitanism	This construct which looks at the degree to which an organisation is networked with other external organisations was not a distinguishing construct and showed no evidence of it being relevant to MT implementation. The majority of participants interviewed had few or no contacts outside the school.
Peer pressure	There was no evidence of peer pressure to implement MT at any of the schools I.e. from other schools who had successfully implemented it. Schools tended to act alone and were not in any form of competition with each other. Though interviewees were not asked directly about peer pressure open-ended questions gave ample opportunity for them to bring it up.
Culture	Explicit questions were not asked of participants regarding their perceptions of the culture of their organisations. This is also a complicated construct, most likely beyond the scope of this study. Without asking specific questions on culture we were unable to determine the culture of schools.
Organisational incentives and rewards	This was not a distinguishing construct. There was no evidence of any monetary rewards or less tangible incentives like positive evaluations at any of the schools.

Goals and feedback	Although all the schools tended to have a clear plan forward e.g. to introduce to year 7, none of the schools had a clear goal in terms of what outcomes they wanted to achieve from MT. Any goals mentioned tended to be rather vague e.g. to become a mindful school, to maintain their ethos as a head start school, to promote the mental health of their students. Feedback was also rather vague and in most cases stemmed from ad hoc feedback from students or staff on their experiences of the training. An exception to this was the most active school which produced weekly reports of progress. A number of schools also commented on how generating feedback was near impossible or even not useful. Some schools were introducing multiple intervention simultaneously and it was therefore not easy to know which ones were having benefits. Another school commented how quantitative data can be misleading i.e. anxiety might increase post MT because more students are aware of it and more likely to report being anxious.
Individual identification and organisation	This was not a distinguishing construct and there was no evidence of it impacting MT implementation. There was no evidence collected in regards to how teachers perceived their organisation and their relationship to it. There was a sense that many participants were very committed to their school but no specific codings of this were found.
Self-efficacy	There was not enough data to say whether this was a distinguishing construct or whether it impacted MT implementation.

C.3 **Participant information sheet**

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UNIVERSITY OF LEEDS

xx/xx/xx

Dear member of staff

Re: invitation to take part in a study entitled: Understanding implementation of a psychological intervention by exploring the perspective of school staff: a case study from the Mindfulness in Schools (Cumbria) project. **Researcher:** Kristian Hudson supervised by Dr Siobhan Hugh-Jones.

My name is Kristian and I am undertaking a PhD in the School of Psychology at the University of Leeds. This letter invites you to take part in two interviews (six months apart) about your experience of being trained in mindfulness and thoughts about mindfulness in schools more generally.

The study is detailed below, along with ethical considerations. Please take time to read these and to consider whether you would like to take part. If you are happy to be involved, then please let me know via email at ps14kgh@leeds.ac.uk. I will then be in touch to arrange a convenient time to meet with you. This study is being jointly funded by the University of Leeds and the Mindfulness in Schools Cumbria Project.

Kind regards

Kristian Hudson PhD student

What is this study about?

Identifying and understanding the implementation of mindfulness interventions in complex settings such as schools is likely to be pivotal to harnessing the potential of mindfulness to create good outcomes. I'm therefore interested in tracking and examining the way a mindfulness offer might reach a school and when it does, what factors might affect its implementation. As you are someone who is part of this process, I am particularly interested in your experiences of the Mindfulness in Cumbria Project, including being trained in mindfulness. A greater understanding of the benefits as well as the problems schools face when engaging with such an offer will help to inform understanding of implementation successes, challenges and models of effective practice.

What is involved? You are being asked to part in two 30-40 minute, audio-recorded interviews about your experiences in mindfulness in your school. The

first interview will be soon (hopefully in the next three to four weeks) and the second interview will be approximately six months later).

What are the ethical considerations?

This study has been approved by a University of Leeds Research Ethics Committee (Faculty of Medicine and Health; ref: 15-0397 date 14.12.15) and the following practices are to promote safe participation of you in this study:

- The research team will not divulge your decision to participate or not participate in this study to another member of school staff, including the head teacher. It is completely up to you if you want to share this information.

- If you decide to take part, you will be asked to sign a consent form, a copy of which will be given to you to retain along with this information sheet.

- During the interview, you can choose not to answer any particular line of inquiry and you are free to end the interview at any time and without giving a reason.

- The audio recording and the interview transcripts will be anonymised before being reported in research reports. All identifying details will be changed (e.g. names of people, places and details of very specific events). Transcripts will be assigned a unique identifier known only to the research team.

- Audio-recordings will be kept on a University of Leeds computer and locked with a username and password. Transcripts will be stored similarly but separate to the audio- recordings.

- You can withdraw your data from one or both interviews up to two weeks after the date of the second interview. You can do this by emailing me or my supervisor, and you do not have to give a reason for this. If you decide not to take part in a second interview, your data from interview one will still be include in the study unless you opt to withdraw it.

