# "A calming down game"
# An IPA study exploring the use of biofeedback software to support individuals in 'managing feelings'

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# Abstract

This research examines the initial perceptions of children, their parents and school staff of using a biofeedback technique, HeartMath's emWave PC stress relief system, in four primary schools to support the development of emotional wellbeing.

Interpretative Phenomenological Analysis was used to interpret information collected through 12 semi structured interviews, and the following themes were identified. The children's initial experiences were of a "calming-down game" to support them in managing anger through deep breathing and positive thought. School staff were divided in their perceptions between being "a little bit sceptical" and being 'blinded by science' by the information presented to them at their initial training. Consequently, some staff reported feeling insecure about using the technique with children. Issues of informed consent came to light through the parents' experiences and of 'intervention fatigue' – questioning whether this approach would help their children. Despite this, most parents reported noticing a positive change in their children coinciding with the use of the intervention.

Themes addressing the experience of being, or supporting, an individual who needs to 'manage their feelings' were also explored. School staff discussed this from the perspective of social justice and inclusion for individuals, the school and their wider community. The children described their experiences of 'calming down' through the use of the HeartMath biofeedback technique and other anger management strategies. Parents spoke of parenting a child who has difficulties in 'managing' their feelings and the events which could trigger emotional arousal in their children.

The results are discussed in light of the promotion of emotional wellbeing in primary schools and my own emerging practice as an Educational Psychologist. As a relatively new area of Educational Psychology, a range of further research opportunities are outlined, arising from the use of biofeedback software in schools, as a targeted intervention or 'universal' strategy.

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# Contents

# Figures

# Tables

# Introduction

The use of biofeedback software is one of the many strategies being implemented by schools in a local authority in North West England to help pupils who find 'managing feelings' challenging. The software, HeartMath emWave PC (2008), provides visual feedback upon an individual's heart rate variability and encourages an individual to achieve 'cardiac coherence.' At a simplistic level, HeartMath techniques can be viewed as utilising mindfulness, deep breathing and reflection on positive emotions or experiences to help acquire a measured response to emotional or stressful situations. Biofeedback on progress towards achieving this is provided by a graph representing heart rate variability, or through the option of playing games or completing training activities via the software.

As such, HeartMath represents an approach which is outside of the traditional remit of education in the UK. Developed initially to aid stress management within commercial contexts, or to help athletes enter into and maintain the state of flow (Csikszentmihalyi, 1991) necessary to compete at a high level of competition, this approach contrasts strongly with previous methods of emotional regulation or anger management used within schools, or by Educational Psychologists (EPs). Therefore, wanting to know more about these techniques, and how they could be of use within educational settings, I embarked on this research.

This research project focuses upon the area of emotional wellbeing. A number of national initiatives have been introduced to optimise emotional wellbeing in the under-16 population, including the Social and Emotional Aspects of Learning (SEAL) programme (DfES, 2005) which is being implemented in 89.5% of primary schools in England and 64% of secondary schools (as of July 2009, DCSF, 2009a).

One of the five core domains of the SEAL programme is that of Managing Feelings which supports pupils in:

Managing how we express emotions, coping with and changing difficult and uncomfortable feelings, and increasing and enhancing positive and pleasant feelings. (DfES, 2007, p5).

The literature review explores the concepts of emotions and emotional regulation in further detail, before outlining school-based programmes and approaches to support individuals in managing their feelings, including the use of biofeedback. The research to date into the use of biofeedback techniques has been mainly quantitative or experimental in nature, and therefore it seems reasonable to explore the use of biofeedback from a qualitative stance. Ultimately the aim of this research, is to go "back to the thing" itself as expressed by Husserl (in Smith et al, 2009, p1) in order to obtain a greater understanding of the experiences of using biofeedback software within educational settings to support individuals in 'managing feelings'. There is also a requirement to inform practice, and therefore it is intended that this research be of use to practitioners within my local authority, as well as informing my own practice as an Educational Psychologist (EP). The combination of these factors means that Interpretative Phenomenological Analysis has been adopted as the research approach.

There is also an element of personal curiosity and inquiry motivating this research. When I was first introduced to HeartMath techniques (in June 2008) whilst on first year placement (with my current EP Service), I admit that I was sceptical about the approach. Its promotion of positive emotion as a method to moderate the physiological effects of stress and to manage emotions initially seemed unlikely to me. To be blunt it all sounded a little 'hippy' to me. However, as my knowledge of Positive Psychology (Seligman, 2002) has grown and I have become more aware of the significance of positive emotions, I have become intrigued by this approach, and interested as to whether it can contribute to the emotional health and wellbeing agenda, both for adults and children. It is an attempt to consolidate information from a range of psychological paradigms informing my understanding and practice,

and thus become more effective at supporting the emotional health and wellbeing of myself and others.

Consequently, I see that this research may provide an introduction to biofeedback techniques to EPs. Although some authorities have started to utilise these techniques, e.g. Plymouth Educational Psychology Service (as discussed in Roberts, Hampton, & Kaar, 2009) and my employing local authority, this is only just beginning to be reflected in the profession's literature and conferences' agendas (such as Hertfordshire's conference on "Mental Health of Children and Young People, on 26/4/10). Given this, I have set two main research questions:

From the perceptions of children, parents and school staff:
- What are the initial experiences of using HeartMath (within the first 3 months of implementation)?
- How may HeartMath support an individual in 'managing' his/her feelings?

Additionally, I hope to develop an insight into working with schools and settings in supporting the use of these techniques, informing my own practice, that of the schools within the local authority, and my colleagues within the Service where I am employed. In order to meet these aims, therefore, Chapter 5 addresses the following questions:

What are the possible implications of using HeartMath:
- in primary schools (to support the SEAL curriculum)?
- for my practice as an Educational Psychologist?

The following chapter sets out the current context of this piece of work in terms of the research and literature which is currently available within the wide remit of work which is currently ongoing to develop children's emotional health and wellbeing. Chapter 2 contains my epistemological and reflexive position, as well as justifying my choice of Interpretative Phenomenological Analysis over other research approaches. This chapter also discusses

quality assurance, the procedure and the ethical considerations. Chapter 3 contains the findings and initial discussion, considering the two research questions in turn. Chapter 4 contains a general discussion of the outcomes of the interpretative analysis. Chapter 5 addresses the implications for practice, and finally Chapter 6 discusses the conclusions and recommendations for further research.

The next chapter, the literature review sets this study within the context of current research, the extant literature and current educational practice.

# Chapter 1: Literature Review

After a brief overview of the context of this study within the UK education system, this chapter commences with a discussion of mental wellbeing, emotions and the concept of 'managing feelings' or emotional regulation as it is sometimes known. The chapter then discusses strategies and interventions used within educational settings to support emotional regulation including biofeedback techniques and the focus of this study, heart rate variability (as used within HeartMath™ techniques).

## Mental Wellbeing

Services for children and adolescents are currently structured and monitored through the Government's[1] Every Child Matters agenda (DfES, 2004), through the framework of the five outcomes: be healthy, stay safe, enjoy and achieve, achieve economic wellbeing and make a positive contribution. This has resulted in educational services becoming more family and child-focused, concerned not only with the traditional remit of education (such as the '3Rs') but with the 'whole child'. Initiatives such as Extended Schools, Children's Centres, the Early Years Foundation Stage Curriculum, the Primary and Secondary National Strategies all aim to ensure the holistic development of children and young people, and improve public services for the under-19 population in the UK.

Under this agenda, the promotion of mental wellbeing, the prevention of mental illness and building a child's resilience is recognised as not only being important to a child's academic progress but also in dealing with adverse life events throughout child and adulthood.

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[1] At the time of submission (May 2010) the new coalition Government has just come into power, and the Department of Education has just been formed. At the present time, there has been no policy announcement regarding the future of the Every Child Matters framework, or other legislation. However, I am aware that the context of this study made be subject to change in the near future.

Burman (2009) argues that the emotional well-being agenda may mark the beginning of "the suppression of variation (in emotional response) which endorses conformity and consensus" (p142), and one supposes civil obedience in schools and the wider society. Ecclestone and Hayes (2008) argue that government and state rhetoric is used to highlight increased within-person, emotional vulnerabilities, (as evidenced by low self-esteem, increased levels of mental illness etc.) rather than addressing more structural issues in society (e.g. childhood poverty). It would seem to link into the State's agenda in building mental 'capital' for the (social and economic?) future in the UK (Foresight Project, 2009). This, then, is the flipside of the well-being agenda, where it is used to sustain social control.

Despite these concerns, the popularity and dialogue about emotional health and well-being continues to expand. The vocabulary of the work in this area is varied, with some terms being used synonymously, and some not, dependent upon the author's preference. Therefore, the terms emotional literacy, emotional intelligence, emotional competence, emotional health and wellbeing, mental health, mental wellbeing, emotional regulation and anger management have all yielded relevant results for this literature review. In order to reflect the current vocabulary used within my local authority, the language of the SEAL curriculum and current initiatives, I have opted to underpin this study with the concepts of mental (and emotional) health and wellbeing rather than the more controversial concepts of Emotional Intelligence as discussed in Humphrey et al. (2007).

I have therefore settled upon a definition of mental wellbeing, utilised by the National Institute for Clinical Excellence and the National Healthy Schools

Programme. This definition has the advantage of incorporating three elements of:

- Emotional wellbeing (including happiness, confidence and the opposite of depression)
- Psychological wellbeing (including autonomy, problem-solving, resilience and attentiveness/involvement)
- Social wellbeing (good relationships with others and the opposite of conduct disorder, delinquency, interpersonal violence and bullying) (DCSF & DoH, 2007, p6)

This research focuses mainly upon the area of emotional wellbeing. A number of national initiatives have been introduced to optimise emotional wellbeing in the under-19 population, both to support individual pupils, such as the Targeted Mental Health in Schools project, and at a 'universal' level through the Social and Emotional Aspects of Learning (SEAL) programme (DfES, 2005). The SEAL programme aims to help children and young people (in primary and secondary schools) to develop the social, emotional and behavioural skills not only to become effective learners in the present; but also responsible citizens in the future (DfES, 2005). It aims to achieve this through the implementation of a whole-school, structured curriculum (in primary schools) or a framework of whole-class lessons within Key Stage 3 alongside small group and individual work as needed.

'Managing feelings' is one of the five key domains underpinning SEAL alongside the intra-personal aspects of 'self-awareness' and 'motivation'; and the inter-personal qualities of 'empathy' and 'social skills.' These five domains, based on Gardner's (1983) theory of multiple intelligences, were initially identified by Salovey and Mayer (1990) and popularised by Goleman (1995) in "Emotional Intelligence." Within the primary SEAL programme, the five domains are delivered via a spiral curriculum, through recurring term-long themes such as 'Good to be me' and 'Getting on and falling out.' The psychological underpinnings of SEAL are detailed further in the guidance to the Targeted Mental Health in Schools Project (DCSF, 2008, Annex B). The 'Managing Feelings' strand, which promotes skills in emotional regulation, encourages primary-aged children to:

> use a range of strategies to recognise and accept their feelings.
> They can use this to regulate their learning and behaviour – for
> example, managing anxiety or anger, or demonstrating
> resilience in the face of difficulty. (DfES, 2004, p76)

The full list of strategies and skills (written as 'I can' statements) which it is suggested a child should acquire across Key Stages 1 and 2 is contained in Appendix A.

Before examining how this applies practically to educational settings, it is necessary to examine the literature regarding the theory underpinning emotions and emotional regulation.

## Emotion

The definition of emotion is an ongoing issue across the various fields of psychology and is largely dependent upon the paradigm being employed. However, there are agreed characteristics of what constitutes an emotion (e.g. in Frijda, 1988) as opposed to the more long-lasting, non-specific 'mood' or the wider-ranging, more dispositional term, 'affect.' Emotion consequently, can be seen as a conscious or unconscious response to a [significant] external or internal event (or goal) consisting of:

> multi-faceted, whole-body phenomena that involve loosely-coupled change in the domains of *subjective experience,*
> *behaviour* and *central and peripheral physiology*
> (Gross & Thompson, 2007, p 5)

Six emotions are thought to be identifiable as world-wide constructs; happiness, surprise, disgust, anger, fear and sadness (Ekman,1972 in Gross, 1992). Other emotions, such as the Japanese emotion of *amae* (a deeply gratifying feeling of childlike dependency, described in Griffiths, 1997) are social constructs, dependent on socio-historic culture and behavioural expectations (Ratner, 2000 in Schutz et al, 2006). As social constructs, the nature and language of emotions are subject to variation over time, and socio-cultural contexts.

Academic theory regarding emotion has tended to follow the paradigm shifts in psychology as a field. James' initial views that experiences of emotions arose from bodily states (1890), led to structuralist models which regarded emotions as a purely physiological response within the brain and body (e.g. Cannon-Bard, 1927) triggered by stimulus events in the environment. Freud's psycho-dynamic theories resulted in the concept of defence mechanisms and unconscious emotions. Behaviourist models explored emotion through conditioning, reinforcement and inhibition (Strongman, 1996).

The dominance of Cognitive Psychology had a largely negative impact on the study of emotion throughout the twentieth century, as emotion was sidelined as the study of logic and reason dominated psychological research (Humphrey, et al., 2007). Models developed during this time, such as the Functionalist Systems model (described in Gross, 1992), added the dimension of appraisal to the initial model of stimuli and response. However, there is little consideration of the phenomenology of emotion – what the individual actually experiences when experiencing an emotion within these models. This excludes the richness of human experience and loses the first-person narrative (Barrett et al, 2007). Additionally, the Functionalist model explains negative emotions but is not quite as effective at accommodating positive feelings. It is less easy to identify the functions of emotions such as happiness, excitement or contentment. Frederickson (1998) considers that positive emotions have been "shoehorned" (p303) into existing emotional models to the detriment of the adaptive role that positive emotions can play in an individual's life.

Contemporary models seek to utilise neuro-psychological knowledge to link emotion and reason (e.g. Curran, 2009). Theories such as Maclean's (1990) conceptualisation of the three-part, Triune brain have a common-sense appeal in providing a fundamental description of the emotive process, especially when used to explain fear or anger through evolutionary threats (as explored by LeDoux, 1998, 2000). These approaches employ Jamesian

concepts, but use modern technology to illuminate their hypotheses and approaches.

Examining emotion through a dynamic systems approach allows the physiological, cognitive, behavioural and phenomenological elements to be considered. It moves emotion from a purely brain-dominant, top-down approach to one which accommodates and adapts to the changes which occur in physiology as an emotional episode commences and develops. The dynamic systems approach, as advocated by Lewis & Granic (2000) and Mascolo et al. (2000) applies a multiple component, self-organised system to emotional response. As Eynde & Turner (2006) outline, these components are non-sequential, and are mutually interconnected and dependent, giving feedback in both directions and allowing continuous adjustment, re-organising and adapting, not only within the system but to environmental and social factors too. However, the relative constancy of an individual's knowledge, beliefs, goals and concerns, result in similar, often unconscious, patterns of response and emotional behaviour, known as specific action tendencies.

Figure 1 contains a simplistic representation of the dynamic model of emotion, a highly complex, and constantly shifting emotional system. (Scherer, 2004, in Eynde & Turner, 2006). The dynamic system has the ability to flex and adapt rapidly to change as required. Usually, the five components function fairly independently, but at times of emotional arousal the components are mutually interdependent.

**Subjective feeling component**
• Monitors the internal state and the interaction with the immediate context

**Cognitive Component**
• Responsible for evaluation of objects and events

**Motivational component**
• Prepares and directs actions

**Neurophysiological Component**
• Regulates arousal

**Motor Expression Component**
• Enacts emotional expression and reaction
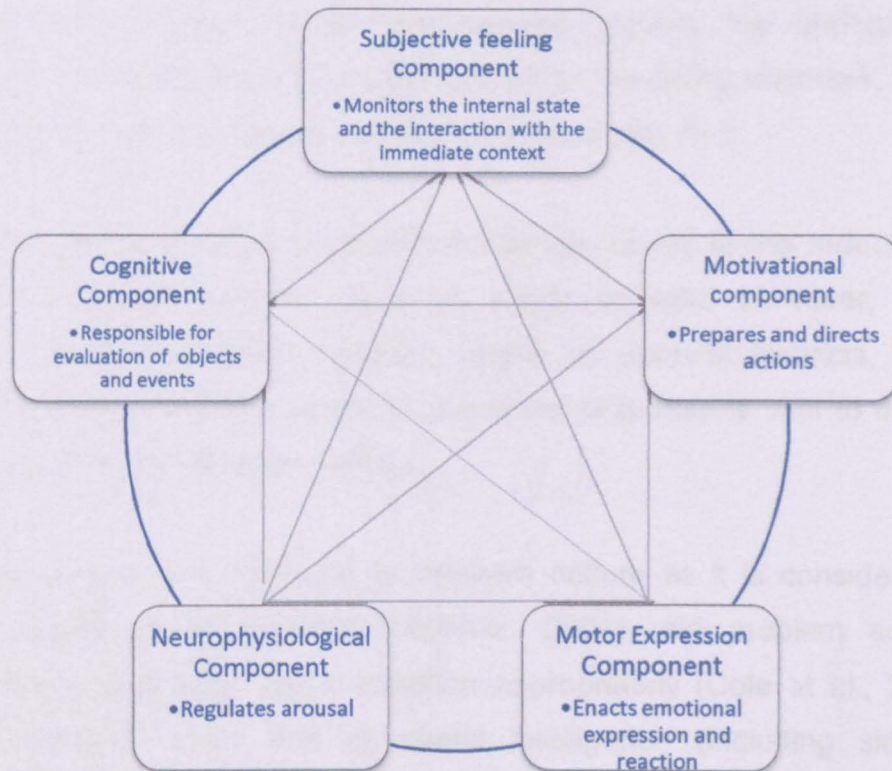
**Figure 1: Dynamic System for emotion
(after Scherer, 2004, p138 in Eynde & Turner, 2006)**

Eynde & Turner (2006) suggest using the dynamic systems model to examine the relationship between students' learning and emotions. They suggest that the model is suitable for use in exploring the complexity of classroom interactions and experiences, as well as for exploring the self-organising characteristics of the system. In considering the role of emotions within the classroom and the potential impact on learning, the concept of self-management naturally arises, and this will be explored in the next section.

## Theory of emotional regulation

Emotional self-regulation is defined as:

> "the processes by which individuals influence which emotions they have, when they have them, and how they experience and express these emotions"    (Gross, 1998, p275)

This definition, although broad and generic, covers the underpinning concepts of 'managing feelings' as defined within the SEAL materials, and is also compatible with the dynamic systems model of emotion.

Most of the literature about emotional regulation relates to the reduction of 'negative' emotional arousal, such as anger or fear. However, these emotions have an adaptive function, based on survival instincts, which means that there are times when an emotional response is vital to dealing with perceived threats (Curran, 2008).

Emotional regulation is desirable in Western culture as it is considered to promote better decision-making (McPhail, 2004), aid problem solving, support relationships and focus attention appropriately (Cole et al., 2004). Goleman's (1995) claim that emotional intelligence (including skills of emotional regulation) facilitated improved academic performance has not consistently been born out in the research (see Humphrey et al., 2007 for a discussion of this). In contrast, Gross (1998) observes that the majority of conditions listed in the DSM-IV mention emotional dysregulation amongst the diagnostic criteria. Consequently, a range of mental illness in adulthood has been linked to emotional dysregulation (Berking et al, 2008). Consequently, emotional regulation and 'managing feelings' is viewed as a construct desirable for success in contemporary Western society.

Gross & Thompson (2007) note that emotional regulation may also be used to "intensify or simply maintain emotion" (p10) as in the rumination typified as typical of adolescent 'moods' or 'feeling sorry for oneself.'

Gross (1998) considers emotional regulation to be an interactive process similar to that of the dynamic system for emotion. He suggests five points at which management of emotions could occur, mostly as antecedents, but also in response to subjective emotional feelings. This is outlined in Figure 2 below, and although the diagram is linear in nature, the components should be considered as interactive, and non-sequential.

**Situation selection**
- Actively seek or avoid emotional stimuli
- Appraisal based on goals and past experiences leading to 'emotional behaviour'

**Situation modification**
- Managing one's response to a situation (effortful and actively)
- Reacting in an emotionally /socially appropriate manner

**Attentional deployment**
- Distraction/disengagement (e.g. turning away from an upsetting image)
- Foregrounding / focusing on managing the emotion (e.g. 'working through it')
- Rumination

**Cognitive strategies**
- Reframing
- Social comparison

**Response modulation (during/ post-emotion)**
- Relaxation
- Playing sport
- Self-medication (e.g. alcohol, drugs, comfort-eating)

**Figure 2: Model of components of emotional regulation (after Gross 1998)**

Gross's model incorporates unconscious, automatic, effortless processes as well as conscious emotional regulation strategies. Other areas of psychology, such as the psycho-dynamic paradigm, would question the whole construct of regulating emotions, regarding them as unconscious processes over which one can exert little control. Frijda (1988) espouses "the law of the lightest load" where he suggests that through the largely unconscious processes of defensive denial and depersonalisation, emotion and severe loss or trauma can respectively be managed to minimise negative experiences. The unconscious and automatic steps which occur physiologically and within the brain in processing and regulating emotion can therefore be considered as integral to this.

So far, the discussion of emotional regulation and managing feelings has pertained to self-management of emotions. Developmental psychologists, report that, particularly in the early years, emotional regulation is an extrinsic process largely dependent upon others, particularly care-givers who provide emotional containment for children. Attachment patterns with the main

caregiver (usually the mother) are influential in establishing self-regulation. There is evidence that maternal expressivity is a large influence on children's emotional styles and responses (Scharfe, 2000 in Qualter et al., 2007). However as the core skills of the SEAL strand of 'managing feelings' (see Appendix A) are intrinsic in nature, this paper will focus primarily upon self-regulation.