- There are some limits to confidentiality in research. If you disclose intention to harm yourself or others, I will be obliged to contact my supervisor to discuss what to do, which could mean informing relevant authorities. However, I can reassure you that my interview does not actively seek such information.

- Interview data will not be shared directly with the Headteacher or other school staff. If requested, a broad summary of interview findings – without the potential to identify any participant – will be prepared for the school. Only my supervisor and I will have access to the raw data. It will be deleted from our records after 10 years.

- If you have any complaints about my contacting you, or anything that happens during the interview, please contact my supervisor, Dr Siobhan Hugh-Jones, who will be happy to discuss what action to take

What do I do if I do / do not want to take part?

It is completely up to you to decide if you are happy to contribute to this research, and your decision in no way affects your participation in the Cumbria Project. Please feel able to ask me any questions you have about the research study before you decide – my e-mail address is at the top of this letter. If you **do not** want to take part, then you can decide just to ignore this letter, or you can let me know via email. If you **do** want to take part, then please contact me at ps14kgh@leeds.ac.uk

What will happen to the outcomes of the study?

It is hoped that the research outcomes will be distributed through presentations and publications, and to inform schools, psychologists and policy makers about the implementation of mindfulness in schools.

Thank you for taking the time to consider this study.

Kristian Hudson.

C.4   Participant Consent Form

School of Psychology

T   +44 (0)113 343 5744

E   s.hugh-jones@leeds.ac.uk

UNIVERSITY OF LEEDS

Consent Form

Study Title: Understanding implementation of a psychological intervention by exploring the perspective of teachers: a case study from the Mindfulness in Schools (Cumbria) project.

Researcher: Kristian Hudson

E-mail: ps14kgh@leeds.ac.uk

Supervisors: Dr Siobhan Hugh-Jones

E-mail: s.hugh-jones@leeds.ac.uk

Address: School of Psychology, University of Leeds

The purpose of this form is to make sure that you are happy to take part in the research and that you know what is involved. Please confirm each statement by putting your initials in the associated box.

I have read the participant information sheet dated xxxx	
I have had the opportunity to ask questions and to discuss the study.	
I have received satisfactory answers to my questions.	
I grant permission the interview to be recorded on a voice recorder, subject to the ethical management of data as specified in the information sheet.	
I understand that I am free to choose not to answer any question during the interview.	
I understand that the interview data will be anonymised, only trackable by a unique identifier known by the research team only.	
I grant permission for my data to be included in the above named study, and in research outputs, with anonymity guaranteed.	
I understand that I can withdraw from this study at any point, and can withdraw my data up to two weeks after the date of the second interview.	
I understand that if I do not take part in a second interview, then the data from my first interview will be retained in the study unless I opt to withdraw it.	

|	
I understand how the data will be stored, who can access it, and when it will be destroyed.	
If interviewed, I grant permission for extracts from the interview transcript to be used in reports of the research on the understanding that my anonymity will be maintained.	
I agree to take part in this study.	

Participant signature Date
Name of participant:
Researcher signature Date
Name of researcher: Kristian Hudson

Appendix D   – MISF Framework and Study 4 materials

D.1   MISF framework

A Guide for Schools Implementing Mindfulness
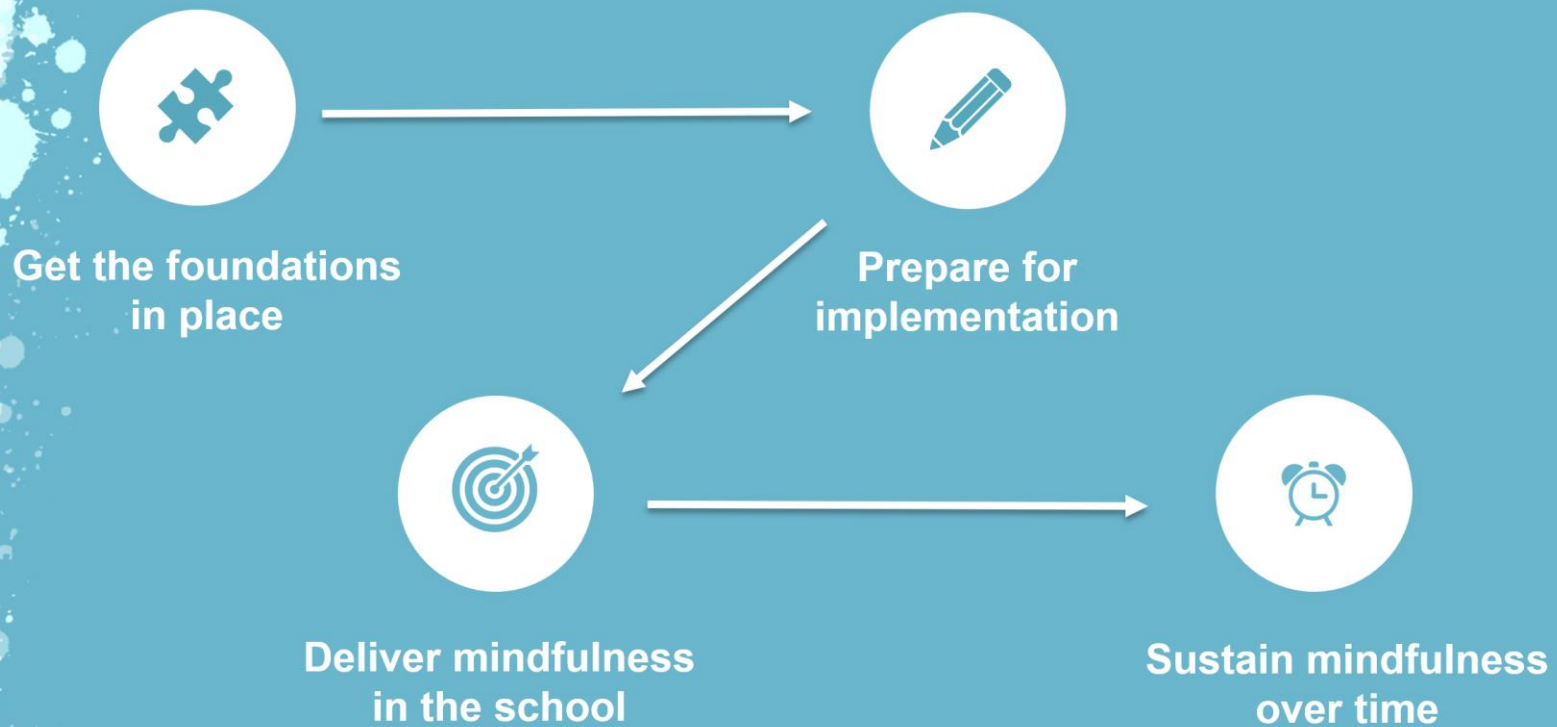
Stages of Implementation

Stage 1: Get the foundations in place

1. Ensure ongoing leadership engagement
2. Involve key people in choosing a program
3. Develop and sustain an implementation team
4. Ensure sufficient resources are available
5. Make mindfulness a priority
6. Create and communicate goals to staff

Stage 2: Prepare for implementation

1. Create an implementation action plan
2. Decide on some short, medium and long-term implementation goals
3. Decide if your school is ready for mindfulness
4. Take practical steps to prepare the school and staff for mindfulness

Stage 3: Deliver mindfulness in the school

1. Train staff
2. Ensure some level of ongoing training or coaching
3. Monitor progress
4. Only make adaptations when the key ingredients of mindfulness are understood

Stage 4: Sustain mindfulness over time

1. Plan to sustain mindfulness from the outset
2. Once embedded, start to scale up mindfulness
3. Make sure your previously set implementation outcomes are still useful
4. Leadership remains just as important in this stage as in the earlier ones

| Evidence based school mental health programs | **+** | Effective implementation practices | **=** | Effective outcomes |

Evidence shows that getting implementation right improves the outcomes of school mental health interventions. Not investing in implementation is associated with poorer outcomes and staff

> In 2010, Social and Emotional Aspects of Learning (SEAL) was introduced to 90% of primary schools and 70% of secondary schools in the UK. The success or failure of implementation accounted for nearly half of the difference between positive and poor outcomes (Banerjee, 2010). (Humphrey, Lendrum, & Wigelsworth, 2010)

fatigue.

What is this guide?

This guide will help you to implement a whole school mindfulness program. It is based on the experiences of school leaders, school teachers, mindfulness trainers and commissioners involved in implementing mindfulness in schools. It also draws from education and implementation science literature as well as previous implementation frameworks. It can be used to implement mindfulness but also other school-based mental health programs.

Who is this guide for?

The framework is for anyone implementing mindfulness in their school.

The framework may also be useful for:

- School staff wanting to know more about how they can support the success of whole school mindfulness programs or practices being introduced into their school.
- Commissioners, policymakers and funders interested in securing the best return on investment in school-based programs.
- Program developers looking to make more effective mindfulness-based interventions