## The teaching and learning of emotional regulation

In terms of a core set of skills which children and young people should acquire to demonstrate emotional self-regulation, Berking et al. (2008) have collated the following proficiencies from the research as being necessary to manage emotions:

- An awareness of emotions and the ability to consciously process emotions (e.g. Lischetzke & Eid, 2003)
- The ability to identify and label emotions (e.g. Feldman-Barrett et al., 2001)
- The interpretation of bodily responses, related to emotions (e.g. Damasio, 1994)
- Understanding the prompts of emotions
- The acceptance (e.g. Greenberg, 2002) and tolerance of emotions (e.g. Kabat-Zinn, 2003)
- The ability to confront and overcome distressing emotions to achieve goals (e.g. Hayes, et al., 1996)
- The ability to actively moderate and overcome negative emotions (e.g. Catanzaro & Greenwood, 1994, all cited in Berking et al., 2008).

These are comparable with those in Appendix A, the skills of 'managing feelings' required by the Primary SEAL programme.

The teaching of Emotional regulation skills in schools is not a new phenomenon especially in the United States of America where a number of

programmes have been developed to promote Social and Emotional Learning. The Collaborative for Academic, Social and Emotional Learning reviewed 80 evidence-based programs (CASEL, 2003) such as: the Self Science Curriculum (Stone & Dillehunt, 1978 described in Goleman, 1995, p303), the Penn Prevention Programme (Jaycox et al., 1994), and the New Haven Social Development Programme (Weissberg et al.,1993, in Rice et al, 2007) rating them on their varying features, including outcomes for children and young people. For instance, Nelis et al. (2009) report long-lasting effects on the emotional regulation skills of a group of young adults when compared to a control group who had not followed a short emotional intelligence programme. Zins et al. (2004) report success in the promotion of social and emotional learning to support academic progress in school.

The teaching of the skills of emotional management is in itself a controversial construct, as emotional regulation is not always viewed as positive. The intra-person focus of managing feelings is critiqued for failing to take account of the social context. In teaching emotional regulation through SEAL, a message may be communicated to children and young people that there is a correct way to act and react. As Boler states:

> There is no discussion of the fact that rules of middle-class politeness may not serve the cultural context of inner-city children's material lives (1999, p94)....

Nor any "analysis of how and why children have *intelligently* developed the particular strategies they have" (Boler, 1999, p94). Instead, we (schools, EPs, or society in general) are quick to judge and look for within-child factors or conditions.

Additionally, there are different theories as to whether emotional intelligence is trait-based, or whether it is ability-based (Humphrey et al, 2007), resulting in different views about whether emotional regulation can be learnt. The evidence base from the USA suggests that it is possible, but research is being conducted in the UK too, led by the National Institute for Clinical Excellence (NICE). Three research reports have been published by NICE

examining effective, evidence-based practice in primary schools to support the development of mental health and wellbeing. For NICE, the 'gold standard' for research remains those studies which have utilised randomised controlled trials.

Shucksmith et al. (2007) reviewed school-based targeted provision which is aimed at children and young people at risk of mental ill-health. The report concluded that for 'emotional disorders' such as anxiety and depression, brief cognitive-based treatments worked best, especially when allied to parallel work with parents.

Adi et al. (2007) conducted a similar piece of work examining universal provision which was delivered through whole-class or school-wide programmes to develop wellbeing. Their conclusion was that the most effective strategies were long-term, multi-component programmes where curricular content was delivered within a supportive school context, and this work was extended to parents through parenting programmes or activities to improve parent-child relationships.

One of the curricula included within the Adi et al. (2007) study was the Providing Alternative Thinking Strategies (PATHS) curriculum (Greenberg & Kusche, 1998) which has been the subject of two evaluations within the UK. One, a case study of implementation within a class of 9 and 10 year-olds, in a Scottish primary school (Kelly et al, 2004), concluded that positive emotional changes resulted from the implementation of the programme and work with their parents. The second study (Curtis & Norgate, 2007) reported improved social and emotional outcomes in schools implementing the PATHS curriculum compared with control schools within the same local authority.

The SEAL programme was developed as a whole school approach. The underpinnings of SEAL are conceptualised thus:

> The SEAL programme has its basis in research on the affective competencies variously described as emotional intelligence or

emotional literacy; in long-standing experimental psychological research on empathy, social problem-solving and anger management, and in cognitive behavioural theories. (DCSF, 2008, p15)

The SEAL strand of 'Managing Feelings' is reported to be based on the theories of:

- LeDoux (fight or flight response, 1998, 2000),
- Damasio (emotions and rationality explored through neuroscience, 1994, 2003),
- Greenberg (changing emotions, 2003)
- Novaco (stress inoculation approach to anger management, 1977),

(DCSF, 2008).

Weare and Gray examined the infrastructure and good practice which has been established around the implementation of the programme as part of the DCSF's Behaviour and Attendance Pilot. Weare and Grey (2003) emphasise the importance of both the 'taught' elements (i.e. the curriculum) and those 'caught' elements, promoted through the school's ethos, appropriate role models and behavioural expectations. The SEAL programme is universal provision and it is therefore important to consider the delivery of provision to those children and young people who require additional support in order to develop their emotional regulation skills.

The SEAL programme is delivered using a 'wave intervention' approach. Interventions at Wave 2 are based upon small-group work and have been subject to a recent evaluation (Humphrey et al, 2008). The evaluation showed overall improvement in emotional literacy. The study identified the optimum conditions for the delivery of effective small-group programmes, including group size, staffing and resourcing.

Wave 3, individual targeted work, was evaluated as part of phase one of the DCSF's Targeted Mental Health in Schools Project which aims to provide both preventative work and intervention work to pupils who may be

vulnerable to mental health needs (DCSF, 2009b). The evaluation focuses on identifying the level of emotional and behavioural need (about 10% of the school population); and identifying interventions which have been put in place to support these pupils and providing some case studies of initial practice (DCSF, 2008).

The interest in the promotion of emotional wellbeing in schools has resulted in a plethora of resources being produced to support school-based staff in aiding pupils in developing their emotional skills. For instance, these are marketed under the banner of:

- stress management e.g. McNamara (2000),
- emotional intelligence e.g. Corrie (2003),
- emotional literacy e.g. Antidote (2003),
- anger management e.g. Faupel et al., (1998) and Rae & Robinson (2001).

This has resulted in what Ecclestone & Hayes (2009) have termed the 'dangerous rise' of therapeutic education and a rise in 'victim culture' as people become pre-occupied with emotion wellbeing and self-esteem (Furedi, 2003). Ecclestone & Hayes (2009) argue that education and the State are taking on a role which belongs to the family and that schools are not the best place for children and young people to learn about the social and cultural values of emotional life. However, the Government's view is that to maximise our (economic) and social capital:

> The State can play, and should play, an important role in nurturing and improving the mental capital and wellbeing of children (Foresight Project, 2008, p71).

Consequently, although Ecclestone & Hayes' ideas have generated much debate, the EP Service which I am employed by, have a strong, continued interest in promoting the emotional wellbeing agenda in our borough, through a strengths-based approach. One of the initiatives with which they became involved through this work is a pilot project into the use of biofeedback software in schools to develop emotional health and wellbeing.

## An introduction to Biofeedback

Biofeedback and Applied Psychophysiology began in the 1950s in the USA, and is the result of several fields of psychology coming together, such as behavioural therapy, stress research and management techniques and biomedical engineering (Schwartz & Olsen, 2003). The field of biofeedback is used for a range of conditions, for instance, to cultivate lower arousal, or for neuromuscular applications, such as gait analysis, attention deficit disorder and headaches (Schwartz & Olsen, 2003).

A survey conducted in 2004 by the Association of Biofeedback and Applied Psychophysiology into biofeedback instrumentation, lists 37 approaches or instruments measuring:

- electroencephalography (EEG) - a measure of neural activity
- electromyography (EMG) - a measure of muscular activity
- galvanic skin response
- blood pressure
- temperature
- respiration
- heart rate

The approach which was adopted within the local authority uses the measurement of heart rate to provide feedback to individuals about their physiological state. The change in the interval between individual heartbeats (usually measured in milliseconds) or heart rate variability, as it's known, is a reflection of the body's adaptability to environmental or internal stimuli (Moss, 2004) and is explained further below.

## Heart Rate Variability

Appelhans and Luecken (2006) report that monitoring Heart Rate Variability (HRV) is a valid physiological indicator of an individual's ability to emotionally regulate an experience. Heart Rate Variability (or inter-beat interval as it is sometime known) can be used to show the interplay between the

sympathetic and parasympathetic nervous systems and hence flexibility within the autonomic system to respond and to accommodate emotional experiences and feedback from the other components of the emotional dynamic system (see Figure 1). The larger the range of heart rate variability the more responsive the central autonomic nervous system is considered to be. HRV has been shown to decrease over time, as an individual ages, experiences cardiac disease or clinical depression (Moss, 2004).

The sympathetic nervous system is activated during emotional arousal whereas the parasympathetic nervous system operates during time of stability and rest. The two systems work in mutually exclusive ways – if the sympathetic nervous system (SNS) has engaged, the parasympathetic nervous system (PNS) will have decreased its action correspondingly. As the SNS engages, heart rate increases (and hence there are shorter interbeat intervals) and PNS activity decreases. The whole process reverses as the PNS is activated, which acts as a brake on the heart via the vagus nerve (Moss, 2004). When exhaling, the SNS is 'gated off,' thus enabling the PNS to become engaged, slowing the heart beat. Through regular deep breathing, in the example below, in and out for five seconds, a regular sine wave can be produced of heart rate variability (see the grey[2] line on Figure 3).
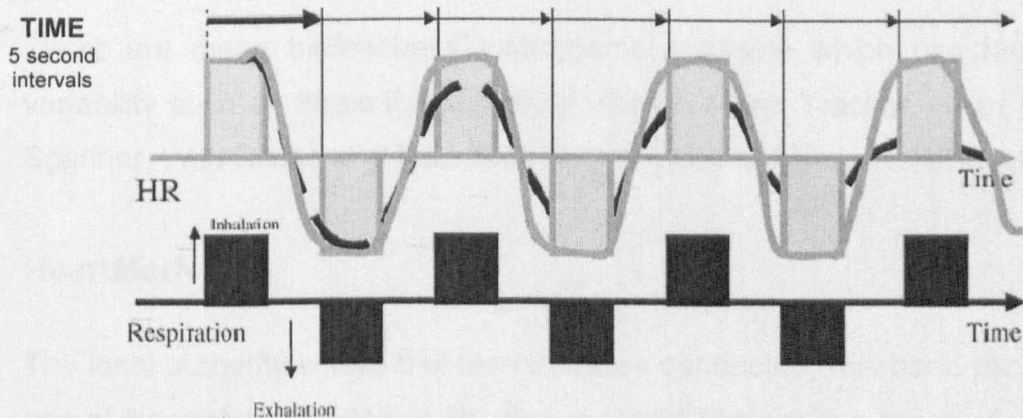


**Figure 3: Heart rate oscillations (HRV) elicited by the stimulus of respiration (Lehrer & Vaschillo, 2008)**

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[2] The black dashed line is blood pressure.

When this heart rate variability is measured electronically, each heartbeat, (the contraction of the heart muscle as controlled via the sinoatrial node) can be represented as a peak on a graph, showing the interbeat interval between wave crests. Information regarding heart rate is transferred via the Central Autonomic Network to the other components of the dynamic emotion system and via mutual feedback, the system self-organises to accommodate these changes in the emotional experience (Thayer & Lane, 2000).

An alternate premise to explain the reactivity of the heart, via the sinoatrial node is the polyvagal theory (Porges, 2007). This is based upon the evolutionary development of human responses to threat (i.e. flight, fight or freeze). Although the two theories have their differences, there is considerable overlap, in that each views the body's physiological response to stimuli, as a dynamic system, with the sinoatrial node communicating with the brain, and vice versa. Physiological information from the body impacts further upon heart rate, such as facial expression (known to affect the experience of emotion), information from the central autonomic nervous system and those areas of the brain involved in generating and regulating emotion, i.e. the amygdala, the limbic system and the periorbital frontal cortex (Curran, 2008).

There are many biofeedback instruments available which use heart rate variability such as StressEraser, Heart Wizard, Heart Tracker, Heart Rhythm Scanner, Wild Divine and HeartMath® emWave PC Stress Relief System®[3]

## HeartMath

The local authority where this research was conducted, has been piloting the use of HeartMath® emWave PC Stress Relief System in a range of contexts within Children's Services. Formally called Freeze Framer, emWave is a commercially available piece of software and 'pod' which measures heart

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[3] HeartMath® is a registered trade mark. In the UK, the licensee is Performance on Demand and Ultima Performance (specialising in training in education). Research into Heart Math is co-ordinated through the non-profit making Institute of HeartMath.

rate variability through a finger or ear sensor containing an LED. The sensor's technical name is a 'photoplethysmograph' and it works through:

> Taking advantage of the fact that a finger... having less blood in its vessels allows more light to pass through than an extremity with more blood. That is, pale skin passes more light than infused skin. A small light is shone through the flesh of a finger and is reflected back off the bone back to a light sensor. The variation in light intensity at the sensor and the resulting electrical signal indicate variation in blood volume. (Peek, 2003, p46)

This then can be used to monitor pulse and hence heart rate variability (HRV). Through training games, or just through monitoring HRV graphically, the user is encouraged to achieve 'coherence,' as shown on the screen by a regular sine-like wave.
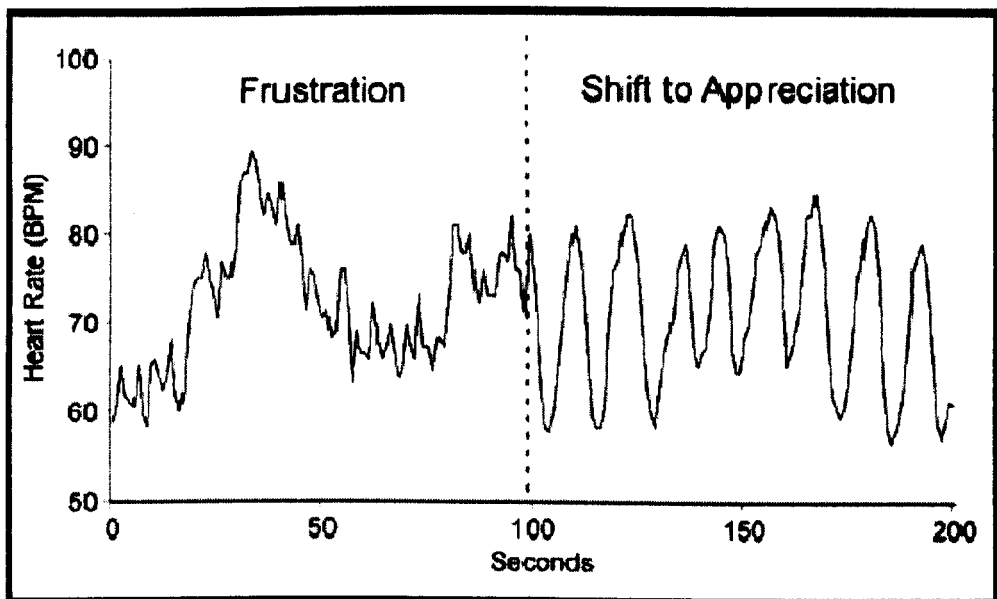


**Figure 4: Illustration showing a shift to coherence as demonstrated by Heart Rate Variability (from McCraty, 2005)**

When heart rate variability takes this form it is an indication that there is a shift towards the parasympathetic nervous system and "increased synchronisation between the activity in the two branches of the autonomic nervous system" (McCraty, 2005, p130). This 'coherence' also indicates better synchronisation between the brain and the heart, enabling enhanced learning, memory and cognitive skills (McCraty, 2005, Institute of HeartMath). Figure 4 contains two sample images from the HeartMath

software, comparing usual (or chaotic HRV) with that obtained during coherence.

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**Reflection**
The three presentations that I have seen by a representative of the UK Licensee have focused mainly upon episodes of emotional hi-jacking, and the impact of stress upon the body. Due to the constraints of this study, I have decided to focus mainly upon the 'mechanics' of the intervention, the three elements which make up the technique.

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In order to achieve this synchronisation, the HeartMath approach employs the Quick Coherence® technique (see Appendix B for full version). This is summarised as:

- Focus your attention in the area of your heart
- Pretend you are breathing slowly and gently through your heart to a count of 5 or 6 (about 4 or 5 seconds)
- While continuing to breathe with ease and rhythm through your heart, find a positive feeling or attitude like care, compassion or appreciation. (Childre, 2008)

As shown above in Figure 4, the attentional shift and corresponding feedback to the emotional system engages the self-organised system, to encourage parasympathetic activity. Individuals are also taught Heart Lock-in – a longer relaxation exercise where they are encouraged to concentrate on the heart for between 5 and 15 minutes, accompanied by deep breathing.

The 'coherent' breathing rhythm of inhalation and exhalation for five seconds is significant in that the regular pattern that is produced corresponds to the concept of 'resonant frequency' espoused by Vaschillo, in his work in the 1980s, a condition which is optimal for overall health (Moss, 2004). Lehrer & Vaschillo (2008) note that a wide range of conditions are reported to have responded to heart rate variability or regular breathing, at this frequency:

> Asthma, hyperventiliation syndrome, hypertension, hypotension, anxiety, depression, fatigue, pain etc. (Lehrer & Vaschillo, 2008, p13)

This resonant frequency appears to correspond to the concept of coherence described by McCraty (2005) and other researchers at the Institute of HeartMath.

Of course, deep breathing has a long history of being associated with individuals changing their physiological state to achieve a feeling of wellbeing, calm or relaxation. Lehrer (2003) reports that participating in the Eastern traditions of Zen, Yoga and Qigong result in similar changes in the physiology as HRV biofeedback techniques. However, Lehrer admits that the slow breathing aspect of these approaches is probably just one contributing factor and other aspects, such as meditation or mindfulness, are likely to be significant too.

The Quick Coherence technique has other aspects than the purely physiological. Practitioners are asked initially to focus their attention on the heart area. As explored above, Gross & Thompson (2007) considered that attentional deployment is one of the processes often used in emotional regulation. There is also an element of mindfulness, the skill of:

> Paying attention in a particular way: on purpose, in the present moment and non-judgementally. (Kabat-Zinn, 1994, p4 in Hyland, 2009)

The final component of the Quick Coherence technique is to recall a positive feeling of love, appreciation or feeling socially connected. In the schools in the local area, this has become known colloquially as 'Going to your happy place.' Adult HeartMath users have spoke of imaging feelings of calm through images of peaceful countryside, envisioning holiday memories as well as considering time spent with loved ones. Min et al. (2005) found that imagined emotional states, i.e. pleasantness, comfort, fear/arousal, or relaxation could be differentiated, through looking at measurements of heart rate and respiration, to indicate autonomic nervous system activity. Frederickson (1998) established that asking students to think for less than one minute about a time when they were happy, significantly increased test performance, regardless of instruction to modify physiological symptoms, or not. Frederickson (2009) reports that positive meditations (the Open Heart project) resulted in increased positivity (but not necessarily decreased negativity), better social relationships, increased resiliency and increased mental strengths across a population of office workers.

In the UK, HeartMath techniques have mainly been used in commercial contexts to reduce stress and increase employee wellbeing or with athletes to enhance their sporting performance. Much of the research has focused upon the physiological impact of stress, especially the effect of cortisol on the body, and how best to manage stressful situations, through the use of coping strategies.

Much of the research regarding the use of heart rate variability in education has connections to the Institute of HeartMath, which tends to dominate research in this area. For instance, approximately a third of the references used by Roberts et al. (2009) to report on the use of another HRV software package with a group of Year 8 pupils, are linked to the work of the Institute of HeartMath.

Evidence from the USA has found that HeartMath has been successfully used in supporting children and young people in education settings (see Arguelles et al., 2003 for a summary). Improvements were found in emotional wellbeing (a reduction in hostility, depression and stress-related symptoms) alongside increased learning, motivation and resiliency factors as measured by the Achievement Inventory Measure, after 32 middle-school pupils followed a 16 hour programme introducing the HeartMath approach over a fortnight (McCraty et al., 1999). They found:

> "improvements in areas including stress and management, risky behavior, work management and focus, and relationships with teachers, family and peers." (McCraty et al., 1999, p246)

Fritz (1996) noted an improvement (an average of 1.5 grade levels as measured on the Wide Range Achievement Test) in reading following a three week HeartMath intervention. Fifth and sixth grade pupils with learning and/or behaviour needs, who were educated in a special needs class showed the improvement after Fritz introduced HeartMath to address low self-esteem rather than tackle their reading needs through a literacy intervention.

Other projects have focused on the management of exam or test anxiety, using pre- and post-test measures of wellbeing and stress. For instance, McCraty et al. (2000) found that high school pupils showed an improvement in reading (mean improvement 14%) and mathematics scores (mean improvement 35%), following a three-week programme of HeartMath (25 hours in all). The students also showed a significant reduction in their levels of psychological distress and exam anxiety as indicated by the Brief Symptom Inventory. Although this study cites the presence of a control group, it does not outline the programme followed by the students within the control condition of the study. HeartMath LLC have produced a resource called "TestEdge" to support students approaching exams or tests. The Institute of HeartMath evaluation reports that 75% of the students who identified themselves as prone to exam nerves, managed to reduce their anxiety through the project (Bradley et al., 2007).

A study in the UK used pre- and post-intervention measures to identify performance in a small group of GCSE students. The information seems to indicate that HeartMath does make a difference in the management of exam anxiety and general wellbeing of those using the programme (unreferenced author, Hunter Kane website, accessed 7/12/08).

Recent work within an authority within the north-west of England has also indicated that HeartMath was more beneficial to a population of 38 year 7 and 8 children with ADHD (Lloyd et al., 2007) rather than those placed in a control group. Those pupils placed in the intervention group showed improved recall skills and in the quality verbal episodic memory. A reduction in the severity of hyperactivity and attention difficulties were reported by Amon & Campbell (2008) in using a biofeedback software programme, Journey to the Wild Divine, with children diagnosed with ADHD.

Roberts et al. (2009) used a HRV biofeedback programme 'CardioSense' (Cardiac Coherence, 2007) with ten Year 8 pupils who were most vulnerable in their year group to 'emotional reactivity.' After a five week period, students

reported a calming effect and half of the group showed a significant decline in a measure of emotional reactivity.

Within the local authority, a small scale piece of action research was conducted by the Learning Mentor team within a high-achieving high school on the impact on HeartMath on the management of stress and anxiety for a group of targeted Year 11 students prior to their GCSEs in 2007. They reported that it was beneficial in reducing levels of anxiety amongst the pupils, and have since used HeartMath again to support students (unpublished).

## Context of this research

This research links the extension of the HeartMath Project to three clusters of primary schools who are following the SEAL curriculum. Two teachers from each of the 22 primary schools were offered the opportunity of being trained (by a representative of the UK licensee) in the use of HeartMath (on 24/2/09). The software was then provided and schools were encouraged to use the techniques as a pilot project (March-July 09). Individual EPs from the service also attended the training to further their own knowledge of the techniques.

Given that much of the research conducted into the use of HeartMath within schools to date has adopted a quasi-experimental research design (as defined by C. Robson, 2002) to examine the effectiveness of these techniques (e.g. McCraty et al., 1999, 2000 & 2001; and Aguinea, 2006), I considered that an opportunity existed to explore what it is *like* to use biofeedback techniques within an educational setting, through an idiographic perspective. The existence of a plethora of Social and Emotional Learning Programmes in the USA and UK means that there is an opportunity to link the two agendas together through the medium of emotional regulation or 'managing' feelings.

Given the timing of the project, I intend to gather initial impressions of use of the biofeedback technique. Initial learning skills can be structured using a taxonomy of thinking skills such as Bloom's (1956) which was revised by Anderson, Krathwohl, & Bloom, 2001).
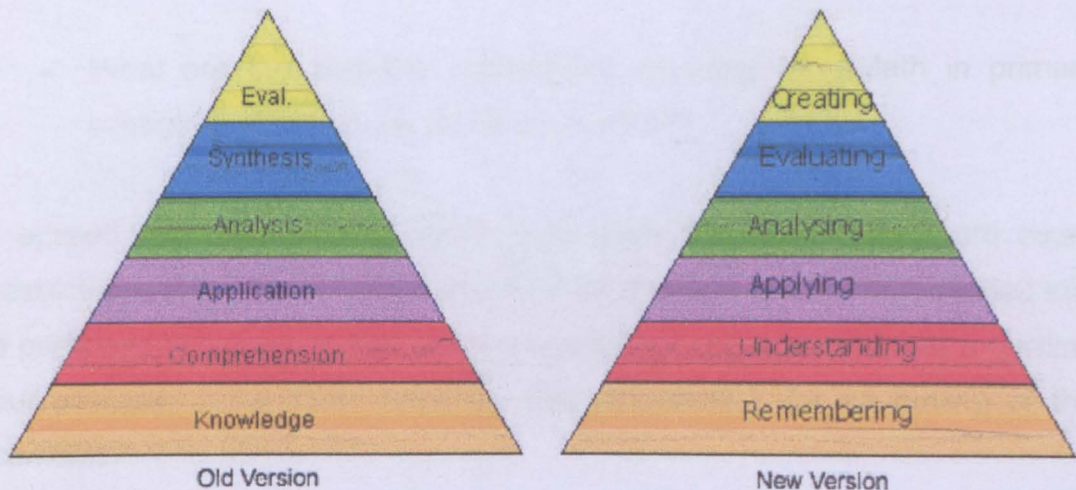


Figure 5: Original & Revised version of Bloom's Taxonomy
of Thinking Skills

In interviewing the participants about their perceptions of HeartMath, I would therefore expect to see these thinking skills demonstrated as they come to terms with this new approach in schools, with the higher order skills developing once the fundamental knowledge of the system has been acquired.

## Research Questions

I entered into this research project with many possible avenues of inquiry. In January 2009, I reflected that I had 7 areas of interest linked to the use of HeartMath within the local authority, mainly of an 'applied' nature (i.e. relevant to ongoing EP work). Through a process of peer consultation, supervision and reflection these areas of interest have reduced to two research questions, focusing mainly on lived experience:

From the perceptions of children, parents and school staff:

- What are the initial experiences of using HeartMath (within the first 3 months of implementation)?

- How may HeartMath support an individual in 'managing' his/her feelings?

Additionally, in order that this research has a practical purpose, and to meet the needs of my local authority, I intend to use this data to consider:

- What are the possible implications of using HeartMath in primary schools (to support the SEAL curriculum)?

I agreed with my (local authority) supervisor that due to the word count restrictions, the specifics of this practical information should be formatted into a pamphlet for school-based and Service-based colleagues to use, informing our practice in the local authority. See Appendix L for an outline of the contents.

As a Trainee EP, just about to embark on my career within the profession, I think it is important to consider how the use of biofeedback techniques may affect my practice, both in working with individual adults and children and supporting others who may do this direct work, such as learning mentors and teaching assistants. Therefore the final question is:

- What are the possible implications of using biofeedback software for my practice as an Educational Psychologist?

In light of these research questions, the next chapter details my epistemological position, and the reasoning behind my choice of Interpretative Phenomenological Analysis as my research approach.

# Chapter 2: Methodology

This chapter addresses the methodological principles considered at the design stage of this research. It documents the selection of Interpretative Phenomenological Analysis (IPA) as the research approach and provides a rationale as to why IPA was thought the most suitable method to address the project's research questions. Section A of this chapter considers issues of research design, including the selection of IPA. Section B outlines the theoretical underpinnings of IPA. Section C considers issues of validity and quality assurance, whereas Section D considers the practicalities of the procedure, Section E examines ethical issues and, finally, Section F outlines the method of data collection and analysis.

## Section A: Research Design

### Epistemological Position

This research is exploratory in nature, seeking to establish initial insights into the use of HeartMath within primary education and to illuminate the perceptions (that is, the individual's interpretations) generated by the experiences of using HeartMath techniques to support individuals in 'managing' their emotions.

It aims to explore a hitherto less well-addressed aspect of research into HeartMath, that of idiographic perspectives. This focus upon individual experiences will complement the existing mainly positivist literature, whilst providing an insight into the use of these techniques within educational contexts. Quantitative data, collected using a 'traditional' hypo-deductive methodology, would be unlikely to supply sufficiently rich data to "describe the experiences, nor understand or contextualise them" (Larkin & Shaw, 2009) nor address the exploratory nature of Research Question 1, regarding the initial experiences of using biofeedback software.

In order to address the full extent of the research questions the methodology will require a bottom-up approach, where the data is explored in an open-ended manner without hypothesis-driven or fixed, closed, research questions. This is more characteristic of qualitative methodologies, rather than quantitative ones.

Qualitative methodology covers a range of different research methods which can be situated on a continuum according to their epistemological position (as shown in Figure 6), ranging from "radical relativist," where the ontology is that there are no pure, objective experiences and the world is viewed as:

> ...indeterminate, disorderly and constantly in flux and thereby ultimately 'unknowable' in any objective sense, (Moore 2005, p106)

to "naïve realists," where researchers seek to explore the reality and 'facts' of 'how the world is' (Madill et al., 2000 in Willig, 2008b).

Lyons (2007) suggests other points between the two poles of the continuum: firstly, the position of critical realist, who "recognises that knowledge is not objective" (p160); and secondly, the contextual constructionist who acknowledges that "all knowledge is context specific and influenced by the perspective of the perceiver" (Lyons, 2007, p160). As with any model attempting to represent the complexities of the 'messy' real world, the continuum is a little simplistic in that many of the approaches have overlapping epistemological stances, dependent upon the researcher's interpretation.

This research is situated between the two extreme poles, and best relates to the epistemological position described as "contextual constructionist" (Lyons, 2007). It is underpinned by the ontological belief (or world view) that there are multiple realities, each being informed through social interactions and engagement with society.
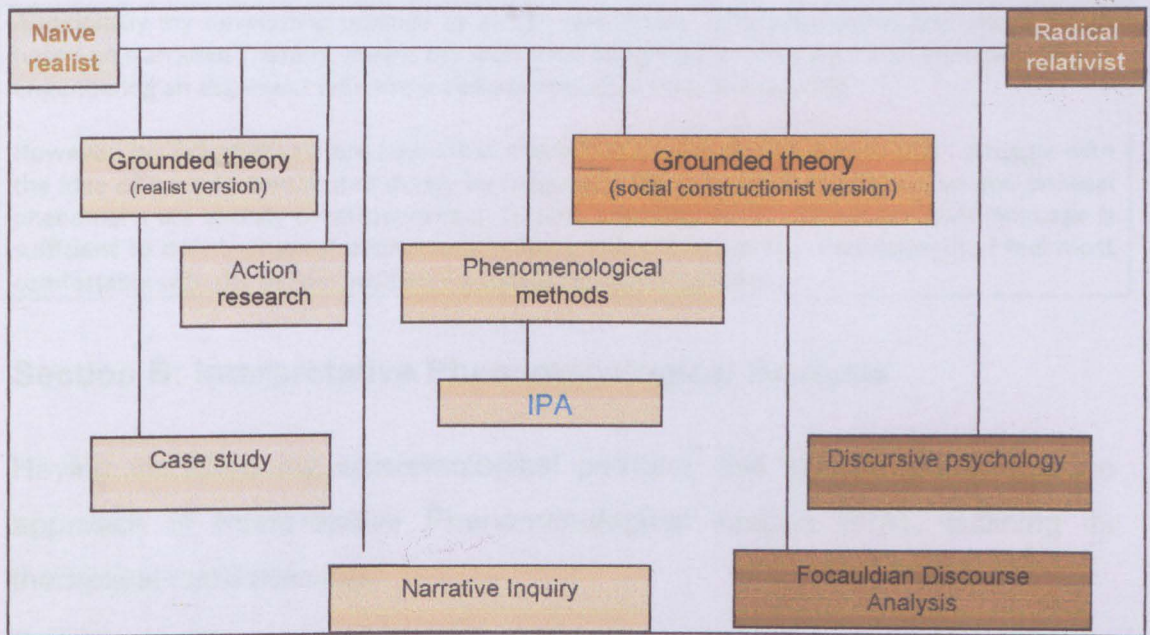
**Figure 6: Epistemological positions**
**(After Madill et al., 2000, in Willig, 2008b)**

In order to make sense of events and contexts, "individuals seek understanding of the world in which they live and work... [through]...subjective meanings of their experiences" (Cresswell, 2007, p20). In this instance, the term 'subjective' applies purely to the participants' understanding and what it means to them to live in a certain situation (Biggerstaff & Thompson, 2008). This research is concerned with lived experiences – the way things appear to us as we encounter them and how they are constructed through dialogue with others. Eatough and Smith (2008) suggest that IPA is at the "light end of social constructionism" (p 184) where language is a tool to understand ourselves and our experiences. This contrasts with the relativist position where "the individual's lifeworld [is seen] merely as a linguistic and discursive construction." (Eatough & Smith, 2008, p184).

**Reflection**

From my perspective, the view of language as a 'tool' to understand our experiences and perceptions resonates with my world-view. I feel that the "naïve realist" stance is personally untenable, given the discussions regarding social constructionism, which have underpinned my training as an EP.

Additionally my developing practice as an EP, sometimes using approaches and interventions based on Narrative Therapy, means my work increasingly adopts the stance of multiple realities, engendering an alignment with the socially-constructed view of the world.

However, my pragmatic nature (and initial training as a geographer), means that I struggle with the idea of a world constituted purely by language. Although I can accept human and political phenomena are socially constructed (e.g. culture, countries etc), I do not feel that language is sufficient to define physical phenomena – like a volcanic eruption. Consequently, I feel most comfortable with the middle position – a contextual constructionist.

## Section B: Interpretative Phenomenological Analysis

Having identified my epistemological position, this section introduces the approach of Interpretative Phenomenological Analyis (IPA), outlining its theoretical underpinnings.

IPA is a qualitative research approach developed specifically within psychology to enable detailed examination of lived experiences and how people make sense of them. IPA is idiographic in nature, focusing on the particular, individual case, contrasting with the 'nomothetic' approaches adopted by much of the 'traditional' empirical psychological research which seeks to generalise to a wider population (Eatough & Smith, 2008; Willig, 2008b).

It is a relatively new approach, defined first by Smith (1996) and being primarily used within the arena of health psychology. Recently, IPA has become more prevalent in other areas of psychological study, including that of applied social and clinical psychology (Reid et al., 2005). The IPA website (2010) organises its references into the following categories of content, demonstrating current trends in the use of this approach:

- counselling and therapy;
- identity;
- genetics;
- mental health, bereavement and loss;
- health, illness and disability;
- reproduction and parenting;
- health professionals and practitioners;
- sexuality.

The primary aim of an IPA-based research study is "focused on the subjective meanings people ascribe to events rather than attempting to record or represent objective events" (Flowers et al., 1999, p486).

## The Roots of Interpretative Phenomenological Analysis (IPA)

IPA is based upon phenomenology – the philosophical study of "anything that presents itself" (McConnell-Henry et al., 2009, p8), whether this is an object, event or experience. Fundamentally, this is the study of what the experience of being human is actually like (Smith et al., 2009). Phenomenology as a field of study has fragmented into many differing perspectives. This section focuses on the main phases of phenomenology; transcendental, hermeneutic and existential.

## Transcendental phenomenology

Transcendental phenomenology, has developed primarily from the work of Husserl, who hoped that it would become one of the main philosophical paradigms of the social sciences. He sought to *reduce* phenomena to their essential core, rather than conducting research to explain experimental hypotheses through increasingly abstract concepts (Ashworth, 2008).

Husserl's aim was a return 'to the things themselves' (Husserl,1900-1901 in Moran, 2000) and this remains a key concept of phenomenology. Its aim was to study lived experiences through descriptions obtained from directing conscious awareness, or *intentionality,* upon a particular object or experience and hence to 'lead back' to the phenomena.

Husserl acknowledged that an individual's understanding of a phenomenon was naturally subject to social, cultural and historical contexts and boundaries. These taken-for-granted assumptions are inherent in human life, and are used to help organise experiences into pre-existing categories or schemas. Thus in order to "transcend the personal and contextual" (Larkin & Shaw, 2009) fore-understanding, Husserl proposed the practice of *bracketing*

– putting to one side all recognised ideas about an object or event - as being key to achieving an objective understanding of a phenomenon. This process of bracketing is one of the core distinctions between Husserl's work and the later work of Heidegger, who developed hermeneutic phenomenology.

## Hermeneutic phenomenology

Hermeneutic (or interpretative) phenomenology was developed by Heidegger as a "way of understanding all human activities" (McConnell-Henry, et al., 2009, p8). He argued that it was impossible for an individual to fully distance themselves from their prior knowledge and to be fully objective. Consequently, Heidegger introduced the concept of *Dasein* (literally "there being") or 'being in the world' (Eatough & Smith, 2008), suggesting that as individuals we are already naturally immersed in a social world of objects, language and relationships. This therefore makes it impossible for us to step outside of our own individual experiences, especially considering that our "being in the world is always perspectival, always temporal, and always 'in-relation-to' something" (Smith, et al., 2009, p18).

Therefore, hermeneutic phenomenology recognises that at best we provide an individual interpretation of our lived experience i.e. a subjective account rather than an objective, universal truth. Hence for the hermeutic phenomenological research, "the outcome is understanding and meaning through interpretation" (McConnell-Henry, et al., 2009, p9).

> **Reflection**
>
> I am more inclined to accept Heidegger's views on bracketing. Even by consciously trying to put aside my thoughts and knowledge of HeartMath, the fact that I have engaged in a critical literature review (initially over 12 months ago) and attended meetings and training events about the approach, will surely impact upon my interpretations of the data. I am not entering this process as a naïve researcher, but with knowledge, and through setting the research questions and interview schedule, some expectations of the outcomes of this research. This process of bracketing then, can be considered a potential weakness in IPA. My position as researcher (see Appendix E: Reflexive position) will need to be clearly documented before the analysis process commences, as this will inform the interpretative element of the research.

## Existential phenomenology

The existential phenomenological movement stems from Heidegger's emphasis on *dasein* (worldliness) as explored above, but with the additional factor of the *embodied* experience as being central to understanding phenomena. For Merleau-Ponty the physical experience as lived and perceptual relationship of an individual with the environment is:

> "...so intertwined as if by a kind of 'pre-established harmony.' The world's colours proclaim themselves to our visual systems; space reveals itself through our bodily gestures and our desire to traverse distances."
>
> Moran (2000, p404) paraphasing Merleau-Ponty's "The Primacy of Perception" (translated 1964)

Thus it is important that an individual's bodily experiences and perceptions are acknowledged, both in their own right, and as being unique and different to those of surrounding people.

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**Reflection**
I am anticipating that the participants in discussing 'managing feelings' may describe the subjective and physiological aspects of this. Thus I feel that it is important to consider the embodied elements of their experiences too.

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## Hermeneutics

The second theoretical basis of IPA is that of hermeneutics – the theory of interpretation. As discussed above, Heidegger defined phenomenology as being hermeneutic in its own right. He acknowledged that we live an interpretive life, which we have constructed as a result of our interactive experiences with the world. This understanding of experience is, Heidegger and Gadamer argue (in Smith, et al., 2009), based upon a dynamic, cyclical process of prior knowledge assimilating new happenings or objects, known as the hermeneutic cycle (see figure 2).

Fore-understanding /pre-judgement

Resistance interrogating experience

Interpretative revision of fore-understanding
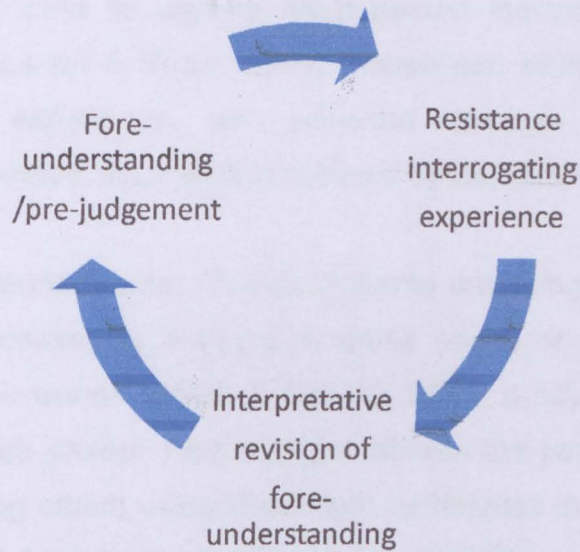
Figure 7: The Hermeneutic Cycle (from Larkin & Shaw, 2009)

Our presuppositions (or fore-understanding) are tested in light of the meaning which we are trying to interpret. However, until we begin to interpret an experience, we may not know which taken-for-granted assumptions to consciously resist at the time, and so may have to adjust our thinking accordingly. Hence, in conducting research using hermeneutics (or interpretative phenomenology), I recognise that bracketing is a cyclical process which is only ever partial in nature. Therefore the reflexive position of the researcher and its subsequent audit trail is important throughout the research process.

The hermeneutic cycle provides a theoretical framework for the analysis, emphasising the cyclical nature of IPA and how essential reflexivity is to this process and research (see Figure 8, on page 63). This will be explored further in the procedures section (on page 61).

**Implications for conducting Interpretative Phenomenological Analysis**

The theoretical underpinnings (as defined by Larkin & Shaw, 2009) considered below have implications for the conduct of an IPA research project.

The IPA researcher aims to capture "third person interpretations of first person reflections" (Larkin & Shaw, 2009, PowerPoint slide, 8/4/09) rather than define the experience, as achieved through a descriptive phenomenological method, such as that outlined by Giorgi & Giorgi (2008).

IPA utilises double hermeneutics. "The participants are trying to make sense of their world; the researcher is trying to make sense of the participants making sense of their world." (Smith & Osborn, 2008, p 53). In the case of this particular research project, I am trying to access the participants' views of using, or supporting others using HeartMath techniques in an educational context, and how they have made sense of these experiences.

My interpretations of my interactions and relationship with the participant are inevitable as a human being engaged in the world, and therefore reflexive practice is crucial to my IPA approach, as part of the Hermeneutic cycle.

## Rationale for selecting Interpretative Phenomenological Analysis

I believe that IPA is well suited to address the research questions given their exploratory nature. This point can be demonstrated in examining the focus of prior IPA studies, mainly in the arena of Health Psychology (see Brocki & Wearden's meta-analysis, 2006). The nature of the HeartMath technique is that it consists of an embodied, physiological element which requires capturing, and a subjective feeling of emotional regulation, as well as a cognitive element of positive thought. Thus the methodology for this study requires a capacity to address all these aspects of using HeartMath techniques. IPA's track record in Health Psychology reassures me that it has the potential to achieve this.

As explored in Chapter 1, the majority of work with the biofeedback field has been quasi-experimental in origin. As such, the intent in using an idiographic research approach is to obtain a fresh insight into this area. As Reid, et al. (2005) identified, "IPA is particularly suited to researching in 'unexplored

territory' where a theoretical pretext may be lacking." (Reid, et al., 2005, p23).

---

**Reflection**

I feel I have struggled to articulate the resonance that IPA generated within me when selecting the research approach, so this is an attempt to rectify this and summarise the 'gut-instinct' which led me to select IPA.

For me personally, IPA held sufficient structure to give me a 'recipe' to follow about how to conduct the research and analysis, without being overly-prescriptive or formulaic.

IPA enables elements of reflection and interpretation, whilst ensuring a systematic and rigorous consideration of the text generated through interview, moving from the merely descriptive to an interpretative stance. Finally, the novelty (and hence the challenge) of utilising the approach was such that it ensured that it would retain my interest throughout the project!