This guide is for a whole school approach

This guide can be applied to any <u>whole school</u> mindfulness program or practice. There are different ways of delivering mindfulness. Some schools employ an external trainer to deliver it to a
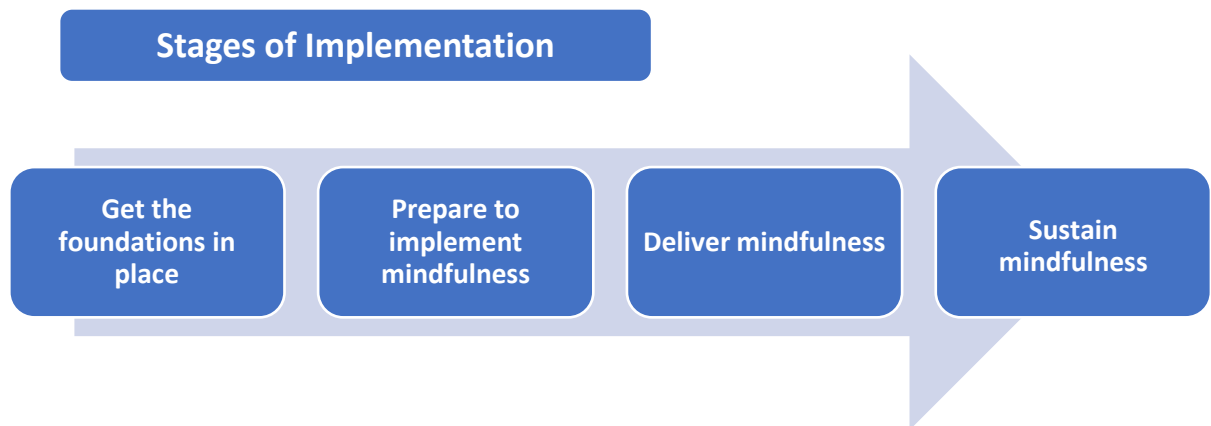
class. However, this guide recommends that you train your teachers in mindfulness first and then train them to deliver it to students. This is because:

1. It gives teachers an opportunity to benefit from the intervention
2. It is a more sustainable approach over the long term as it minimises reliance on external providers.
3. There is evidence that a cascading approach to a whole school mindfulness program whereby teachers first receive mindfulness for themselves, and practice it personally for several months, before being trained to deliver it to students is preferred by schools (Hugh-Jones, 2014).

When introducing mindfulness for the first time, schools might benefit by trialling mindfulness with a single year group, class or specific set of students.

How to implement a mindfulness program in secondary schools

Implementation occurs in stages.

Stages of Implementation

| Get the foundations in place | Prepare to implement mindfulness | Deliver mindfulness | Sustain mindfulness |

Stage 1: Get the foundations in place

Step 1: Ensure ongoing leadership engagement

Successful implementation of mental health programs in schools relies heavily on the engagement of school leadership (Langley et al., 2010; Short, 2016). The degree of commitment, involvement and accountability of leaders has been shown to have a significant effect on implementation processes in general (Moullin et al., 2017). Leaders who want to implement mindfulness need to take responsibility for ensuring the stages of implementation are supported and achieved in school (Ehrhart et al., 2016).

Step 2: Involve key people in choosing a program

By including stakeholders such as teachers, students, and the wider community in this process you will gain an understanding of mental health issues in the school from a wide variety of voices and a

good indication of how far stakeholders feel mindfulness will fit in with current processes. Ensuring these stakeholders are aware of what you are trying to achieve will allow opportunities for feedback. This will also create the first steps to creating an implementation team. When people are part of a decision, they are more likely to support it.

There is a range of mindfulness programs available. Choose one that:

a) Speaks to the wellbeing needs and strategic aims in your school
b) Is compatible with school systems and available resources

A mindfulness program is more likely to be successful if it 'fits' into the school system (Kremser, 2011). The organisational and system influences of schools influence implementation success (Fixsen et al., 2005). The less a program 'fits' the current school system, the more costly, time-consuming, harder to adapt, harder to maintain over time and ultimately harder to implement it will be. A whole school approach to mindfulness can be complex. There is no quick and easy way to implement it. There are some differences amongst the programs available. In choosing a mindfulness approach or program, consider:

1. Is it something you can fit into the school timetable?
2. Do the values and norms of the program align with the schools?
3. Do the values and norms align with the mental health needs of the school and the strategic path to responding to these?
4. Do you think teachers, students and parents will accept and support the intervention?
5. What might stop it being implemented well?
6. What kind of internal or external support might be needed?
7. Is it feasible?

Step 3: Develop and sustain an implementation team

Effective and high performing school leaders are thought to be defined by their ability to build strong, collaborative, and functional teams (Harris, 2013). Finding a team to drive the implementation of mindfulness forward based on their competency, suitability and/or enthusiasm seems to be a more successful approach to implementation than attempting implementation alone or letting staff volunteer themselves (Hudson, Hugh-Jones & Lawton). You may already have excellent staff who will be well suited to being involved in the implementation process. Use your existing expertise to select staff with some degree of decision-making power or authority in the school is essential. Forming an implementation team can be particularly effective in ensuring successful implementation. The team should meet to solve implementation problems and monitor success, and can include individuals from outside the school who can offer additional expertise.

Leaders will do well to:

- Communicate to staff that they appreciate their help in reaching early implementation goals,

- Ensure staff feel psychologically safe to try new approaches to implementing and teaching mindfulness
- Ensure staff feel they are important and able to contribute to the implementation process;

These are all aspects of a 'learning environment' and a climate that has been shown to make the adoption of evidence-based practices (EBPs) in organisations easier (Aarons, 2006; Damschroder et al., 2009). One mindfulness focused study found that when leaders fostered a learning environment the implementation of a whole school mindfulness program was more successful (Hudson, Hugh-jones, Lawton, in press).

Step 4: Ensure sufficient resources are available to implement the program

Moving through the stages of implementation will take time and require resources.

Human resources: Where possible plan your human resourcing to allow for people to stay in an implementation role for 2-4 years. Try to make sure you have enough potential teachers willing to train and who are unlikely to leave the school anytime soon.

Time: Make sure you have room in the curriculum for mindfulness indefinitely. It works best in the curriculum alongside other mainstream subjects. Some schools use personal development classes but may also replace a religious education, maths or English lesson with mindfulness.

Money: You will need money to train staff as well as train new staff over time should the initially trained staff leave the school.

Step 5: Make the mindfulness program to be implemented a priority across the school

Previous research has shown that how far mindfulness programs are prioritised in schools over other demands has a major impact on their implementation (Hudson, Hugh-Jones & Lawton, 2018) and 'competing responsibilities' has been shown to be the strongest barrier to implementing school mental health programs in general (Langley et al., 2010). You may have experienced competing curriculum demands and school priorities before so do all you can to ensure mindfulness is kept on meeting agendas, kept in conversations, keeps its place in the curriculum and that new staff are trained when needed or when they desire to be.

Step 6: Create and communicate implementation goals to staff

When leaders create a common understanding of what is to be expected, successful implementation of evidenced-based practices such as school mental health programs is more likely (Aarons et al., 2014). In the initial challenging period of implementing a new program, a key role for leaders is to manage expectations and encourage 'buy-in' until signs of positive change emerge (Dyssegaard et al., 2017); Hudson, Hugh-Jones & Lawton).

Stage 2: Prepare for implementation

Before moving to Stage 2, you will have ideally

- Ensured ongoing leadership engagement
- Involved key people in choosing a mindfulness program
- Developed and sustained an implementation team
- Ensured sufficient resources are available for the implementation of the chosen program
- Made mindfulness a priority
- Created and communicated clear goals to staff

Now you are ready to prepare the school further for mindfulness implementation.

Step 1: Create an implementation action plan

Creating a well-specified action plan is an important step to any implementation process in schools (Nadeem et al., 2018). Your action plan can incorporate all of the steps in stage 1 as well as the following steps:

Step 2: Decide on some short, medium and long-term implementation outcomes

In order to monitor implementation progress, you will need to decide on clear short, medium and long-term implementation outcomes and how you will measure these. Because implementation is a process, you can look for early signs of implementation success and success over time. Outcome measures should be specific, measurable, attainable, relevant and timely. For example:

Short term goals: The number of teachers trained in MBSR, e.g. to have 5 teachers trained in MBSR within the first 6 months

Medium term goals: To have a plan and mechanism in place to deliver mindfulness to year 7 and year 9 within the first year

Long-term goals: Improvements in mindfulness measures, wellbeing, and emotion regulation reported by staff and students by year 2. Mindfulness also reported as feasible (i.e. How far mindfulness can be used by staff and students and integrated into the school's daily routines and costs (Lewis et al., 2015)) and acceptable (The extent to which teachers delivering mindfulness and students and teachers receiving it consider it to be appropriate, based on their anticipated or experienced cognitive and emotional responses to it (Sekhon, Cartwright, & Francis, 2017).

Step 3: Now decide if your school is ready to implement mindfulness

By this stage you will hopefully have set some implementation foundations in place, chosen a mindfulness program, involved other staff in the implementation process; have some clear short term, medium term and long term implementation outcome measures and have the resources needed to implement mindfulness. Before you proceed, you will need to decide if your school is, in fact, <u>READY</u> to implement mindfulness and follow the action plan.

Many definitions of implementation 'readiness' exist. A practical and useful model created by Scaccia et al. (2015) posits implementation readiness as a combination of three things: how motivated an organisation is to adopt an intervention, the organisations general capacity, and its innovation-specific capacity (See Table 1).

Table 1: Three components of organisational readiness based on (Scaccia et al., 2015)

Motivation	You are ready if at least some staff in the school perceive mindfulness to be effective and hold accurate knowledge and beliefs about it; if mindfulness is perceived to hold advantages over other school mental health programs; if there is a perception that it can be adapted to meet local needs,; If it is deemed to be compatible with existing school structures and workflows and can be trialled. A tension for change in the school can also indicate readiness, e.g. a tension to address the growing high level of mental health problems.
General capacities	Your school's general capacities can depend on culture, context, current infrastructure and organisational infrastructure. For example staff availability, leadership capacity, administrative availability, the structural stability of your school, e.g. level of staff turnover, can all determine the degree to which your school climate is ready to implement a mental health program like mindfulness

Innovation-specific capacities	These capacities relate to the knowledge and skills needed to use mindfulness, e.g. how far is your school able to access training materials and training for mindfulness? how much space can be made available in the timetable? How far are teachers able to attend the mindfulness training?