---

## Limitations of Interpretative Phenomenological Analysis

As with all qualitative methods, IPA has a number of limitations which require addressing, as well as the strengths explored above. As explored earlier, I consider Husserl's concept of bracketing flawed. At best, I will be able to put aside the knowledge, experiences and fore-understanding that I am aware of. However, there will be other (subconscious) influences which I may not be aware of, or patterns of behaviour or cognition (pattern-matching) which I am not able to identify. Hence, the role of critical friend and the audit trail is crucial in addressing the quality, consistency and foundations of my interpretations.

Storey (2007) articulates concerns about imposing psychological theories over the participant's own interpretation and phenomenological understanding of their experience. The aspect of a third person trying to make sense of first person experiences is also of concern to me. Concerns were expressed about violating the spirit of IPA, and it does seem almost disrespectful to interpret someone's utterances without checking with them, even though I understand the pragmatic necessity of it within the format of an interpretative study.

Previous IPA studies have largely focused on "existential matters of considerable importance for the participant" (Eatough & Smith, 2008, p186), frequently resulting in work which has issues of identity and other psychological concepts at the core of its analysis. That this research will touch on core constructs is unlikely, given the subject matter, the educational setting of the research and the brief relationship of the research interview. Consequently, I questioned whether IPA can accommodate the subject matter. As Smith, et al. (2009) are keen to advocate, IPA is a flexible approach. After much discussion (with critical friends) and attendance at a two day workshop (Larkin & Shaw, 2009), I reached the decision to proceed with an IPA approach, given that my study meets many of the prerequisites for this approach.

A further issue with the use of IPA is that of the recommended practice of adopting a broadly, homogenous sample. This has been of particular importance when investigating issues of a personal nature, as a homogenous group allows the researcher to get close to the experience. However in order to answer the research questions fully in this piece of research, the views of three groups of participants were sought: parents, school staff and children. Each group was considered individually, as was each school setting to identify themes (see the section on data analysis for further information). As an idiographic approach, IPA should recognise the particular incident or case as well as looking for patterns across cases. The use of the hermeneutic cycle, with its emphasis on looking at the parts and the whole, should address these concerns regarding homogeneity.

As a relatively new approach, a large proportion of the IPA research has been written by a small number of researchers. These academics and practitioners are influential in advocating for the use of IPA, through the publication of journal articles, books and their contributions to the IPA Research Interest Group, an online discussion forum (ipanalysis). Therefore critique of the approach is still evolving. Consequently it is necessary to look to different approaches to identify further strengths and limitations of IPA.

## Consideration of other methods and approaches

Using the continuum of qualitative approaches mentioned above (see Figure 6, p32, Madill, et al., 2000 in Willig, 2008b), those methods which can be considered as 'naïve realist' were the first to be discounted as they are epistemologically unsuited to this study.

Case study, as described by Yin (2009), could have successfully examined HeartMath as an intervention within individual school contexts. However it would not have explored the participants' lifeworld and experience, and therefore would have not addressed Research Question 1.

Similarly, Grounded Theory methods, which are more realist in nature must be discounted from being applicable to this research (as described by Glaser & Strauss, 1967; Strauss & Corbin, 1990; 1998; in Willig, 2008b). Grounded Theory seeks to generate theory through 'discovery,' a process not relevant to this research. The social constructivist version of grounded theory (Charmaz & Henwood, 2008) which recognises that the organisation and categorisation of the data is a reflection of the researcher's interaction and construction of the information is more in keeping with the epistemological basis of this research. However, the theory generation issues remain intrinsically the same.

Action research methods also aim to develop theory or practice but within a participatory, cyclical framework examining the psychology and social change generated through the researcher's actions and direct experiences (Kagan et al., 2008). The reasons and rationale for not using action research were mainly pragmatic ones e.g. the timescale of the research project did not match well with the introduction of the HeartMath intervention within schools, and there would not have been sufficient time to enable cycles of research.

Epistemologically, Narrative Inquiry is not dissimilar to IPA. Narrative Inquiry is based upon how:

> We organise our experience and our memory of human happenings mainly in the form of narrative (Bruner, 1991, p.4)

Bruner (1990) argues that, in the act of narration, mankind is not only looking to recall and share events, but to achieve a sense of coherence within ourselves, and so the telling becomes "doubly narrative" and an action in its own right. For this research, the open-ended nature of narrative inquiry may be too broad. At this early stage of the intervention the topic of HeartMath techniques is unlikely to create a sufficiently complex account to enable the three elements of narrative to be generated. i.e. "structure, its functions and its social / behavioural implications" (Willig, 2008b, p133) would be unlikely to be covered.

Moving towards the more relativist end of the qualitative research continuum, Conversation Analysis (Wilkinson & Kitzinger, 2008) – the study of talk and interaction and its subsequent actions and impact socially - relies upon the collection of everyday conversations or institutional interactions within naturalistic settings, which are often collected by the participants. Issues were also likely to occur around informed consent if a child (or adult) was to attempt to record naturalistic conversations in a school setting. Additionally HeartMath, SEAL and emotional regulation are not everyday conversational topics, making the collection of naturalistic data unfeasible.

At the radical relativist end of the qualitative research continuum are the approaches which are based on the premise that language does not merely reflect social and psychological reality but constitute it. Discourse Analysis (DA) aims to identify how versions of social reality are constructed through interaction. It seeks to identify how phenomenon are constituted socially, or "talked into being" (Willig, 2008b, p108). The research questions addressed through this methodology tend to "explore how knowledge, meaning, identities and social goods are negotiated through language-in-use" (Starks & Trinidad, 2007, p1374). DA was discounted as a method, as links "between discourse and 'real' world actions are difficult to make, because the 'real' world can only be understood as a construction" (Reid, et al., 2005, p

21), and pragmatically, as a practitioner, I am hoping to be able to infer good practice from the interviews to inform my career and practice within primary schools.

The Foucauldian approach to Discourse Analysis differs mainly in its political aspect. Foucauldian Discourse Analysis (FDA) explores issues of power and how these discourses link to institutional and social practice, and how they assist or impede social change. Willig, (2008a, p112) states that within FDA, discourses "facilitate and limit, enable and constrain what can be said, by whom, where and when." Through social interaction, dominant discourses are promoted, reinforcing social positioning and power. This is exemplified in Billington's (2000) work on children and young people with autistic spectrum conditions. My research is not overtly political in its aims. It does not aim to achieve social change or to give voice to a minority group or discourse. Although issues of power are largely unavoidable in qualitative research, it is likely to be one theme of many identified. Therefore, I consider FDA not to be the best suited method for this piece of research. Epistemologically, FDA is far too relativist in its stance for it to sit comfortably with my ontological position.

## Section C: Validity & quality assurance

### The researcher's perspective on enhancing validity

Yardley (2008) suggests an approach to validity in keeping with the epistemological stance of this research. The first "comparing researchers coding" was completed through an evaluation of coding from a random selection of pages of interview transcript by myself and a colleague (acting as critical friend). This was to ensure the reasonableness of my initial notation and emergent themes.

The second approach, 'participant feedback', was considered at length. Ultimately, I took the decision not to share the full analysis due to the interpretative nature of the study. My perceptions will be different to theirs

and pointing out inconsistencies or omissions, for instance, from the interview data, did not seem respectful to the participants. It would also not add any constructive value to the study. This is in line with the advice given by Larkin & Shaw (2009).

However, Yardley's third approach, 'disconfirming case analysis' is appropriate to IPA, and to this research. This consists of looking for examples of raw interview data which do not fit with the themes, trends or theory which I impose on the text, and may help identify flaws in the research design or possible future areas of research.

## The researcher's perspective on quality assurance

Many measures of identifying the quality of psychological research are based upon quantitative research methods. Parker (2004) provides a detailed argument for the unsuitability of 'traditional' positivist tools of psychological research to idiographic qualitative study. Additionally, quantitative research (based on hypothetico-deductive methods) usually seeks to maximise the researcher's objectivity, through minimising experimenter bias, which Parker (1994) argues is disingenuous anyway (see page 46). However, with an IPA study, grounded in hermeneutics, the researcher's influence and perspective on the data is integral to the research. Hence the usual (quantitative) measures of evaluating research cannot be deemed as relevant to this piece of work.

Of course that is not to say that the quality of this research should not be evaluated at all. Instead, I have opted to utilise Yardley's (2008) framework of evaluation criteria as it is more contemporary and allows some flexibility in application to suit this research. This is also in keeping with Smith, et al. (2009).

Thus the quality assurance of this research is provided through the following sub-headings: sensitivity to context (including the researcher's position);

commitment and rigour; transparency and coherence; and impact and importance.

### Sensitivity to Context (Ecological validity)[4]

The central method used to ensure the research is of current relevance and validity was to situate the research within the current theoretical and educational literature, as demonstrated in the literature review. The findings and discussion sections are linked to the extant literature.

The broad socio-economic contexts of the four schools are outlined within Table 1 (see page 54). Sensitivity to the socio-cultural context of the participants was considered throughout the research design and implementation stages. As each interview was the initial meeting between researcher and participant, ethical considerations and the formation of a 'working alliance' was important in order to assure the participants' comfort and ultimately to obtain relevant information. This necessitated me, as researcher, being sensitive to the participant's demeanour and non-verbal communication, as well as actively listening to their conversation.

Descriptive information on the socio-cultural characteristics of the participants is contained in Table 2 (see page 55). Additionally a 'pen portrait' of each participant is contained in Appendix C.

The ethical considerations outlined in Section E were carefully managed. Additionally, sensitivity to context is exemplified by the use of interview extracts throughout the findings chapter to demonstrate particular points. It is worth noting that all interviews with parents took place in school, as none took up the offer of a home visit.

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[4] I am taking the term 'Ecological validity' as synonymous with Yardley's 'Sensitivity to context' given (Wellington & Szcerbinski, 2007)'s definition of the term on p217, pertaining to applicability to real-life situations.

**Reflexivity**

Having considered the socio-cultural context of the participants, it is now necessary to consider the factors influencing me. Parker (2004) states the idea of objective research is a myth because even when apparently studying from a detached, quantitative position, psychologists (and other researchers) are subject to "hunches, intuitions, hopes and assumptions" (p3) which influence one's interpretation of the data. Unlike quantitative research, where this challenge is managed through an artificial 'distancing' of researcher from the area of research, interpretative research, embraces this subjectivity (Parker, 1994). As Parker explains:

> "Research is always carried out from a particular standpoint, and the pretence to neutrality in many quantitative studies is disingenuous". (Parker, 1994, p13)

From the moment of conception, with the formulation and development of the area of research, this project has been subject to my subjective positioning – the standpoint and perceptions which I have about this topic. Therefore, it is vital that I acknowledge the:

> Explicit recognition of the fact that the social researcher, and the research act itself, are part and parcel of the social world under investigation.
> (Hammersley & Atkinson, 1983, p234, in Wellington & Szcerbinski, 2007)

Consequently my subjective position, both in how I have formulated this area for research and its impact on my interpretative stance requires exploration. The following text box summarises my position. The full version can be found in Appendix E, which is based upon Wilkinson's (1988) suggested headings regarding personal reflexivity. Hence I have attempted to outline my biases, predilections, interests, values, experiences and characteristics.

<div style="border:1px solid black;">

**Summary of Reflexive position**

My first knowledge of HeartMath was characterised by a certain scepticism regarding the approach. However as my knowledge of positive psychology and wellbeing have broadened, I have become more open to it. The influences on me have been many and varying in position and motivation. I've attended training delivered by the HeartMath trainer to school staff and year 11 students. I have been present at meetings within the local authority. Personal communication within the EP Service, colleagues from a range of agencies and school-based staff has influenced my thinking. The internet is a source of a variety of views about HeartMath. I have purchased books on the approach, and used the software in order to understand it better. I've approached this research with genuine curiosity. However, as well as my own personal motivations, the needs of my employing local authority and the UK licensee have to be taken into account. Given the complexity of this position statement, I have included the full detail in Appendix E.

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In defining my position, I am establishing the foundations of the reflexive practice that will be necessary to engage in the interpretative elements of this study. Reflexivity is defined as the ability "to reflect on and consider intersubjective dynamics between researcher and data" (Biggerstaff & Thompson, 2008, p220) throughout the research process.

Fortunately, reflexivity has been high on my agenda throughout the research process. The research diary was started in November 2008 and contains self reflective notes throughout the planning, implementation and analysis stages of the research.

**Commitment and rigour**

Commitment to the research project is shown through engagement with the project over time as this process commenced in November 2008. The provision of a quality interview experience for the participants also reflects personal commitment to the research process and to the ethical values espoused in Section E.

Rigour refers to the thoroughness of the research, not only in the research design but also in the depth and breadth of the data analysis, and the insight that it provides into the area of using HeartMath in schools and the practical implications of its use in educational establishments.

## Coherence and transparency

Coherence refers to how consistency was achieved throughout the research study. This was achieved through the use of supervision and the input of critical friends in order to ensure that interpretation and data analysis was a robust process. Mind mapping was used to ensure that links between the various themes were made explicit.

Transparency was achieved through the establishment of an audit trail (see below) and the use of research supervision. This research has been supported throughout by a university tutor and local authority supervisor acting as 'critical friends', and regular supervision has been invaluable.

## Audit

In line with the guidance given by Smith, et al. (2009) and Larkin & Shaw (2009), an audit trail was created throughout the analysis process to enable the tracking of the research findings to its source, the raw interview data. This was conducted electronically throughout the analysis process through the use of Microsoft Word and Excel software, and the construction of mind maps (and other visual diagrams) to demonstrate links between the emerging themes. Additionally, the analytic process was noted thoroughly in the research diary.

## Impact and Importance

This refers to the "theoretical, practical and socio-cultural impact of the study" (Coyle, 2007). As mentioned previously, it is hoped that this study will facilitate fresh insight in the experience of using HeartMath approaches within an educational setting, and identify possible implications for practice.

This piece of research should result in the identification of good practice - the strategies, infrastructure, support and resources needed - to embed these techniques within schools as part of the SEAL curriculum. Any identified

good practice, whether on an individual level or wider, will be shared with colleagues from the Educational Psychology profession and schools, and can then be applied within local contexts.

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**Reflection**

Implications for my practice as an EP, beyond those of facilitating good practice within schools, will be considered through the analysis and will form part of the final report. It is envisaged that this will be a combination of direct suggestions from school staff, and conclusions drawn from the outcomes of the research. Colleagues from the EP profession will then be able to apply this learning to their own contexts, drawing from this research what is useful to their own practice within the profession.

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This piece of research will occur in a local authority within the North West of England, where the researcher is currently employed. Local authority resources have been used previously (since 2006) to introduce HeartMath into a range of contexts. These include Children's Homes (to support children who are Looked After), a small number of primary and secondary schools, and members of the Youth Offending Team, and Children's Centre staff.

The introduction of HeartMath to 22 primary schools as part of the local authority's rollout of the SEAL curriculum is a large pilot project. Although individual EPs may have a role in supporting particular schools or individual children, the EP Service does not have a lead role in this initiative. Concerns have been expressed about the service's psychologists being perceived to endorse a commercial product, and the inherent, subsequent implications for licensing.

Considering these concerns and the values of the service, and its overall aim to "promote a flourishing community" this research project needs to add value to the service's practice. The perceived benefits of this piece of research to the service are:

- The sharing of good practice from within the local authority's schools to the service in the practicalities of using HeartMath techniques to support emotional health and wellbeing.

- Continuing the work which the service has been developing since 2000 in developing Emotional Intelligence (as Emotional Health and Wellbeing was then called) within schools.

- Adding to the evidence base of the efficacy (or not) and outcomes of using HeartMath techniques to support the development of emotional wellbeing.

- Supporting the authority's schools in developing practice.

- Should it be decided that the research project is of a standard to pursue publication, it could add to the service's external reputation.

**For the UK licensee**

As the sole UK licensee of HeartMath, it has been necessary to obtain permission from Ultima Performance to complete this research, as well as from the American parent company, HeartMath LLC. It has been proposed that a summary article will be produced after the thesis has been submitted for the purposes of sharing the outcomes of this research with the company. This will of course, be subject to agreement from the University of Sheffield and my employers.

**Resonance**

IPA is an idiographic research method. As such generalisability in the qualitative sense, to a wider population via a representative sample, is irrelevant. Like research using case study methods, IPA researchers tend to rely on the reader's knowledge of their context, to extract meaning and draw conclusions which are relevant to their own situation (i.e. to 'resonate' with the reader). Smith et al. (2009) call this 'theoretical generalisability.'

Salmon (2003) argues that describing resonance in general terms as above does not go far enough. He argues that qualitative researchers should be more specific about what will resonate with the reader. Consequently, here are the specifics, I am hoping to achieve:

- Some IPA research discusses implications or makes recommendations on the basis of the participants' experiences (e.g. Duncan, Hart, Scoular, & Bigrigg, 2001; Hunt & Smith, 2004; Chapman, 2002; all cited in Brocki & Weardon, 2006). I am hoping to apply my research to aid practitioners in using HeartMath effectively and that colleagues from within the EP profession will learn from my experiences of conducting this research.

- There is an expectation that the findings of this research will be disseminated to EP colleagues within my employing authority, the schools and participants who contributed to this research, and to the UK licensee of HeartMath through summary reports.

## Section D: Procedures

This section addresses the practical and ethical aspects of this research. Procedural matters are considered firstly: i.e. the selection of the participants and the ethical considerations. The following section, Section F documents the method of data collection and analysis.

## Participants

### Selection of the schools to participate

As a qualitative study the concept of sampling per se is not strictly relevant to this study as the aim is not to provide generalisable data. The informants of the study are not presumed to be representative of a wider population, but are situated within their own unique, complex social context. In line with IPA, the participants were actively sought. Consequently, the schools were selected via a purposive sampling strategy through a number of criteria (Stake, 2000). For a school to be eligible it had to:

- Be a local authority primary school;
- Have introduced the Social Emotional Aspects of Learning (SEAL) Curriculum;

- Have introduced and used HeartMath with a child/children between March and July 2009 (in order to fit with the timescales of this project);
- Not be one of the researcher's allocated 'patch' of schools, to avoid potential practitioner-researcher role conflict;
- Be accessible and willing to participate in the research.

The selection of the schools was achieved through seeking volunteer participants at a training event held on 24th February 2009 which introduced HeartMath to 22 primary schools currently involved in the roll-out of the SEAL curriculum. I gave a short presentation outlining the research and requested that interested parties come forward. This selection strategy was designed to be equitable in allowing equal access for all potential participant schools. It had been agreed in discussion with the Principal EP, the group who are steering the roll-out of HeartMath to the SEAL schools within the local authority and the UK licensee of HeartMath.

Table 1 (page 54) summarises the characteristics of the four schools which were selected for participation in the project. It is worth noting that all four schools who volunteered have, or are currently performing, the role of a Leading School for the introduction of the (SEAL) curriculum.

Written permission was obtained from the Headteachers of the establishments before proceeding with the data collection (see Appendix F for letter of introduction).

**Selection of individual informants**

Individual informants were selected by the school staff member with responsibility for Emotional Health and Wellbeing within the school. In two of the schools this was the Headteacher, whilst in the other two schools the key contact for this research was a member of the school's Leadership Team (i.e. either an Assistant or Deputy Headteacher). The criteria used by the members of the school staff to identify suitable participants for the research were these:

- School staff – a member of staff who had directly worked with a child, introducing them to HeartMath as an intervention between March and July 2009.

- Parent/carer – of a child who had been introduced to HeartMath between March and July 2009. In considering this, school staff tended to select parent/carers who would be willing to participate in the research.

- Child – who had been introduced to HeartMath between March and July 2009.

Table 2 (page 55) provides a summary of information regarding the participants.

Written information was provided to potential participants; informing them of the nature of the research and introducing the ethical dimensions of the study (see Appendix G).

## Table 1: Characteristics of participant schools

| | School A | School B | School C | School D |
|---|---|---|---|---|
| **Age range** | 3-11 years old | 3-7 years old | 5-11 years old | 3-11 years old |
| **Gender** | Mixed | Mixed | Mixed | Mixed |
| **Religious affiliation** | None | None | Church of England | None |
| **Number on roll** | 320 | 453 | 212 | 820 |
| **Free School Meals** | >20% (above average) | Average | below average | below average |
| **SEN** | 20% (average)<br>0 statements | below average | 14% (below average) | 21% (average) |
| **2008 KS2 SATS Results (Level 4)** | English: 80%<br>Maths: 80%<br>Science: 84% | N/A | English: 91%<br>Maths: 91%<br>Science: 97% | English: 89%<br>Maths: 89%<br>Science: 94% |
| **2008 KS2 SATS Results (Level 5+)** | English: 20%<br>Maths: 18%<br>Science: 29% | N/A | English: 41%<br>Maths: 32%<br>Science: 41% | English: 41%<br>Maths: 48%<br>Science: 67% |
| **Value added (2008)** | 97.4 | N/A | 100.2 | 101.0 |
| **Last Ofsted Grading** | Satisfactory | "A good school with outstanding features." | Outstanding | Outstanding |
| **Information Source** | School Profile (6/8/09)<br>Ofsted report (2009) | School Profile (6/8/09)<br>Ofsted report (2007) | School Profile (6/8/09)<br>Ofsted report (2007) | School Profile (6/8/09)<br>Ofsted report (2007) |

## Table 2: Summary information regarding participants

| | School A | School B | School C | School D |
|---|---|---|---|---|
| **Member of Staff** | Learning Mentor – **Absent, July 2009 – unable to interview in timescale** | Teaching Assistant (Year 2 class) | Teacher (Year 4 class) | Teaching Assistant |
| Gender | Female | Female – "Beth" | Male – "Charlie" | Female –"Dawn" |
| Introduced to HeartMath | Feb 2009 SEAL training event | INSET event at school | INSET event at school | Feb 2009 SEAL training event |
| Use of HeartMath | Mainly with individuals Planning to extend to whole class | With individual child | With individual children | With individual Year 6 children |
| **Member of Staff 2** | | | Headteacher – Mrs Cox | Assistant Headteacher – "Diane" |
| Gender | | | Female | Female |
| Introduced to HeartMath | | | Pre-Feb 2009 | 2002 |
| Use of HeartMath | | | Personal use (as a demo to others) Wants whole school use | Personal use Behaviour support teacher Pastoral role Supervision of TA's use |
| **Parents** | Mother "Annie" | Mother "Becca" | Mother and Father – "Cara and Connor" | None – change in home circumstances meant inadvisable to meet |
| **Child** | Boy – "Alex" | Boy – "Billy" | Boy – "Craig" | None – as above |
| **Age** | 8 | 7 | 9 | N/A |
| **Child 2** | | | Boy – "Carl" | |
| **Age** | | | 9 | |

NB: I did not request information about socio-economic status, age, or ethnicity and do not feel comfortable judging such criteria.