If you feel that it is ready, you can begin preparing to implement mindfulness and begin Step 4. If not ready you can re-visit Stage 1: Choosing a program; or Stage 2:Preparing for implementation and choose a different mindfulness program, secure more funding, secure a larger implementation team, choose different implementation outcomes etc. You may also perhaps consider not implementing mindfulness at the present time.

Step 4: Take practical steps to prepare the school and staff for implementing mindfulness

a) Ensure everyone knows about the implementation process; support and provide incentives to staff

School leaders need to make sure all school staff are aware of what will be expected during the implementation process and how they will be supported (Aarons et al., 2014). Staff will need:

1. To know the purpose of mindfulness, why it is important and how staff will be expected to use it
2. To know how mindfulness fulfils the needs of the school's students and the values and needs of the school as a whole
3. To understand and have access to the training materials associated with mindfulness

Leadership should communicate these points and ensure there is a discussion about the implementation process. Leaders may also want to model mindful behaviours and practice mindfulness, find others (both staff and students) to articulate the benefits of mindfulness or be champions for its use and reward staff when they have contributed to the implementation effort; as communicating the implementation process to staff alone is unlikely to lead to a change in staff attitudes, perceptions and behaviours. Letters should be sent to parents explaining what mindfulness is and why their child may benefit.

b) Prepare the infrastructure

A number of simple but important things for mindfulness to be implemented in the school will be needed for its implementation to be a success. For example, in order for training to take place and lessons to be provided to students there will need to be administrative support in the schools. Mindfulness teaching materials will need to be available and therefore downloaded, printed and distributed to staff. Timetable changes might be needed as well as a dedicated space for mindfulness. Schools often have limited resources available to them so re-organising existing time,

effort and resources rather than adding new infrastructure might be the best approach (Hudson, Lawton and Hugh-Jones, 2018).

Stage 3: Deliver mindfulness in the school

The focus at this stage should be on delivering a high-quality mindfulness program. This can be a challenging stage as schools grapple with introducing mindfulness to the school for the first time. The practices of mindfulness can feel unusual at the start. To ensure staff do not become demoralised and the implementation effort threatened, use your leadership skills to support staff while they get used to using and teaching mindfulness, e.g. via regular team meetings, opportunities for reflection. Getting feedback from teachers is important so the barriers and facilitators to implementation can be identified and acted upon.

Leaders should manage expectations and encourage 'buy-in' (See stage 1: Getting the foundations in place) and use the short-term implementation goals set out in stage 2 to monitor progress. They should also:

Step 1: Train staff

Actively support staff who wish to attend the mindfulness training you have chosen. Training will most likely take up precious staff time. Staff may be reluctant to give up time at the weekend or after school hours. Cover may, therefore, need to be arranged for staff to attend the training or incentives put in place, e.g. 'because you attended mindfulness training you do not need to attend parents evening this year'.

Step 2: Ensure some level of ongoing training or coaching occurs after teachers finish their training

For teachers to truly understand mindfulness and apply it successfully to their classrooms the initial training alone may not suffice. It has been shown that it is this follow-on support post training that allows teachers to apply new skills they have learnt to classroom behaviours (Cordingley et al., 2015; Domitrovich et al., 2008; Dyssegaard et al., 2017; Kraft et al., 2018). Example of follow-on support include booster sessions, access to an expert trainer, retreat

weekends, opportunity for feedback and reflection, peer to peer collaboration, ongoing moral support and encouragement.

Step 3: Use the implementation outcomes and processes you decided on using in stage 2 to monitor progress and identify barriers.

You may find you need to tailor the mindfulness training, restructure teams, adapt your implementation strategies, redistribute resources, increase staff support in response to not meeting your implementation goals set out in stage 2.

Step 4: Only make needed adaptations when the 'key ingredients' of mindfulness are understood and implemented

It has been consistently shown in systematic reviews that the more a school implements an intervention with fidelity (as program designers intended), the better it is implemented and the better are student outcomes (Albers & Pattuwage, 2017; Dyssegaard et al., 2017). Too much adaptation to the core components can result in a lack of impact (Domitrovich et al., 2008). However, you may need to make adaptations to 'fit' mindfulness into your school. Although it is vital to retain the 'key ingredients' in order to get the outcomes, adaptations are pretty inevitable. No one school is the same, and some degree of adaptation can aid implementation by increasing buy-in, ownership and enhancing 'fit' (Lendrum & Humphrey, 2012). Your mindfulness course provider will be able to highlight to you what the 'active ingredients' of the mindfulness training are.

For example MISP, a popular mindfulness program available in the UK suggests that getting both students and staff to underline engage in the practice is the 'Holy Grail' of change. So the best way forward might be for teachers to do everything they can to ensure students do the practices while other aspects of the training are delivered more loosely and in a way that teachers feel will support the process the most.

Stage 4: Sustain mindfulness over time

Step 1: Plan to sustain mindfulness from the outset

New interventions adopted by schools are very often abandoned (Fixsen et al., 2013; Glennan et al., 2000). This is because even once a school has had the motivation and capacity to implement a program, and has then successfully embedded it into school life, it can still then be dropped or disappear and be replaced by another new one (Fixsen, Blase, Duda, Naoom, & Van Dyke, 2010). For example, a loss of staff, a change of leadership, restructures, or increasing academic pressures can fundamentally change how mindfulness is perceived by the school while a reduction in funding can limit its use. To protect against these outcomes, it is best to address them at the start of implementation rather than in the final stages when they come around (Chambers et al., 2013). You might for example plan to train a certain amount of staff each year in mindfulness to counter staff turnover, and aim to secure additional funding early on to cover this.

Step 2: Once embedded, start to up-scale mindfulness

Schools which successfully implement mindfulness into one year group may then decide to upscale it across the school i.e. train more staff, start offering it to more year groups, including it in assemblies, offering it to students with exam stress or even becoming a 'mindful school' where the 'key ingredients' of mindfulness are incorporated into school language, behaviours and decisions etc. This process of upscaling is a great way to increase the chance of the program being sustained as it becomes more and more embedded into the school's processes and day to day life. The impact of reduced funding, structural changes, staff turnover will be lessened.

Step 3: Make sure that the implementation outcomes and measures you set up in stage 3 are still useful

If you reach the sustain phase, still monitor implementation to see how mindfulness is being adopted and adapted over time. Is it still useful to know how many teachers have done the MBSR this year? Is it still useful to be collecting feedback data from staff and students?

Step 4: Leadership remains just as important in the sustain phase as it does in all other stages

Once mindfulness is integrated and a normal part of school life it is still important that school leadership continues to acknowledge, support and reward its use. Practising Mindfulness themselves, using mindful language, modelling a mindful school will all help sustain mindfulness over the long term so that it keeps on benefitting students and therefore society as a whole.

Good luck!

D.2   **Questionnaire**

Mindfulness in schools framework

Feedback Questions

Please complete the following questionnaire with specific regard to the above enquiry, by placing a CROSS in the appropriate box

	strongly agree	agree	uncertain/ not applicable	disagree	strongly disagree
1. In principle this framework would be useful to schools	☐	☐	☐	☐	☐
2. I would recommend it to other school leaders or people involved in implementing mindfulness in schools	☐	☐	☐	☐	☐
3. I think schools will use it	☐	☐	☐	☐	☐
4. I will use this framework in the future if implementing mindfulness	☐	☐	☐	☐	☐

5. Please explain why you think the framework would be useful/not useful?

6. Why you would/would not recommend the framework to school leaders or people involved in implementing mindfulness in schools?

7. Why do you think schools will actually use/not use the framework?

8. Please explain why you will use/not use this framework in the future if implementing mindfulness

9. What did you find most useful/least useful about the framework?

10. List the top 3 things that could be done to improve the framework or the likelihood of schools using it

11. How feasible and/or practical do you think this framework would be to use and why?

12. Is there anything else you would like to share?

D.3   Participant information sheet

School of Psychology

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E s.hugh-jones@leeds.ac.uk

xx/xx/xx

Dear steering group member

Re: invitation to take part in a study entitled: The transfer of an implementation framework for school based mindfulness training from research into practice: Understanding interactions with stakeholders

Researcher: Kristian Hudson supervised by Dr Siobhan Hugh-Jones.

My name is Kristian and I am undertaking a PhD in the School of Psychology at the University of Leeds. This letter invites you to take part in research in which your meeting with me and the head teachers you are meeting in regards to the implementation framework are recorded.

Please take time to read the attached study information, with ethical considerations, and to consider whether you would like to support recruitment for this study. You are being asked to permit to having your answers to a questionnaire recorded. If you consent to being recruited for this study I would be grateful if you could indicate your consent by replying to this effect via email at ps14kgh@leeds.ac.uk. I will then e-mail you a consent form to sign and on receiving that, a implementation framework to study, and a questionnaire to fill out.

This study is being jointly funded by the University of Leeds and the Collaborations for Leadership in Applied Health Research and Care. It has been approved by the University of Leeds Faculty of Medicine and Health Research Ethics Committee (ref: PSC-135 date: 18.11.16) and is being supervised by Dr Siobhan Hugh-Jones (s.hugh-jones@leeds.ac.uk). You are of course under no obligation to support this study and it in no way affects your involvement with the implementation framework and whether you can use it or not.