## Number of participants

IPA studies are reported to have used between one and 42 participants, but typically in health and clinical psychology, the number of participants is between six and eight (Smith et al., 2009). This research utilises the views of 12 interviewees to address the research questions.

# Section E: Ethical Considerations

# Approval

Ethical approval was received from the Ethics Review Process of the School of Education on 9th June 2009, and is contained in Appendix H. The following factors were considered crucial to this research:

## Informed consent

Participants were informed as to the nature and aims of this study, and of their right to withdraw at any point in the process, and request that their data not be utilised within the study. Written consent was obtained from parent/carers to interview children directly, and permission was obtained from Headteachers to conduct the research in schools.

## Conducting the interviews

The research was conducted in a respectful manner, in line with my values as a practitioner and those of the Service that I am representing. Deception did not occur within this research, and any risks to the participants were minimised. I planned to cease the interview if a participant became distressed. In the event Annie, the parent who was tearful during her interview wanted to carry on, and so after a brief break, we did so.

> **Reflection: power and interviews**
>
> However much I planned to reduce the power imbalance, I know that the inherent nature of a research interview meant that the participants were disadvantaged, before we had even met. For example, I set the agenda and arranged the interview schedule. The conversation was staged to provide me with information for my research. There was no goal for the participants, other than being helpful to myself or the school.

## Confidentiality & Anonymity

The interview data and transcripts were treated as confidential material, and were anonymised upon transcription. Names, venues and geographical localities were all changed. Quotes used in the final write up were selected on the basis of non-identifiable information.

## The Right to Withdraw

Participants were informed of their right to withdraw prior to, or during the interview (in line with Larkin & Shaw, 2009).

## Other ethical considerations

HeartMath is a commercial product, necessitating the consideration of the ethical issues which may arise from working alongside the private sector. HeartMath is a software product which has ongoing licensing implications. Initially, the roll out of the product to the SEAL schools was covered by an agreement for the duration of the pilot project (until the end of July 2009). Ongoing use of the software will have financial implications for either the local authority or individual schools.

This research is not intended as an endorsement of the product (or otherwise) as a practitioner, or by the local authority EP service. Neither is this research intended as an evaluation as to the efficacy of HeartMath as an intervention.

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**Reflection/Additional Information**

The ethical considerations regarding working with a commercial product are further complicated at the present time, as the original UK licensee of the product, Hunter Kane Ltd., with whom I agreed this research has gone into receivership.

Continued permission for me to proceed with this research was negotiated with the American company who own the rights to the product (HeartMath LLC). Consequently, this change has had little impact upon this research, as my current contact (a former Hunter Kane employee) has negotiated to take over the licence for education settings through establishing his own consultancy business, Ultima Performance Ltd.

My research supervisors were informed of this information as soon as possible and neither saw this as problematic at the time. I see this as almost advantageous. At least now, I know that the manager of the UK licensee fully aware of and, is supportive of my research, as is the American parent company!

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## Section F: Data Collection and Analysis

This section details the procedures followed to collect and analyse the data for this research.

### Data collection

Individual semi-structured interviews are cited as "the exemplary method for IPA" (Brocki & Wearden, 2006, p90) although focus groups have also been used. Field notes, diaries and emails have provided further sources of text for analysis within IPA studies (Brocki & Wearden, 2006).

Given the predominance of semi-structured interviewing used in IPA, I decided to adopt this method. The data collection process utilised semi-structured interviews to obtain the views of the informants, four parents (3 interviews), five members of school staff and four children who had been introduced to HeartMath between March and July 2009. The divergent nature of the three groups meant the construction of three different interview schedules to enable each group to reflect on their initial experiences and perceptions of the HeartMath technique.

## Using it in the context

Most IPA studies are conducted with adults. Of the 55 IPA studies reviewed by Brocki & Wearden (2006) only 2 were conducted with children or adolescents. Therefore, drawing tasks were incorporated into the interview schedule, partly to help put the child at ease, and also to help cue them into their memories of using HeartMath. As Christensen & James (2000) noted in their research experience, drawing tasks are seen by children as an ordinary day-to-day task, which most children consider themselves to be competent at, whilst not inhibiting conversation.

## Designing the Interview Schedule

In order to obtain sufficient information to respond to the research questions, it was considered vital that the interview schedule allowed the participant to lead on the interview whilst ensuring the collection of sufficient information in order to achieve the aims of this study and to answer the research questions.

Devising the semi-structured interview schedule was informed by the process advocated by Gillham (2000) and Smith, et al. (2009). Having considered the research questions and aims of the research, I then generated as many aspects or potential topics which could potentially be covered in the interview. This was achieved through combing the research diary for any potential areas of research alongside a 'thought shower' of ideas. These ideas were then grouped into themes and duplicates were eliminated. The advice not to ask the research question directly (Smith, et al., 2009, p61) further reduced the number of areas to be covered. I thought it imperative to reduce the number of questions to fewer than ten, and to make the wording as open-ended as possible. The topics were then sequenced and the potential wording of individual questions devised into a draft interview schedule

In order to reduce potential researcher bias, the draft interview schedule was discussed with the two research supervisors, and was amended following their input. The wording of two questions (one on each of the adult interview

schedule) was changed to be less leading in nature and more open-ended. The three full interview schedules (one for parent, school staff member and child) can be found in Appendix E.

A pilot interview was conducted (29th June 2009) with the parent of a Year 11 pupil who had been introduced to HeartMath through a project to support candidates in managing stress and anxiety as they approached their GCSE exams. Additional pilot interviews were conducted on the 30th June with a Teaching Assistant and SENCO of a High School, who were just introducing HeartMath. Through listening to the recordings of these pilot interviews, the following points were noted in my interviewing technique and attempts were made to rectify this when conducting the research interviews:

- I tended to talk simultaneously when agreeing with the interviewee.

- I shared too much knowledge, especially when speaking to the school staff, forgetting that I was not there to support the school in implementing HeartMath.

- I asked multi-part questions, and expected the interviewees to remember all the parts!

- And, I was uncomfortable with silences, needing to fill them, when allowing a longer pause would probably prompt the participants to speak again (as noted in Smith et al, 2009).

**Procedure**

A letter of introduction (see Appendix H) was sent to each of the schools who had registered an interest in the research at the HeartMath training event in February 2009. This was supplemented with a telephone call and written information for participants (Appendix G). Schools were then contacted regarding potential participants in the research and visits were offered to school to arrange the practicalities of interviewing (dates, rooms etc).

Information regarding ethics was re-iterated, and the participants' understanding of informed consent was checked. Consent forms were signed

prior to the interview. The participants' understanding that the interview would be recorded was also checked. Digital recording of the interviews commenced only after the discussion of ethics, when the participant had given verbal (and written) consent and was therefore able to demonstrate fully informed consent. In conducting the interview, I tried to maintain a 'natural' conversational flow, whilst ensuring that all aspects of the interview schedule (see Appendix I) were covered. At the end of the interview, the participant was thanked, and the next steps were explained (i.e. transcription).

Each interview was recorded on a digital recorder, downloaded onto the computer and then transcribed by the researcher, using Microsoft Word and Express Scribe transcription software (©NCH Software, v 4.35). The transcription conventions used were as follows:

| | |
|---|---|
| (......) | Indecipherable words |
| / | Pause of less than 2 seconds |
| / / | Pause greater than 2 seconds |
| [ ] | Simultaneous or interrupted speech |

After Edwards & Mercer (1987, in Billington, 1995)

**Data analysis**

The analysis was conducted using the IPA approach outlined in Smith, et al. (2009). A pilot study was conducted in February 2009 to trial this approach, assess its suitability for this research, and familiarise the researcher with the analysis technique.

**Pilot Study method**

The pilot study was conducted using the approach to IPA described in Smith & Osborn (2003)[5]. It used information I had collected through semi-structured

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[5] Smith et al, 2009 was not published until summer 09.

interviews as part of an evaluation of the practice of a multi-agency team in June 2008.

## What was learnt from the pilot study about analysing data using IPA?

My first attempt at using IPA was heavily influenced by my experience of using qualitative research at undergraduate level, utilising an approach based on Charmaz (2008). Consequently I was initially confused about the difference between line-by-line coding and the first order coding used within IPA. Demonstration by Larkin and Shaw (2009) clarified that it is units of meaning which is utilised in the first close reading of the text within IPA.

The second order of coding proved more complex in nature. Smith and Osborn (2003) emphasised that this should be more 'psychological' in nature, linking to theory. This worked well for the example cited in their chapter, but was more problematic given the practical nature of some of the participants' views on the work of the multi-agency team. Having framed the codes during the first order analysis in one way, I found it hard to reframe them into more abstract concepts.

Interpreting the second interview transcript provided further learning opportunities. Smith and Osborn (2003) suggest that there are two ways to proceed with this: either to use the first transcript's themes as a foundation; or, to start again from scratch. I opted to attempt the first method. However, this meant that I did not look at the script in a 'naïve' manner, but found myself categorising information so that it would fit my existing themes and hence add 'richness' to the evidence found in the first transcript.

Additionally, I found that my prior knowledge and experiences of this interview data meant that I framed my interpretations in an almost identical fashion to that undertaken in 2008. However, in the instances where the second level of coding reflected a deeper level of analysis (linked to psychological theory), it

became possible to see how a narrative could be built around the text, to explore the themes further.

## Implications from the pilot study

At the time of trialling IPA (February 2009), my knowledge of the method of data analysis was developing, and there was uncertainty about the philosophical underpinnings of IPA. However, attendance at a two-day introductory course on IPA at the University of Birmingham in April 2009 clarified these issues (Larkin & Shaw, 2009).

## Data Analysis Procedures

As mentioned previously, IPA is an approach with core elements and is not intended as a prescriptive method. Smith et al. (2009) caution against 'methodolatry' i.e. the slavish, inflexible veneration of method and developed flexible guidelines to guard against this. The central procedure of IPA, an iterative and inductive cycle of analysis (Smith, 2007, in Smith et al., 2009), was adhered to throughout the work with the text (see Figure 8).



Interpretation

What does this tell me?

Iterative & Inductive IPA Cycle

What do I think I

Descriptive/ phenomenological coding

Reflection

How does the participant make sense
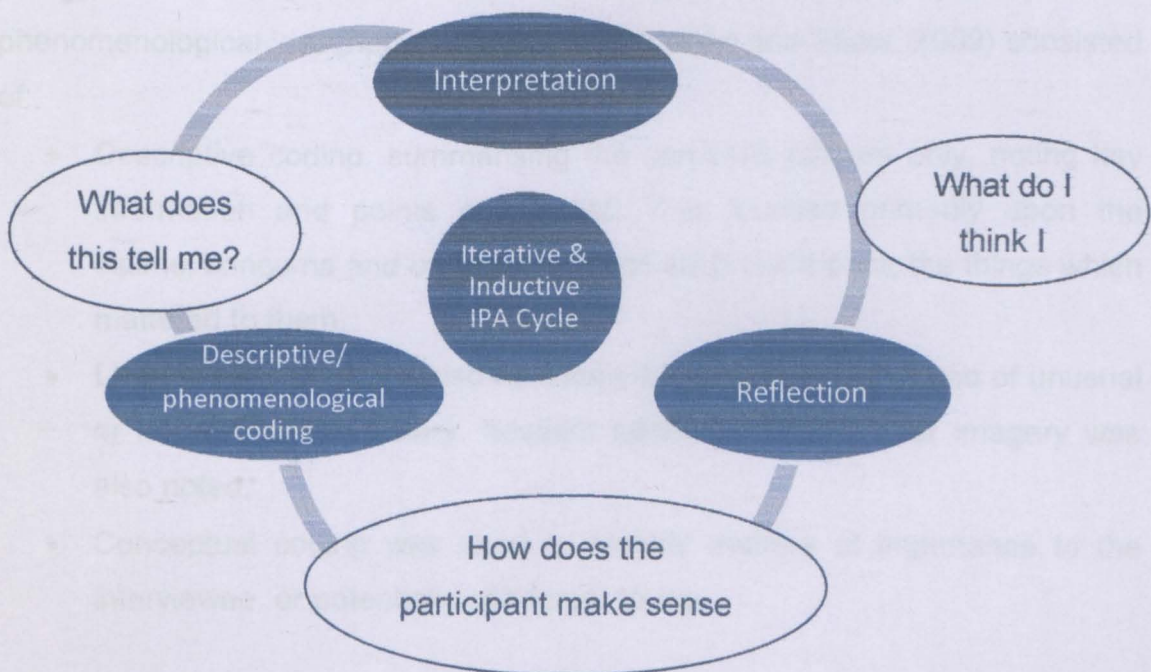
**Figure 8: IPA Cycle of Analysis, after Larkin (2009)**

**Reflection**

Bracketing – as explored on page 34, the issue of bracketing is somewhat contradictory in nature. The analysis process is an interpretative one, and naturally the data analysis process will be coloured by the lens of my views, experiences and presumptions. In order to manage this, I have written a position statement, documenting my 'fore-understanding' and experiences of HeartMath prior to the analysis of the interview text. Additionally, throughout the process I have documented reflections, after each procedural step.

Immersion in the text was the first step. The original sound file was listened to as I read the transcript at least twice. The reading and re-reading of the text was completed to ensure familiarity with the text, and that the engagement with the transcript was with the recorded text rather than just with the wording that I expected to read. This was particularly important to me because of my tendency to skim read at speed.

The second stage consisted of the initial noting. This was the production of a detailed set of notes and comments, through the close, careful consideration of the text. Throughout the process the hermeneutic cycle is used to ensure that each word, phrase and sentence is considered in light of its meaning to the interviewee and myself as the analyst. Smith et al. (2009) suggest three categories of comments may be worth considering initially. The phenomenological 'descriptive' level coding (Larkin and Shaw, 2009) consisted of:

- Descriptive coding, summarising the semantic content only, noting key information and points of interest. This focused primarily upon the claims, concerns and understanding of each participant, the things which mattered to them.

- Linguistic features are also considered at this stage. The use of unusual or interesting vocabulary, hesitant speech, metaphors or imagery was also noted.

- Conceptual coding was used to identify matters of importance to the interviewee, or potentially of interest to me.

As someone who is primarily a visual learner, I adopted the suggestion of Smith et al. (2009) and used three different coloured pens to record this stage.

Appendix J contains a copy of a sample page of transcript showing initial notes and the following stage, the identification of emergent themes.

The third level of analysis was the identification of emergent patterns and commonalities initially within each transcript. This involved applying my psychological knowledge to what it may mean for the participant to have expressed these views or experiences. It meant working primarily with the initial notes searching for relationships, connections and patterns throughout the interview. Smith et al (2009) suggest that the ultimate aim of this stage is to maintain the complexity of the original text but to generate a "concise and pithy" psychological statement (Smith et al, 2009, p92) which captures not only the semantic meaning of the interviewee but also my interpretation of it. Again, the hermeneutic circle was employed to consider the whole and parts of the transcript.

These emergent themes were then synthesised into common topics and patterns. My preferred method to do this was via a hand-drawn 'mindmap' to structure the data, or a 'card sort' of the themes, physically grouping them. This information was then organised on Microsoft Excel (see Appendix K), linking the emergent themes back to the transcript through line references, and quotes from the original transcript. I attempted doing this straight on to the spreadsheet, but found that the linear format did not enable me to easily picture the links between themes. The spreadsheet is partly for audit purposes but also helped to make links between the emergent themes, and to organise the report.

The outcomes of the analysis are discussed in the next chapter.

# Chapter 3: Interpretative account of the research findings

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**Reflections on a 'false start'**

Despite my knowledge and understanding of the IPA approach, I have found it difficult to write an interpretative account of the findings. My first draft of this chapter was largely devoid of emotion, experience and interpretation. These two sentences, although appearing initially completely contradictory, express my experiences of 'doing' IPA.

I am naturally reflective (and reflexive) in my practice as an EP, and have transferred this to my approach as a researcher. However, my reflections and thoughts remained confined to my research diary, for my consideration only, or for discussion in supervision. Consequently, my first draft had a tone of "studied detachment" (Parker, 2004, p3), i.e. the 'objective' voice which I usually take in writing professional reports (which are, of course, completely subjective). Therefore the first 'results chapter' (I've even changed the title) contained a 'true' account of using biofeedback in education settings taken from the interview data.

Discussion in research supervision, however, has made me reconsider both the data which is reported and the character of my commentary which accompanies it. Reflections from my now incorporated into this chapter and the 'mini-biographies' of the participants have been included from my research diary. I have returned to the original interview transcripts and recordings to try and capture the feelings and thoughts that occurred to me as I lived the experience. Consequently, I am confident that this findings section is much improved and meets the characteristics of an IPA study as identified by Larkin & Shaw (2009).

---

This chapter is organised in line with the research questions, considering the results of the interpretative phenomenological analysis, like so:

From the perceptions of children, parents and school staff:

- What are the initial experiences of using HeartMath (within the first 3 months of implementation)?

- How may HeartMath support an individual in 'managing' his/her feelings?

Following the analysis, the next chapter is a general discussion. This is followed by a chapter outlining the implications, before the limitations identified and learning gained from completing this research are outlined, suggesting further areas for research.

## Research Question 1

The first research question is; from the perceptions of children, parents and school staff:

- What are the initial experiences of using HeartMath (within the first 3 months of implementation)?

Figure 9 overleaf contains a summary of the themes used to address this research question from the 3 groups of participants, with a view to enabling the reader to visually map the full response to this research question. The perceptions of the school staff are explored first, then the children and finally the parents.

## Meet the school staff – 'mini-biographies' of the participants

Langridge (2007) recommends the use of 'mini-biographies' to help the reader in orienting him/herself before examining the findings of the analysis. Fuller pen portraits can be found in Appendix C.

Beth and Dawn are Teaching Assistants who have been given the responsibility of working with individual pupils using HeartMath between February and July 2009. Beth is 43. She is a mother of three children, the youngest of whom is 8 years old, whilst the oldest attends secondary school. Dawn is in her early 40s, and works supporting the four Year 6 classes in School D, whereas Beth works part-time three days a week, mainly with the Year 2 class in School B.

Charlie, who is a class teacher in his early 40s, teaches Carl and Craig. He is pressed for time and I suspect he is unfamiliar with the HeartMath software, which impacts on his views. Charlie had been briefed about the content of the interview, and hence his speech sometimes sounds less spontaneous and more rehearsed.
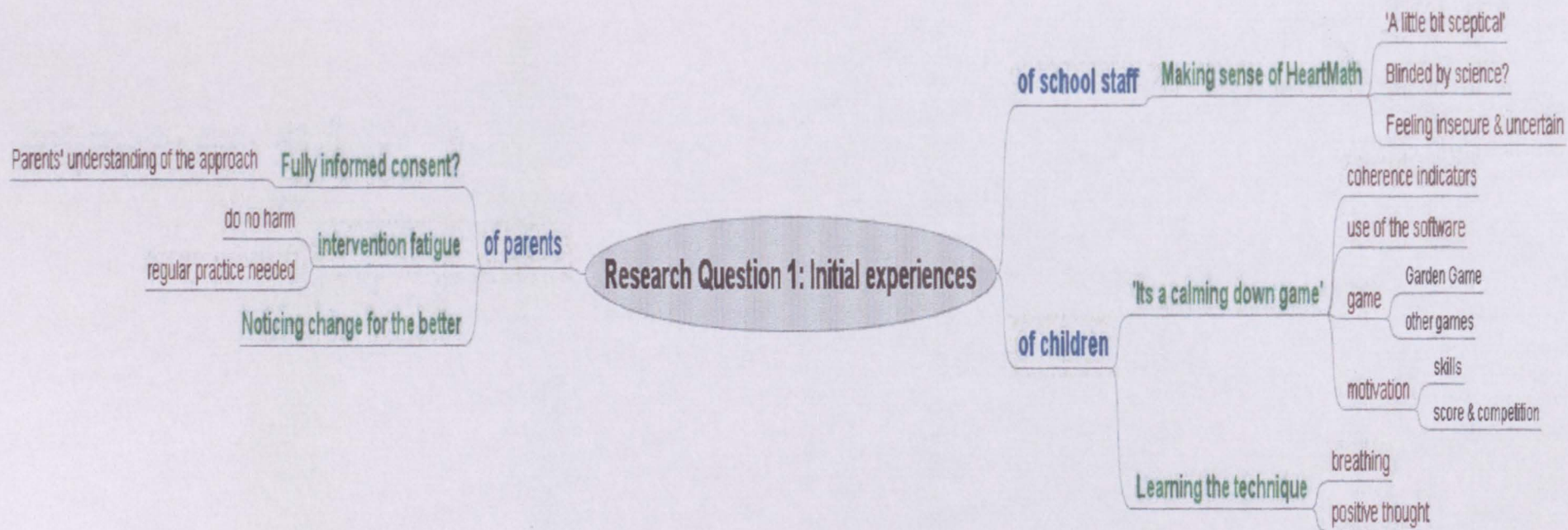
Figure 9: 'Mindmap' of the themes identified in response to
Research Question 1 - initial experiences of HeartMath, from the perception of children, parents and school staff

Diane is in her mid 30s and is experienced in the use of HeartMath, having worked with it since 2001, in her former role as a Behaviour Support Teacher, as well as in her present job as an Assistant Headteacher. Diane has presented on HeartMath to a range of audiences. In order to meet the element of "initial experiences", quotes from Diane have only been included when she is speaking of her own introduction to the approach, or her role in mentoring Dawn.

Mrs Cox is a well-established and well-regarded Headteacher who is in her 50s. She is proud of her school, and its position as a Lead school for one of the three local SEAL Clusters. She speaks quickly and fluently about HeartMath, perhaps reflecting the many presentations which she has made on the subject.

## Themes obtained from school staff addressing Research Question 1

Figure 10 showing the contributions which the school staff have made to the sub-ordinate themes (in green) and super-ordinate theme (in blue).
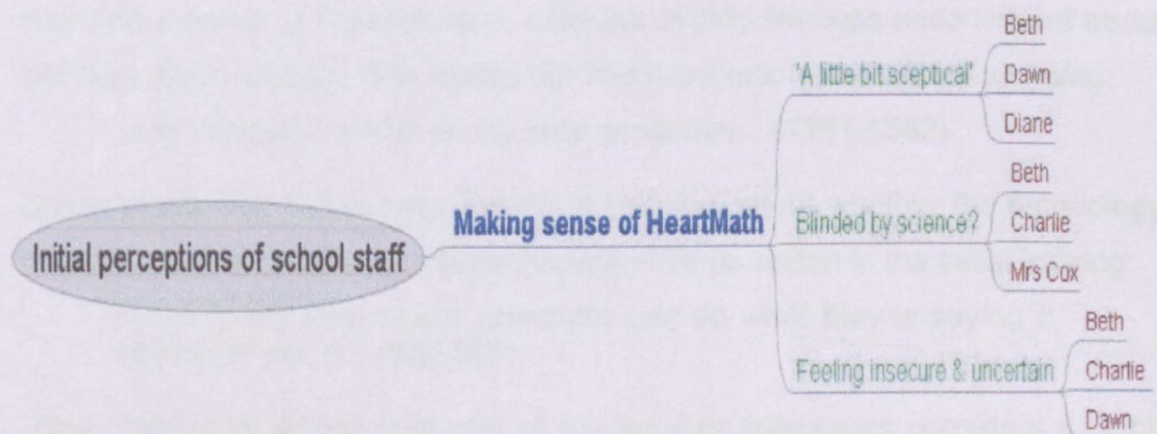


**Figure 10: Mindmap showing the super and sub-ordinate themes and the school staff who have contributed to these themes to address Research Question 1**

## Making sense of HeartMath

This theme addresses the initial impressions that the school staff formed when they first heard about or engaged with HeartMath, and how they tried to incorporate this new approach into their existing schemas of knowledge and practice. Like any initial encounter between people, artefacts or processes, there follows an period of evaluation, influenced by, among other attributes, an individual's motivation, past experiences, expectations, socio-cultural factors and context. In the case of HeartMath, there appears to be a dichotomy in the school staff's initial perceptions of the approach.

### 'A little bit sceptical'

Dawn, Diane and Beth appear to adopt an initially questioning stance. Diane likens herself to a "reformed smoker" in that she is now a keen advocate and experienced user of the approach, whereas initially she was unconvinced about the HeartMath product. She recalls her first reactions to HeartMath as being:

> This sounds like a lot of airy fairy nonsense... (1581-1582)

She explains that this is because she is dubious about whether the technology is able to display emotional states through HRV as stated in the initial training:

> Hmmm, not sure how a computer can do what they're saying a computer can do. (554-555)

Dawn cautiously admits that one of her teacher colleagues considers it "a bit American," in that it is a little too 'New Age' for his tastes, although he allows pupils to be withdrawn from his class to access the intervention.

Beth's scepticism seems to rest on whether the intervention will work with Billy. Beth seems worried that Billy will not be able to access the HeartMath approach which was designed for "achievers" such as "management or a top-level sportsman" (270-271), implying that Billy does not have the traits or skills necessary to use the technique.

**Blinded by science?**

| Reflection |
| --- |
| I selected this theme as it strongly contrasts with the first theme. Although they seem contradictory, I remember experiencing much the same feelings when I first saw a presentation on the approach, whilst on placement with an EP service in the first year of my training (June 2008). The trainer is a skilled presenter, and balances the theoretical basis with research findings and video clips and activities, making it entertaining whilst 'scientific' throughout. |

The content of the initial training by the HeartMath Trainer, a mixture of psychology, physiology, stress management and emotional intelligence seems to have had a profound effect on some of the participants, and provides the alternative initial experience of the HeartMath.

Following the training, Mrs Cox opines "Everybody has been very, very impressed with it." She considers this due to everyone "understanding the science behind it and its benefits." This seems to reflect Western society's (especially the media's) current preoccupation with positivist research and natural sciences as being paramount to other epistemologies (Ashworth, 2008), often leading to the acceptance of scientific fact with little critical evaluation. Burman (2009) describes this as "scientisation," arguing that "notions of 'evidence' – even in the human and social sciences" are politically driven discourses (Burman, 2009, p 137), which serve to perpetuate the state's agenda.

Beth unfortunately missed the initial training session and so is teaching herself through the 'Science Resources' section of the emWave® PC software. She feels frustrated:

> Although it's on there, it's quite difficult to understand (318)....[and]....it's just some of the language. Possibly I'm not bright enough? *(said ironically)* (327-328)

The difficulty in bridging the gap between the theory-driven, 'scientific' training and the application of this knowledge to an educational setting is a recurring theme throughout Beth's interview. Consequently, Beth sees our interview as a chance to develop her understanding of the approach and her work with Billy.

---

**Reflection**

However, I remember being aware that this was a 'research' interview. I felt impatient to 'get on with it' (which I tried to hide from Beth). I worried about 'spoiling' the research. I was also uncomfortable at being placed in this 'expert' role. Beth had more experience of using the software with a child, as I had only used it myself. My understanding of the 'technical' side of HeartMath was in its infancy, so I felt on shaky ground, in supporting the development of her understanding.

---

**Feeling insecure and uncertain**

Dawn and Beth started their interviews by ensuring that I was aware of the limits of their experience and knowledge. Both used the phrase "as far as I know" within the first minute, and both admitted to being nervous about the research interview, given their recent introduction to the approach.

Both seemed to feel under-prepared for their work with HeartMath. Beth was initially unaware that she would be working with Billy. Dawn feels a lack of confidence in her knowledge of the software:

> I don't think you can do the program properly, unless you really do know all you need to know about it...I wish that I'd, um, had the time to look into the whys and the wherefores before starting with the children. Because I feel I started with the children before...And still now I need to know so much more about it. I still sit down at the program, have half an hour and think "Oh, what's that there? I haven't seen this yet."...And "Ooh that's interesting." (681-697)

This seems to be the case for Beth too, only more so. Consequently, Beth is looking for answers, in this instance from the HeartMath trainer, and is very concerned about not supporting Billy effectively:

> But you're thinking, so how does that work? So how will I do that? // to help him? So that's the bit we probably could do, um / with a bit more input perhaps from this guy to then come back (331-334)

For Beth the lack of structure seems to be a frustration and a concern. She worries that she is not doing it 'right.' Charlie, like Beth, is keen to receive "the little techniques to actually build it [HeartMath] into our lessons" (258-259).

> **Reflection**
> The 'persisting with HeartMath' super-ordinate theme was cut from this section. The key feature of this theme for me is how Dawn and Beth continue with the approach, despite their frustrations with the software and insecurity with the technique. Beth in particular describes herself as "fascinated" with (5 times), or "interested" in (10 occurrences), and her enthusiasm and curiosity come through as she talks to me about Billy and HeartMath.
>
> The second sub-ordinate theme demonstrated the pride that the school staff felt when things were going well with their use of HeartMath, at an individual level (e.g. "I've seen how HeartMath works and how the children I've worked with have responded, and enjoyed it." (Dawn, line 320-322), and for Mrs Cox, strategically, as she plans to introduce the approach to the whole school.

## The Children's initial perceptions of HeartMath

The four boys' use of HeartMath is in response to concerns about their behaviour expressed by the adults around them. Each has displayed behaviour which has resulted in them getting into trouble within school (e.g. hitting others, running away from staff, verbal aggression) and in Billy's case, attention in class is also a primary concern (see the following research question for more on the need to 'manage feelings').

## Meet the boys – 'mini-biographies' of the participants[6]

Billy, at seven years old, appears the least self-aware of his difficulties. Billy seems to be instantly at ease. Billy is lively and chatty as we work. He is open about things, but shows little awareness that his behaviour is sometimes viewed as being a barrier to his learning, and that of his class mates.

Alex, Carl and Craig, discuss being 'in trouble' at school. For the three older boys, there appears to be a common theme of loss, which appears to be being communicated through their behaviour[7].

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[6] See Appendix C for more detailed pen portraits.

Alex, who is 8 years old, was bereaved in January 2009 when his father died. His mum, Annie opts to stay for his interview, explaining that Alex has had a negative reaction in the past to professionals. Alex is initially nervous, and his early answers to the questions are peppered with "like" and "er" as conversation fillers. Alex became more relaxed when he started drawing. Although Alex's vocabulary is quite basic, some of the concepts he offers seem quite sophisticated.

Craig is 9, and is currently experiencing significant change in his life, following the return of his father to the family home and the imminent birth of a sibling. He has a positive relationship with his class teacher, Charlie. Craig's knowledge of HeartMath stems from his inclusion in a 'Friendship Group' intervention run by a teacher from the Behaviour Support Team. Craig is chatty and appears to enjoy the individual attention the interview affords.

Nine year old Carl was also part of the Friendship Group, so his experiences of using HeartMath are very similar to Craig's. Carl's route to School C was somewhat unusual as Charlie reported. He moved to the North-West to reside with his father two years ago, following the death of his mother. This meant losing contact with his friends, his mother's extended family and school all at the same time. Carl is less relaxed than Craig. Hence the interview is the shortest in duration.

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[7] My opinion / interpretation, derived solely from the data collected. Not based on EP assessment, evidence base, etc. and hence a supposition on my part, based on my limited knowledge of the context, and background to each child.

## Themes obtained from children addressing Research Question 1

Figure 11 below, demonstrates the contributions which the children have made to the sub-ordinate (in burgundy) and super-ordinate themes (in green).
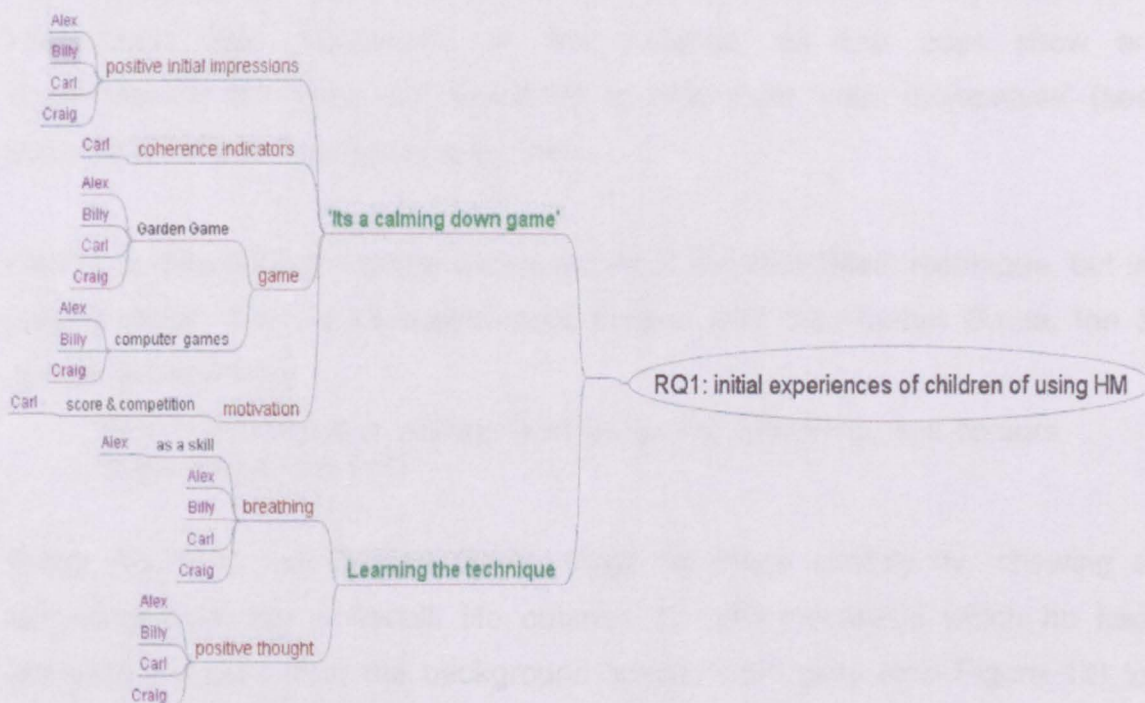


**Figure 11: Mindmap showing the super and sub-ordinate themes and the children who have contributed to these themes to address Research Question 1**

## 'It's a calming down game'

**Reflection**

It's the most consistent view of HeartMath across all the participants, that it is useful for supporting individuals in calming themselves. The children emphasise the gaming side of it, the school staff; the intervention.

It appears that the therapeutic benefits of the HeartMath technique are perceived by the boys as "a calming down game" (Billy, 7) a view which the other children all echo at some point during their interview. The play side of the HeartMath approach is emphasised by the boys, with little mention of it as an intervention. Therefore, I was told that HeartMath's "fun" by Billy and Alex, whereas Craig added "that he was excited" (120) about his first use of the software.

The boys' primary interest seems to be HeartMath as a computer game, which may be construed as positive in terms of motivating the boys to engage with the HeartMath technique. Alternatively, there could be issues of informed consent if the boys (and their parents) are not aware of the nature of the HeartMath intervention (see discussion). In this instance, all four boys show an understanding that they use HeartMath to help them 'calm themselves' (see next research question for more on this).

Each boy described the game play element of the HeartMath technique, but in varying detail. Each child seems most familiar with the Garden Game, the 3 minute game where:

> You're looking at a picture, and as you're breathing, the colours come. (Alex 110-111)

Craig described the Garden Game stage by stage confidently, showing a surprising accuracy of recall. He outlined 12 different levels which he had achieved, ranging from the background turning from grey (see Figure 12) to verdant shades of green (the first 'level'), to the end of the game (344-365) when all the 'levels' have been achieved.



**Figure 12: 'Screen shots' from emWave PC's Garden Game™**
**(session recorded on 15/5/10)**

Carl showed an awareness of the coherence indicator lights and that this was how to keep track of his progress:

> You have to breathe slowly and there's three lights...A red one, a blue one and a green one...If it's on red...you don't get anything. On the blue one you get a few things. On the green one, then you nearly complete it. (40-48)



**Figure 13: Detail from emWave PC's Garden Game™ showing the coherence indicator**

For Carl, his abiding memory of one of the other games, the Rainbow Game is having 'beaten' Craig:

> On the second one I got the most coins...(69). I got 99 and Craig got 22 (73).

This appears to tie into the idea of 'competitive relaxing' discussed by Diane and Beth in their interview. For me, this reinforces those elements of motivation which are considered to be especially pertinent to boys, especially feedback on performance, goal setting and competition. For instance, Palmer (2009) discusses the competitive elements of evolutionary psychology, and how these can be better used in modern-day society and education to support the development of male children and adults. This emphasis on game-playing may be a reflection of how the approach is 'sold' to them (see implications for practice), or may simply reflect the after-school interests of the boys anyway.

## Learning the technique

**Reflection**

To the children what you actually have to do during a HeartMath session obviously informs their impressions of HeartMath, hence I feel it's important to outline a consensus of their views, and Alex's lone perception of the technique as a skill to be acquired. However, there is a risk in doing so, that this section could be overly descriptive.

Fundamentally, the children's view of the HeartMath is largely dependent upon the approach which is adopted in teaching the technique. There would seem to be a wide variety of practice and knowledge as the pupils learn to master the approach and the software.

Alex is the only pupil to infer that HeartMath techniques are a skill. For the other boys, it seems to be more of a game, with the idea that their performance is largely outside their locus of control (i.e. due to chance rather than skill). However, Alex speaks of practicing the technique, which seems a little more akin to the sports psychology origin of the software, and the practice suggested on the HeartMath website. He describes this skill development using the Coherence Coach™ as:

> When we go on practice it's just the ball going up and down the line. (195-196)... It's like curvy mountains the same height. When it goes down you have to breath in, or. I don't know if it's in or out. And when it goes down you have to breathe out and when it goes up you have to breathe in. Like that (201-205)
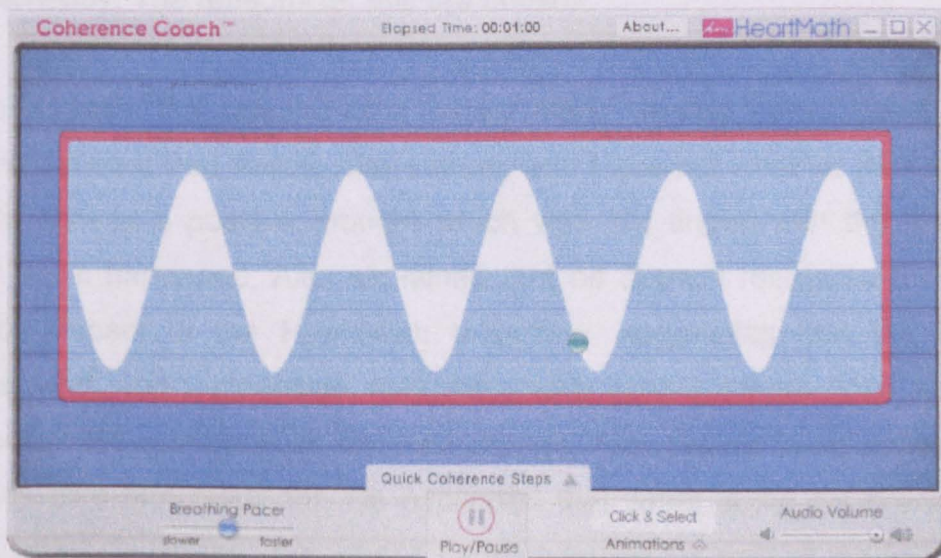


**Figure 14: Screen shot of the Coherence Coach (as described by Alex)**
(source: http://www.heartmathstore.com/mas_assets/full/1510.jpg 16/05/10)

It appears that to the pupils the HeartMath Quick Coherence technique (Childre, 2008) consists of only two aspects: the breathing pattern (known as Heart Breathing) and positive thought (or Heart Feeling).

All four boys discuss the breathing technique as the main feature of the intervention. Craig demonstrates the technique like so (inviting me to join in):

> You just need to go, breathe in for five...*(voice softens to a 'therapeutic' tone)* out for five...In for five / Out for five / in for five / Out for five. You just keep on doing that and then it will calm you down. (322-328)

It seems that this is the most significant aspect of the technique, probably because it is the most practical part of the intervention and the boys actively have to engage and manage their breathing to see results. Additionally, this seems to be the aspect of the HeartMath technique which results in almost instantaneous feedback from the software.

The element of re-experiencing a positive emotion (Heart Feeling) to engender feelings of being connected or appreciated, seems to be not as well understood or practiced by the boys. The boys explain that whilst doing HeartMath they think "nothing really" (Carl, 120), or just tend to consider the breathing technique. It appears that the 'happy place' concept, the feeling of being appreciation or connection with others (Childre, 2008) has being adopted inconsistently. The reasons for this are unclear.

In Alex's case, the concept of a 'happy place' seems 'risky.' Being recently bereaved meant that Annie, Alex's mum, and I queried whether Alex would be able to access a positive thought which was not tinged with the loss of his father. As it happened, Alex explained that he doesn't recognise the positive emotion aspect of the HeartMath technique, suggesting that the Learning Mentor who works alongside Alex may have similar reservations about this element of the approach. In my view though, Alex seems to be more resilient than we give him credit for. He explained that when doing his breathing, he thinks about "Just like, like what'll happen tomorrow and all the good things that'll happen" (241-242). If this is the case, then Alex may well be opening

himself up to the 'broaden and build' effects of positive emotion anyway, as defined by Fredrickson (2001), alongside the benefits of an optimistic childhood (Seligman et al., 1995).

---

**Reflection**

It has been a challenge using this descriptive information within IPA. The children spoke in a matter of fact manner about the HeartMath technique, and how they have made sense of it. The interview data is not "rich with emotion or metaphor or [features which] elicit sympathy or capture the reader's (and analyst's) imagination" (Smith et al., Flowers, & Larkin, 2009) p115). Therefore, with this section I have endeavoured to use the hermeneutic cycle to look at the initial experiences of the individuals, endeavouring to get a phenomenological perspective.

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## The parents' initial perceptions of HeartMath:

## Meet the parents – 'mini-biographies' of the participants

Three parent interviews were conducted with four participants. Annie and Becca are both single parents, and attended the interviews alone. Cara and Connor attended together.

Cara and Connor are in their late 20s, and Craig is their only child (although another is due). They are consistent in their view that Craig is not a 'naughty' boy but attribute his outbursts of temper to frustration. They discuss that Craig finds reading and spelling difficult, revealing later that he has dyslexia. Both parents are open about their own experiences of school were not particularly positive, which is why they are so keen for Craig to succeed.

Annie, who is in her 30s, found the interview quite emotional at times, as she discussed how her husband's death had impacted upon her two sons, Alex and his younger brother, Andrew. Despite the fact that she and her husband were separated at the time, his death was sudden and unexpected, and has had a significant impact upon the family. Annie has yet to return to her work as a Civil Servant. Annie is sometimes tearful, and becomes distressed during the interview. She insists on continuing with the conversation, even though I feel

that we should stop. Hence the conversation became somewhat of a consultation to support her and her family.[8]

Becca, who is in her 20's, lives apart from Billy's father, but Billy sees him at weekends. Becca is really nervous about both the research interview and her meeting with an Educational Psychologist. We have a long conversation before the formal interview starts, where I build rapport with Becca, and present a 'human' face, alongside the 'professional' status which Becca appears to be a little intimidated by. There is lots of laughter and giggling as we talk about the school generally, and how we both come to be in the room doing an 'interview.'