Kind regards

Kristian Hudson PhD student

What is this study about?

Evidence about the benefits of mindfulness for children and young people's well-being is promising. However, there is little guidance on how to go about implementing mindfulness available to school leaders and few implementation frameworks exist which guide schools through the implementation process. The availability of such guidance is likely to affect outcomes because how well mindfulness is implemented has been associated with its efficacy in schools. A mindfulness related implementation framework has never been tested in schools before and it is unknown how school leadership might react to such a framework and how far individuals, both in and outside of schools, can be trained in using one.

I'm therefore interested in how useful you find an implementation framework that we have created for implementing mindfulness in schools and which is based on research previously conducted in schools in Cumbria. By testing the framework in this way I will be able to understand whether head teachers and commissioners can use it and understand it effectively. I'm hopeful that your opinions will help us improve the framework further.

What is involved? You are being asked to consent to having your answers to a questionnaire on the framework recorded. As I explain the implementation framework to you I will be interested to see how easy it is for you to understand and learn and how confident you feel school leaders will use it.

What are the ethical considerations?

This study has been approved by a University of Leeds Research Ethics Committee (Faculty of Medicine and Health; ref: xxxx date xxxxxx) and the following practices are to promote safe participation of you in this study:

- If you decide to take part, you will be asked to sign a consent form, a copy of which will be given to you to retain along with this information sheet.

- You can choose not to answer any particular line of inquiry on the questionnaire and you are free to change your mind and not fill it out without giving a reason.

- The audio recording and the meeting transcripts will be anonymised before being reported in research reports. All identifying details will be changed (e.g. names of people, places and details of very specific events). Transcripts will be assigned a unique identifier known only to the research team.

- Audio-recordings will be kept on a University of Leeds computer and locked with a username and password. Transcripts will be stored similarly but separate to the audio-recordings.

- You can withdraw your data from the meeting up to two weeks after the date of the second interview. You can do this by emailing me or my supervisor, and you do not have to give a reason for this.

- There are some limits to confidentiality in research. If you disclose intention to harm yourself or others, I will be obliged to contact my supervisor to discuss what to do, which could mean informing relevant authorities. However, I can reassure you that your meeting with me will not actively seek such information.

- Data from the meetings will not be shared directly with any school staff. If requested, a broad summary of interview findings – without the potential to identify any participant – will be prepared for the school. Only my supervisor and I will have access to the raw data. It will be deleted from our records after 10 years.

- If you have any complaints about my contacting you, or anything that happens during the interview, please contact my supervisor, Dr Siobhan Hugh-Jones, who will be happy to discuss what action to take

What do I do if I do / do not want to take part?

It is completely up to you to decide if you are happy to contribute to this research, and your decision in no way affects your participation in the use of the implementation framework. Please feel able to ask me any questions you have about the research study before you decide – my e-mail address is at the top of this letter. If you **do not** want to take part, then you can decide just to ignore this letter, or you can let me know via email. If you **do** want to take part, then please contact me at ps14kgh@leeds.ac.uk

What will happen to the outcomes of the study?

It is hoped that the research outcomes will be distributed through presentations and publications, and to inform schools, psychologists and policy makers about the implementation of mindfulness in schools.

Thank you for agreeing to take time reading this study

D.4   Consent form

Study title: An implementation framework for school based mindfulness training: Do stakeholders think it is useful?

Researcher: Kristian Hudson

E-mail: ps14kgh@leeds.ac.uk

Supervisors: Dr Siobhan Hugh-Jones

E-mail: s.hugh-jones@leeds.ac.uk

Address: School of Psychology, University of Leeds

Ethics no:

The purpose of this form is to make sure that you are happy to take part in the research and that you know what is involved. Please confirm each statement by putting your initials in the associated box.

I have read the participant information sheet dated xx/xx/xx	
I have had the opportunity to ask questions and to discuss the study.	
I have received satisfactory answers to my questions.	
I grant permission for my questionnaire answers to be recorded subject to the ethical management of data as specified in the information sheet.	
I understand that I am free to choose not to answer any question during filling out the questionnaire	
I understand that questionnaire data will be anonymised, only trackable by a unique identifier known by the research team only.	
I grant permission for my data to be included in the above named study, and in research outputs, with anonymity guaranteed.	
I understand that I can withdraw from this study at any point, and can withdraw my data up to two weeks after e-mailing back the questionnaire	
I understand how the data will be stored, who can access it, and when it will be destroyed.	
If I fill out the questionnaire, I grant permission for extracts from the questionnaire to be used in reports of the research on the understanding that my anonymity will be maintained.	
I agree to take part in this study.	

Participant signature Date
Name of participant:
Researcher signature Date
Name of researcher: Kristian Hudson

Thank you for agreeing to take part in this study