## Themes obtained from parents addressing Research Question 1

Figure 11 below, demonstrates the contributions which the parents have made to the sub-ordinate (in burgundy) and super-ordinate themes (in green).
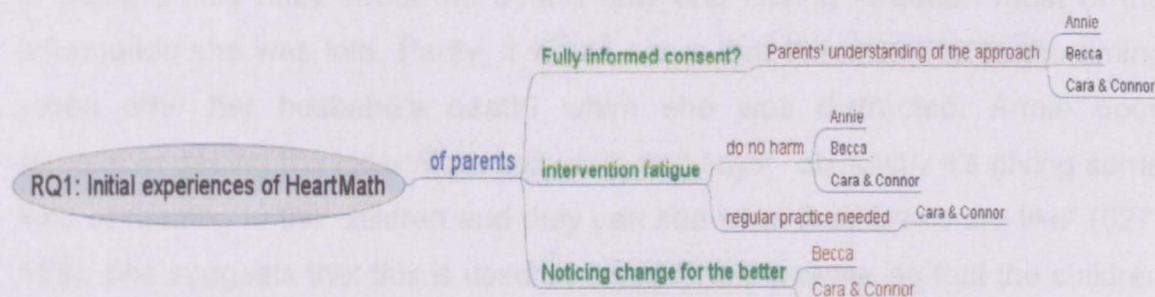


**Figure 15: Mindmap showing the super and sub-ordinate themes
and the parents who have contributed to these themes to address Research Question 1**

## Fully informed consent?

| Reflection |
| --- |
| This issue of informed consent is one which interests me, possibly because our practice as EPs is to consider this as a matter of course in our work. It brings up issues of power which will be explored further in the discussion chapter. |

It would seem that as a new approach, good practice in how best to broach the subject of HeartMath as a biofeedback intervention with parents, and how to obtain (truly) informed consent has yet to be firmly established across settings. All parents were asked about their child using HeartMath, but the parents'

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[8] I discussed this with my research supervisor, and we agreed to inform the school's EP of this.

understanding of the approach seemed variable, dependent on the introduction they had received. Of the parents, Cara is the only one to mention signing a consent form, and that was for Craig to work with the Behaviour Support Service.

Becca's introduction to HeartMath was at a meeting of local Headteachers, where the software was being demonstrated. She reports feeling "like a naughty school girl with loads of headmasters around" (299-300). Being daunted by the experience, it is unlikely that Becca would have asked any questions which seemed important to her, particularly those pertaining to Billy and his behaviour.

Annie was invited into school by the Learning Mentor and had a long meeting with her, discussing Alex's possible use and benefits of HeartMath. She admits to being a little hazy about the details now and having forgotten most of the information she was told. Partly, it would seem that this was due to the timing (soon after her husband's death) when she was distracted. Annie does remember seeing the HeartMath software, and says: "obviously it's giving some kind of reading to the children and they can see what their levels are like" (527-528). She suggests that this is used as a baseline measure, so that the children can see "what their levels are like on a normal day, so they've got a comparison for themselves." She supposes that when Alex comes in from the playground "extremely sort of angry or close to the edge of losing it" (539-541) he can access the approach.

I have not come across any literature suggesting the use of biofeedback techniques in this way i.e. to reduce anger or emotional arousal once the individual has experienced the emotion. Culbert & Banez (2003) suggest using biofeedback relaxation techniques early in the process of emotional arousal, in a similar manner to a cognitive behavioural therapy approach, using self-talk. Similarly, the HeartMath approach to anger management i.e. the 'Go to Neutral' tool (Childre & Rozman, 2003) relies upon a self-talk approach, as an individual begins to feel angry, rather than fully aroused.

## Intervention fatigue

Annie appears to be more doubtful than the other parents about the possibilities of the approach. Having tried a range of interventions before to support Alex (positive play, appropriate sanctions, anger management and previous EP involvement are all mentioned in the transcript) and having being socially (and unofficially) excluded from his previous school, Annie reports:

> I was a bit, sort of sceptical about anything working because of the things that I'd tried with him in the past (501-503)

So Annie agreed to the HeartMath intervention in the spirit of "I think anything is worth a go" (503). The same purpose was behind Becca's agreement to allow Billy to try the approach "Let's see if this will work." (236). Cara seems to have had similar experiences to Annie, in supporting the school in managing Craig's behaviour. She talks of the frustration of meeting teachers to discuss Craig 'lashing-out' at others and how upsetting this could be. Consequently, at the point that the referral is made to the Behaviour Support Teacher, she is willing to try it despite her own, her family's and Connor's reservations about "a Behaviour Therapist" (663) working with Craig. However they too are at the point where they would "Just give it [HeartMath] a go anyway. Like you say *(to Cara)*, it can't do you no harm" (697-698).

Consequently, the parents seem to allow their children to use HeartMath as an intervention more in the spirit of having nothing to lose, having tried other things, rather than necessarily thinking that this is necessarily the best possible option for their child. I suppose that for the parents, there is an element of the school advising them that this is what is on offer at the time, and considered to be in the interests of their child. Knowing that resources are scarce, parents could feel under pressure to accept the interventions offered to them and their child without fully understanding them. This trust in the school staff, and other professionals (including EPs), is explored further in the discussion, especially in relation to the power that it shifts from parents to educationalists.

## Noticing change for the better

Becca reports that HeartMath is:

> ...really good for them to visualise. They can visualise it, can't they? (416-418)... They can see how they're feeling inside. (424)

Like Diane's comment about 'measuring the unmeasurable' (see Research Question 2), Becca articulates how the software, through providing a visual prompt to individuals, seems to help the children monitor their progress, and through appropriate goal-setting, learn to become better at regulating their feelings. For Billy, the software appears to make him more aware of himself, his actions and being more mindful of his feelings, and how they impact on him and others.

Becca also comments on how she has adopted similar techniques in her management of Billy's behaviour, finds that she does "Deep breathing. Yeah, find my happy place" (136). Hence, she has found that her parenting style appears to have become less confrontational when dealing with Billy's "mood swings" (21), and that they are both calmer.

Cara and Connor seem upbeat in their opinions about HeartMath, largely because of the positive change that they have noticed in Craig's behaviour. are They speak of HeartMath as a skill to be practiced, and a recurring theme in the interview is a request that Craig continues with the intervention to "refresh him" (579) and "to keep him ticking over" (821) by doing "something that he can integrate into his school work next year" (601) despite the fact that it is not in my power to arrange this.

## Conclusion

The initial impressions and perceptions of the HeartMath seem to be heavily reliant upon the information which is given at the introduction to the technique (see discussion). Too little information and individuals seem to be sceptical about the approach and whether it can do what it claims to. Too much information, especially theoretical information, appears to be confusing, in that practitioners seem unable to link this to their practice within school. However, at the same time, scientific and theoretical information seems to promote a confidence in the efficacy of the HeartMath approach. For the children, HeartMath is primarily a game to help them calm themselves. These factors call into question issues of fully informed consent for both parents and children, which will be considered further in Chapter 5.

# Research Question 2

This section reports the findings and analysis used to address the second research question; how may HeartMath support an individual in 'managing' his/her feelings?

The super- and sub-ordinate themes used to organise the information used to address this research question is shown overleaf on the mindmap in Figure 17.

## Perceptions of school staff

The themes used to discuss the perceptions of Beth, Charlie, Mrs Cox, Dawn and Diane on individual's managing their feelings are represented below in Figure 16.
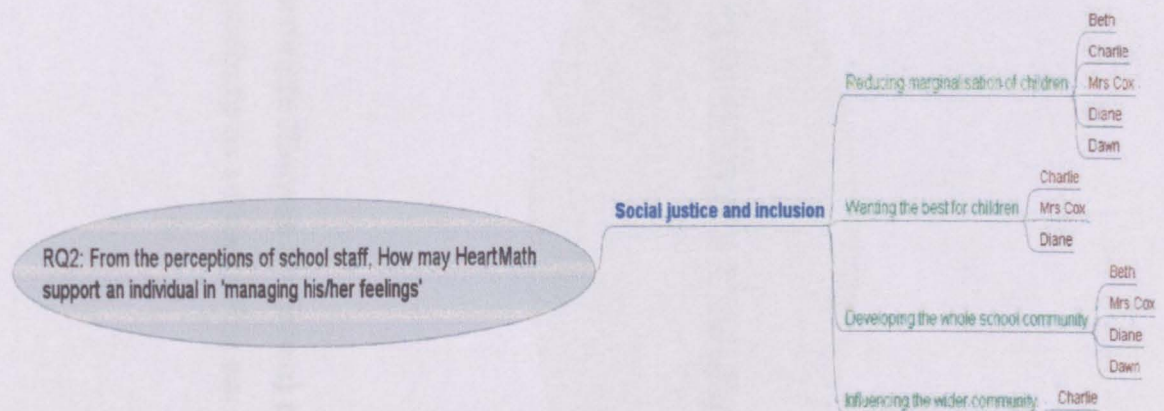


**Figure 16: Mindmap showing super- and sub-ordinate themes, and how school staff have contributed to them**

of having a child who needs to manage their needs

of positive change for child    Parenting experiences    of parents

emotional triggers for the child

RQ2: How can HeartMath help an individual manage his/her feelings?

of school staff    Social justice and inclusion

Reducing marginalisation of children

Wanting the best for children

Developing the whole school community

Influencing the wider community

of children    Calming down    calming themselves

transferring HM techniques to other contexts

anger management

Figure 17: Mindmap of the super-ordinate themes (in green) and sub-ordinate themes (in burgundy) which contribute to address Research Question 2

## Social justice and inclusion

I formulated this as the super-ordinate theme, as to me, this seems to be the often underlying reason that the school staff work to develop emotional health and wellbeing within the educational setting. The reduction of practices which marginalise or disadvantage individuals or groups, and enabling equality of opportunity, appears to be the ultimate aim of the school staff. It would appear to link strongly with the individual staff members' sense of identity as successful educational practitioners, with staff being keen to share positive narratives of children who have benefitted from such approaches. Therefore HeartMath techniques, seem to be seen as a 'tool' to develop emotional health and wellbeing, and to help in the management of the feelings. The school staff discuss the management of feelings on four levels – for individuals, for the children and adults within their school and for the wider community.

# Reducing marginalisation of children

**Reflection**

I was concerned that this theme would be the direct result of the question in the interview schedule (see Appendix I), regarding expected outcomes from using HeartMath. This would not be good practice in an IPA study as I would have found only what I was looking for, similar to content analysis, or 'mining' for information (Heyl, 2001) and would suggest that the bracketing process had not been adhered to. However as the researcher, I entered into this process with expectations as to what I would find, whether conscious or unconsciously. Having worked within education for a considerable period of time, I expected school staff to talk about the individual pupils they had worked, or were working with, and the participants in this study were not an exception to this. Consequently, there is lots of information which could go into this section – case studies and reports of children who have benefitted (or not) from using HeartMath. I have therefore been selective in the information which has made it into this section (the other material may be used within the information leaflet for local authority practitioners).

HeartMath appears to be used to help individuals who are marginalised because their emotional responses act as a barrier to them accessing education successfully and achieving their potential. Many of the comments seem to focus on an individual's ability to regulate or calm his or herself. In this participants spoke not only of calming, but also of anger management (Dawn, lines 406-407), or understanding emotions (Charlie, line 93).

Charlie frames his description of the desired outcomes for Carl and Craig within the language of the SEAL materials. He lists the skills which he hopes the boys will acquire, almost as lesson objectives or targets:

> ....first of all, controlling their anger, b) understanding their feelings and c) understanding how their behaviour affects how other people see them...and also how it impacts upon other people. (85-89)

He seems to consider that the intervention has been successful:

> I think what they've learnt from it is the ability to control their own emotions, and really try and calm down when they are angry. (270– 272)

Dawn too mentions 'calming down' as the main objective for two of the pupils she works with, a boy with behavioural difficulties and a girl who is overly-competitive with her class mates. For Beth, it is her desired outcome for Billy, to be able to manage himself independently:

I need to take myself out of this situation" or whatever, he can go and...have a bit of a sit and think" (28-29)

However Beth seems concerned about motivating Billy to identify that change is necessary. She explains that Billy appears to be at the pre-contemplative stage of Prochaska & DiClemente's (1982) model of transformational change:

> ... you're trying to teach somebody a new skill that they're not really aware that they need or, you know, they don't really want it anyway, because they're quite happy having a bit of a fight, or whatever. (380-384)

Beth therefore questions whether Billy is developmentally ready to learn the attention and self-management which many of his peers seem to have developed:

> [HeartMath]'s a way of getting him to that point that some kids already have, or already taught that in other ways. Aren't they? So it's a way of getting him into that. (287-290)

Diane's experience of using HeartMath as an intervention seems to suggest that her identity as a practitioner is not threatened in discussing those pupils for whom HeartMath has not 'worked' as a technique:

> I found that some kids can take to it quite easily. Some kids really struggle. They really struggle to access it. They really struggle to get the breathing. (588-593)

When later asked about this, Diane discusses her experience of working with a range of pupils with additional needs. She reports some success with children who have a diagnosis on the autistic spectrum (in line with the findings of Aguinea, 2006) and those with "anger management" needs (1387-1388):

> But your Attention Deficit or Attachment children are the ones, I would say who struggle more...And it's not that they can't do it. You can get them there but it's a lot harder... And they are more likely to go off the boil with it as well...And more likely to wobble and have a poor day. (1367-1386)

This contradicts the findings of much of the experimental research, admittedly conducted in clinical settings, on the use of biofeedback techniques to improve attention in pupils with ADHD (such as deBeus et al., 2004, Monastra et al., 2005, both in Aguinea, 2006).

> **Reflection**
> This conversation struck me as interesting, the way we used labels to discuss and categorise children. In some ways it seems contradictory to Diane's inclusive attitude, but I suppose reflects the professional jargon which we use as shorthand, as well as the power issues implicit in labelling (Billington, 2000). This is discussed further in the discussion.

Diane, unlike many of the other school staff, notes that observable behaviour is not always the best indicator of the technique's use or impact:

> One of them [the boys], we can see, he really is struggling so badly, you know. His scores are so far off what they used to be...He used to do so well. And then the other child who / apparently is doing really badly in school, but when you get him, and get him in here and you sit him down and you talk it through. And he'll go on there and he'll go 100% green. (1030-1038)

This contradicts the perspective of some of the other participants, such as Charlie and Beth, who seem to assess the success of HeartMath through the observable behaviour of the children with whom they work.

## Wanting the best for children

This theme relates to the reduction of barriers in order to enable the children within school to achieve their full potential. It relates to the practitioners underlying belief in their work and their long-term aims. Given their leadership roles within school, Diane and Mrs Cox were the participants who discussed this in general terms. For Diane, HeartMath seems to be an approach which can be employed to support inclusion: "we're about keeping kids in school, so that they can get the most out of it they can" (1094-1095) but for Diane these inclusive practices are:

> ...much more about what we can do to support the child. I'm not intending that the child would change to fit in here. It's about what we can do and strategies and techniques. (735-738)

Mrs Cox appears to see HeartMath as an intervention with a specific purpose, to remove (social, emotional and academic) barriers for the children in her school, so that they can succeed. Hence managing feelings is in the long term about optimising the children's chances in the future:

> If we...let the children grow up being stressed and not having any strategies which are...learnt strategies to deal with their own emotions as they grown up, then they won't be doing themselves any good, either emotionally or physically. (116-124)

This is very much in line with the SEAL concept of 'managing feelings.' Mrs Cox plans to introduce the HeartMath techniques across the school, to be used:

> ...first thing every morning and first thing every afternoon just for a few minutes in every class as part of a routine way of relaxing, being calm and ready to learn. (83-86)

"Relaxed, calm and ready to learn" seems to be a kind of mantra for Mrs Cox. It is how she frames the concept of HeartMath to parents, and in presentations within the local authority. For the other school staff 'calming down' is the main perceived benefit of using HeartMath with children, suggesting that they perceive some pupils require help in returning from emotional arousal. In this HeartMath is perceived very much as a strategy to help children manage negative emotions, particularly anger, as manifested through behavioural difficulties in school. For Mrs Cox this is a whole school aim, to prepare pupils for academic work especially after unstructured play at break and lunchtime.

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**Reflection**

There was a possible priming effect, which may have impacted upon the subsequent perceptions and experiences of the school staff. The initial training, attended by Dawn, Diane, Mrs Cox and myself focused mainly on the physiology of the techniques and stress management. However a video testament from pupils from a primary school in the North East who had implemented the approach on a whole school basis, reported that they "feel calmer," "do better in your work," there were "less fights" and school was "more friendly" (source: my notes taken on the day).

Therefore the idea of linking the software and 'managing feelings' was present, right from the initial input, even if the majority of the training was more about stress management. This would be a significant factor in a positivist research project. However within IPA, this is just part of the context of the study and hence noted here for interest only.

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Charlie seems convinced that HeartMath has a role in preparing the children to learn, as it "certainly gets rid of angst and feelings and stuff like that" (249-250). As explored in the literature review, it depends upon the paradigm from which emotional regulation is considered, whether management of emotions or feelings can be achieved. For instance, when a psycho-dynamic paradigm is

adopted; defences are considered necessary for healthy functioning. To view HeartMath as a tool to dispel emotions is to view emotional regulation as too simplistic a process. It can play a role in distracting from the emotion, by focusing the attention on another stimuli, but it cannot drive away subjective feeling, or any of the other components of emotion once aroused.

Diane focuses on the physical impact and aspect of the intervention, mentioning this idea three times in all: "The coherence measure is a really useful measure... of knowing where a child is" (1022-1024). She explains this as:

> You can teach a child breathing techniques and you can teach a child relaxation and calming techniques.....But you can't measure how the child actually practiced them. Is the child actually calm? Whereas on the HeartMath, it's a really good tool for letting you know that it works. (33-41)

For Charlie too, emotional health and wellbeing consists of skills which can be learnt. As a class teacher he equates social and emotional learning as akin to any other academic subject matter (line 154). In this, his views mirror those underpinning the SEAL curriculum in that there is a "taught" element (DfES, 2005, p27). Consequently, Charlie recognises that like other learning or change the need to build in a 'relapse' stage similar to that suggested in Prochaska & DiClemente's (1982) model of transformational change:

> It's not success over night. It still needs a lot of hard work and reinforcement. And there will be three steps forward and a couple of steps back. (160-163)

Diane adopts a similar view that progress will not be a smooth, continuous upward curve, speaking of 'red days' (referring to the indicator on the software) when children seem unable to achieve a state of high coherence (1264).

Diane's view of HeartMath as a tool, goes beyond that of 'managing feelings' Having been introduced to the concept of resiliency (via DfEE, 2001), Diane sees this as a model to progress those pupils who have been using HeartMath with her, over a period of time. For Diane, HeartMath as a technique, allows her to "push my children... a lot further down the emotional resiliency line" (141-

143). Diane discusses HeartMath as one technique which allows her to build resiliency:

> So what I try and do with children is look at what kind of things they can do for themselves to give themselves some resilience. Because // to some degree, you've either got it or you've not and we know it comes from lots of different places. And all the research tells us where it comes from. (329-335)

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**Reflection**

This, to me, is an interesting way to view HeartMath, and one which I had not previously considered. The concept of resilience and mental health is one which I am keen to promote, and therefore I was keen to think about this a bit further. Having gone back to the resiliency wheel model (Henderson & Milstein, 2003), I can see how the HeartMath techniques could be used to 'mitigate risk factors' and 'build resiliency' in the environment (p11), and hence this may be an approach which I adopt in future work with my 'patch' of schools.

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## Developing the whole school community

Mrs Cox also wants to develop the 'universal' use of HeartMath from September (2009) onwards as "a sort of, strategy for everybody in school, including staff" (89):

> Plus the fact that I / really don't want it to just be an intervention thing. I want it to be something that is part of our social and emotional strategies within school for all people. So that the staff will do the breathing at the same time as the children and will just become part of the way of life at the school.

This seems to be in keeping with the school's ethos, as epitomised by its values statement "Excellence, Warmth and Enthusiasm."

Diane too discusses the staff use of the software. In School D, the staff seem to use the HeartMath technique more as a tool to manage their own feelings and emotions. She cites a member of the teaching staff who was finding teaching a very difficult child in her class emotionally wearing, and who used HeartMath techniques to help her manage this situation. Dawn speaks personally about how HeartMath has supported her through a difficult time in her life: "I know now that I can go on it and it makes me feel a bit better. So yes, I think it works for me" (612-614). This is similar to Diane, who describes it as a "crutch" which she used to support her at a distressing time in her life.

**Influencing the community**

At the end of the interview, Charlie responded to the open-ended question by "spouting off" (his words, line 314) about how the role of the school is changing:

> I, I // think // that more and more / um parents and society are looking to teachers and schools, not to do their job for them, but for real help in, sort of, the way that they deal with children, at home and I, I think, you know, if you talk to more established and older people, they would say that there is not that network of family support that there used to be....Henceforth, people are not really au fait with how to bring up children and the barriers *(self corrected)* boundaries that they need to set and how, you know, etc. etc. etc...So, the more that / the more that school can do to help parents, then, then really, it's going to be better for society. (285-302)

In this, he seems to echo some of the points made by Ecclestone & Hayes, (2009) about the changing role of the school, and how schools now appear to be taking on much of the support historically done through family or the community. Unlike Ecclestone & Hayes, (2009) though, Charlie is not arguing that this is a 'dangerous' thing, instead he seems to be indicating that it is for the common good that educational settings take on this role, rather than leaving families in a vacuum. As an EP service, we too seem to be moving in this direction, with more work occurring with parents in community settings than ever before.

## Children's perceptions on how HeartMath may support an individual in 'managing' his/her feelings

Three of the boys who participated in this study seemed to show an understanding of how their behaviour in school was not conforming to adult expectations. Billy was less self-aware but was able to discuss his need to 'calm down.' What clearly comes through from the data is that HeartMath is regarded by the children as a strategy to support the pupils in anger management. Craig in particular details other strategies which he uses to help him in re-gaining control when annoyed. Thus this section not only examines the children's understanding of HeartMath and its link to their emotional development but also the use of other techniques.

The mind map below shows the contributions from each child participant to the themes (see Figure 18) to the super-ordinate theme (blue) and sub-ordinate themes (green).
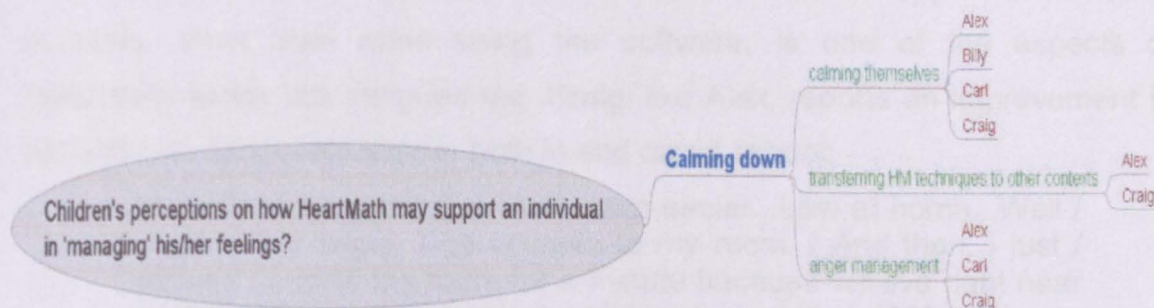


**Figure 18: Mindmap of super- and sub-ordinate themes and the children's contributions to them**

The boys seem to have been given clear messages that HeartMath helps them in calming down (11 uses of the phrase across the four interviews). Craig also seems to have been given the message that HeartMath will affect his attention. This seems to have been a message from others, possibly his parents or school staff as he says "We want / we want your span to be longer."

Carl and Craig demonstrated that they thought that they had made positive progress since using HeartMath, through talking about changes to their behaviour. For instance, Carl evidences that he has "learnt a new way to calm down" (130) by saying "I've not hit anybody since." For Craig too, his progress is evidenced through not now being physically aggressive:

> Because, if someone had hit me...I would just hit them back...But now, if someone hit me, I wouldn't hit them back. (527-532)

Billy reports not noticing any changes in himself, possibly because he is the newest to approach. However Billy does share that using HeartMath is "relaxing" (14) and helps put him in a better mood, "When it's the Garden Game, I always go dead happy" (72).

Alex reports sometimes using the HeartMath techniques whilst on the playground to avoid getting "hyper:"[9] (67)

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[9] Alex's word for losing his temper.

Sometimes when I'm outside then I think to myself and I just use it.
(260-261)

The possibility of the generalisation of the HeartMath approach to other contexts, other than when using the software, is one of the aspects of HeartMath which has intrigued me. Craig, like Alex, reports an improvement in his ability to control his temper both in and out of school:

Um / I've been calming myself down easier...Like at home...Well /
if I get really angry, I go upstairs to my room. / And then, I just /
because / I go to my room for a minute because we live right near
um / like a field with forest in it. I always look at that. (535-544)

Unfortunately, Craig does not articulate whether he uses the HeartMath techniques alongside his visual strategy to calm down, but it seems reasonable to me, that whilst looking out of the window, he could be using the breathing technique to calm himself.

Craig and Carl accessed HeartMath as part of a "Friendship Group" (71) intervention, run by a specialist teacher from the Behaviour Support Service. Craig, in particular, discusses HeartMath in its context as one of a range of strategies that he has learnt to help him be a better friend and to calm himself. Craig and Carl both mention counting to 10 as a strategy to manage their anger. Craig articulates the other strategies which have been given to him:

If you're getting winded up (sic), you just either walk away...or go
tell a teacher. / / And then, if that doesn't work, you just stay away
from them. (296-297)

It seems that he has hitherto been given behavioural strategies to try, to divert from his feelings, alongside the HeartMath technique. His understanding of anger management seems a little tentative as he seems to struggle to articulate his understanding that individuals have different thresholds and tolerance of stimulation and therefore HeartMath is:

better for someone if they have a short, um / short temper.
Because when you have a short temper, if you do HeartMath, it'll
make the temper go, go lower. // (498-501)

The children therefore seem to have acquired fairly consistent messages regarding the purpose of the HeartMath techniques, and why the adults around them consider it beneficial for them to use.

## Parents' perceptions on how HeartMath may support an individual in 'managing' his/her feelings

The parents' perceptions seemed to be coloured by their experiences of caring for a child who requires support in 'managing their feelings.' These emotional needs often seemed to manifest themselves through behaviour which was of concern to the teaching staff, and sometimes distressing for the parents. Parents spoke of their frustrations in the apparent lack of progress, and the lapses that their child had experienced over time. They talked of the strategies which had been implemented in school and at home to help their child overcome their needs, and the varying impacts that these had had. Figure 19 shows the parents' views and the themes used to address research question 2.
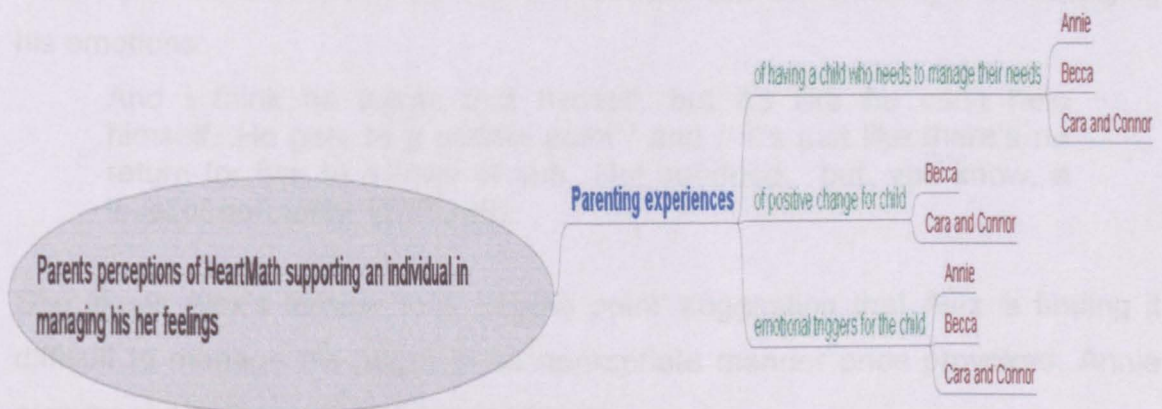


**Figure 19: Mindmap showing parents' views of how HeartMath may support an individual in managing his/her feelings**

Alongside life events which the parents thought were impacting on their child emotionally and behaviourally, the parents suggested other triggers which may factor in their child needing to 'manage their feelings':

- Frustration (Annie, Becca, and Cara and Connor) with computer games (Alex), being thwarted (Alex and Billy), and with literacy tasks (Craig).
- Physiological factors (Becca and Cara and Connor) – tiredness (Craig) and high levels of activity (Billy).

• Coping with change was a factor for Craig (e.g. transition to the next class)

Examining the needs of these three children demonstrates the wide range of emotional and behaviour needs which the HeartMath intervention is being used to address. Thus it is important to consider that in each instance, the parents spoke of HeartMath in conjunction with other support strategies which were being used at home and in school to support their sons' emotional and behavioural needs. This is compatible with the comments made by school staff which viewed HeartMath as 'a tool,' to be selected from many.

Elements of Alex's behaviour I surmised during my conversation with Annie may stem partially from a need to protect himself from potential threats to his self-image. Thus Alex carefully manages situations which may be new, or where he may feel foolish or un-skilled. Annie articulates the difficulties which Alex experiences between his desire to behave and the difficulty with managing his emotions:

> And I think he wants that himself, but it's like he can't help himself...He gets to a certain point / and // it's just like there's no return for him to a level of sub...Not subdued,  but, you know, a level of normality. (230-236)

She likens Alex's temper to a 'tipping point' suggesting that Alex is finding it difficult to manage his anger in an appropriate manner once provoked. Annie also mentions the speed of Alex's temper:

> It's a bit like a rocket. Once the fuse has been lit, there's no stopping him. (110-111)

Thus in my opinion, the reactive way in which HeartMath is being used in school, is unlikely to succeed in this context. The research suggests that emotional regulation, using biofeedback techniques needs to work early in the process, so Alex's attention probably needs to be directed to the feelings which are an early 'warning sign' of emotional arousal, rather than waiting until he is aroused.

The description of Craig's anger is similar, in that he is "9 years old and still having these tantrums" (Cara, 36-37) where he "gets really het up" (Cara, 12) and "flies off the handle" (Cara, 45). However, the use of HeartMath is structured within a Behaviour Support Intervention, a Friendship Group, which taught anger management techniques. Through practice, as a preventative strategy, Craig:

> ...does understand now when he does get angry, he goes away on
> his own and he calms down. (559-561)

Becca has noticed "such a big difference" (85-86) in Billy but "I don't know if it's this HeartMath. It probably is a little bit because he's very interested in that" (105-106). However, she notes that the use of HeartMath coincides with him spending more time with his father, through their shared interest in his motorbike.

Likewise for Craig, a range of changes have occurred meaning that the positive change in his behaviour is not attributable purely to HeartMath. As Cara notes:

> A lot of things have come into, come together for him. / His Dad
> coming home, his school work is improving, he's getting better so I
> don't think we can really go back to the way things was. (805-808)

Delighted in Craig's progress, she laughs "It's like a jigsaw, that all got put together!" (776-777)

For Annie though, the timing of the research is not so positive. Annie worries:

> I just don't think he'll [Alex] be a good example for you, for your
> work, because of where he is up to in his, the grieving process or
> whatever. (711-713)

Annie explains that Alex's behaviour appears to have deteriorated recently, having initially reacted to his father's death in a very controlled way:

> The first three months after it happened he was um // It was like he
> was over-compensating with this good behaviour. (88-91).

Annie relates how Alex has had recent incidents of anger, and aggression, and is temporarily going home for dinner, to avoid the long unstructured playtime at lunch. His attitude towards her is ambiguous, sometimes wanting to be overly

close, and other times not wanting her to be around him. For Alex, HeartMath as an intervention has coincided with a time when he is adjusting to the loss of his father, and requires further support and intervention to help him adjust to his changed circumstances. Although Alex works with the school's Learning Mentor, Annie reports her frustration that Alex remains on the waiting list for counselling, and was considered unsuitable for a CAMHS brief intervention. These ongoing issues and Annie's own emotional frailty mean that she omits to comment on whether she feels HeartMath has had an impact on Alex's complex emotional needs, as we are too busy discussing how she can support her sons and herself through this time.

## Conclusion

All of the participants have connected HeartMath interventions to 'managing feelings,' mainly through the concept of calming-down. The perceptions of the three groups are more divergent in this theme, as they reflect their roles and priorities. For the staff, managing feelings is a way of reducing marginalisation for individuals, as well as promoting well-being across school and, in Charlie's case, the wider community. The parents discussed their lived experiences of having a child, who needs to manage his feelings; the emotional triggers, their experiences of social exclusion and positive progress. For the children, HeartMath is a "calming down game" and their experiences relate to using the approach.

# Chapter 4:  Discussion of Interpretative Analysis

The previous chapter has detailed the results for the two research questions from the perspectives of the three groups of participants i.e. parents, children and school staff and has discussed the findings specifically. This section is intended to examine the key trends across the data set, before moving onto identify implications for practice, limitations of this research and opportunities for future research.

This research set out to gather initial impressions of using a biofeedback technique, HeartMath, within primary schools. Themes were identified apparently showing that the children's experiences were of a "calming-down game" to support them in managing anger through deep breathing and positive thought. School staff seemed divided in their perceptions between being "a little bit sceptical" and being 'blinded by science' by the information presented to them at their initial training.  Consequently, some staff reported feeling insecure about using the technique with children. Issues of informed consent seemed to come to light through the parents' experiences. They seemed to have 'intervention fatigue' – questioning whether this approach would help their children based on prior events. Despite this, most parents reported noticing a positive change in their children coinciding with the use of the intervention.

Themes addressing the experience of being, or supporting an individual who needs to 'manage their feelings' were also explored. School staff seemed to discuss this from the perspective of social justice and inclusion for individuals, the school and their wider community. The children described their experiences of 'calming down' through the use of the HeartMath biofeedback technique and other anger management strategies. Parents spoke of parenting a child who has difficulties in 'managing' their feelings and the events which could trigger emotional arousal in their children.

In terms of the initial impressions of the HeartMath intervention, there is somewhat of a dichotomy with some participants being very enthusiastic about

the techniques and others being more questioning or sceptical of the approach. Why is this?

To some extent, this is understandable. The children are motivated by the idea of a computer game, and hence report it as such, as a 'calming down game'. As discussed above school staff report actively promoting the technique as a game in order to build, rapport and to build a positive relationship or 'therapeutic alliance.'



New Version
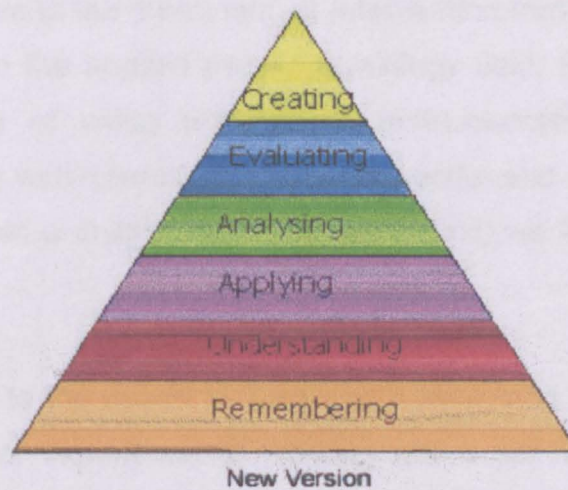
**Figure 20: Revised Bloom's Taxonomy of thinking skills (Anderson et al, 2001)**

For the adults, there is an element of evaluating the approach, informed by their past experiences, knowledge and schemas. If the skill of evaluation is considered in light of the revised Bloom's taxonomy of thinking skills (Anderson et al, 2001), it can be seen (in Figure 20) that evaluation is a higher-order thinking skill, based upon a secure understanding of HeartMath as an intervention. For the school staff, they seem to be at various stages in gaining an understanding of the theoretical underpinning and practical (applied) aspects of the intervention. (This is explored further in the following chapter, on implications for schools and my practice as an EP).

For parents, their mainly descriptive responses regarding the software, seems to demonstrate that their knowledge of HeartMath may be located at the remembering and understanding levels of the taxonomy (and maybe not even at that stage for Annie, who admits being 'hazy' about the details). It would seem that parents are making decisions which may affect their children's

wellbeing without full knowledge of the intervention, or discussion of the possible implications. This brings issues of fully informed consent and permission to the forefront of the discussion.

As EPs, bound by the BPS Code of Conduct, informed consent for children and parents is a natural consideration in our work. Although neither the parents nor children in this study mention this as an issue, it would seem important that as professionals working within Children's Services we ensure that parent/carers are fully informed as to the 'treatment' or intervention that their son or daughter is accessing. From the applied psychophysiology field, Peek (2003) explores the ethical issues of using biofeedback instrumentation suggesting good practice in working with 'clients.' It seems respectful and appropriate that even when working within a child's usual school context, we learn from, and apply this practice.

Parental response to the use of biofeedback intervention appears to be largely determined by prior experience of working with schools. Annie, having had negative experiences of working with a school where her and her son were socially excluded, and feeling somewhat let down by these past experiences, is more sceptical than the other two parents. In the case of Cara and Connor, and Becca, their own experiences of being at school, to some extent shape their interactions with the school, resulting in a 'school-know best' attitude, with parents complying with the wishes of school staff. Again, it appears to be a question of relationship with the school, and key members of staff in particular. These issues ultimately all relate to the power that the parents feel (or don't feel) in being able to ask questions, explore options and to be regarded as partners in their children's education. Billington quotes Rose (1989) on the social power relations inherent in schools' role in managing and maintaining social discipline, through permissions "[which] empower certain bodies to act in a certain professional capacity" (Billington, 2000, p29). These permissions can be formalised and transparent, though often they are tacit and unspoken in nature, conferring power upon 'professionals.'

Therefore, there appears to be a need for schools, psychologists and other professionals to work in a way which endeavours to see parents and pupils as equal partners. As an EP this is best tackled through being mindful of my role as a 'professional' and hence enabling families to become 'experts' in their own lives.

Whether HeartMath can help an individual 'manage his/her feelings' is also bound up in issues of social power. The parents discuss their experiences of parenting a child who is regarded as having emotional regulation difficulties. The discourse is often around the social expectations of others regarding the behaviour and temperament of children in contemporary society. It links to Palmer's (2009) work regarding the role of boys in society, and why they are increasingly becoming marginalised by the 'feminisation' of the curriculum and the education system. Do these boys have 'emotional regulation difficulties' or are they just being labelled by the social construction which is the emotional intelligence agenda (Humphrey et al, 2008)? Ecclestone and Hayes (2009) would believe so, as they believe this therapeutic turn in education to be 'dangerous.'

Billington (2000) raises the issue of the role of schools and EPs in pathologising children through the application of 'labels' of special educational needs (e.g. Autistic Spectrum Disorder (ASD). In approaching parents and children, and informing them that their child 'needs' to learn to emotionally regulate (or "calm down;") are schools and professionals applying a more subtle form of this process? Ecclestone and Hayes (2009) would consider so. Boler (1999) concurs, suggesting that rather than blame, or label individual children for "poor skills and impulse-control" (p94), we should examine the social context in which the behaviour is situated. Rather than seeking within-child variables (ADHD, for instance comes particularly to mind), EPs, schools and other professionals should examine the behaviour in light of its whole socio-cultural context. As the Boler quote (on page 14) suggests, in some social circumstances, behaviours or emotions which in school may require 'management,' may be appropriate, or even necessary to maintain safety (as recently explained to me by a nine year

old boy, as I tried to help him externalise (and hence change) his behaviour using narrative therapy).

It is the 'expert,' scientific knowledge which wins many of the practitioners and parents over. Interestingly, Burman in her critique of emotional intelligence (2009) suggests that the scientisation of society is diametrically opposed to the emotionalisation of everyday life. It struck me that in HeartMath, 'science' and 'research' are used to support the need for individuals to become more emotionally literate.

In discussing the physiology of stress, and the nature of an emotional hijack, the HeartMath trainer, in his initial training session, establishes biofeedback as a scientific phenomenon, backed up by 'research.' This is not a criticism. Discussions regarding EP practice (e.g. on EPNET) often concern 'evidence-based practice.' Especially when delivering training, I too return to the research literature and apply it to meet the learning objectives of my clients. It is the discourse about, and supremacy given, to science which I am questioning within the complex, social contexts of educational settings. As many of the practitioners infer:

> The context stripping that takes part of a positivist endeavour makes the knowledge generated often unusable (Figg and Richards, 1999 in Billington, 2000, p117).

The school staff speak of 'knowing' the science but now needing 'techniques' to help them apply this knowledge to the classroom, and more importantly to help the children with whom they work.

Despite this, parents, practitioners and children tend to report a positive change in behaviour, attributing this to HeartMath. As stated before, this research is not intended as an evaluation of the efficacy of the approach. That is beyond the scope of this study and has been well covered by other research, particularly that produced by the Institute of HeartMath. Whether, this change in behaviour is directly attributable to the biofeedback technique, or whether it is due to other factors, such as relationship with the staff, individual positive attention away

from the classroom, 'normalisation' of emotion for the child as others discuss their own feelings, or simply being more mindful of emotion, is beyond the boundary of this research project. The idiographic information provided by the interviews clearly shows that the participants believe that biofeedback techniques can help in managing feelings, particularly through "calming down."

# Chapter 5:  Implications for practice

This chapter contains the 'applied' aspects of this study, how it relates to my professional life and how this information can be of use to my employers. The EP Service require that this research has a practical application, so this chapter details implications for the practice of school staff working within primary schools (although some information may be transferrable to secondary education) and my own practice as an EP, which may be of relevance to my colleagues.

> **Reflection**
> The findings of this chapter have been obtained using the IPA methodology as detailed in Smith et al. (2009) and in the procedures section. However, I view this chapter as almost 'IPA-light' in that the interpretative elements are largely invisible. They are implied in that I have selected and prioritised the material to be included in this section. Having achieved the third person insight into first person experiences that I was aiming for on the main focus of this research (i.e. the research questions), I do not consider this a weakness of this research but more a pragmatic necessity to meet the varying needs of the interested parties (e.g. university, EP service, UK licensee).

## What are the implications for practice for primary schools?

The school staff were pleased to discuss their practice in using biofeedback software both with pupils and their own use of it. Consequently there is a great deal of detail which could be written under this section. Due to the constraints of the word-count, this is a summary of the key points only. The detail will be used to inform the information leaflet which will be produced within the local authority (see Appendix L for the outline of the contents). The majority of this information comes from the interviews with the school staff and the children, with only occasional comments from the parents, who are less familiar with the technique.

## As a targeted intervention

The practitioners discussed the use of the software not only with the four boys in this research but also their experiences of working with other pupils using the HeartMath technique (anonymously). This was particularly the case for Diane

and Dawn, who due to the size of the school and Diane's previous experience were working with 25 pupils at the time of the interview, and had a waiting list also established. Diane reported a range of different outcomes for individual pupils:

- Better sleep for a pupil who had been experiencing disturbed sleep since a road traffic accident (789-799)
- Improved relaxation for an adopted girl, who is 'tense and stressed' (800-807)
- Reduced behavioural needs for a boy on the autistic spectrum.

In each instance the practitioners cited HeartMath as part of a successful intervention to support the student, one of the tools selected from many, to be used in a structured way.

The practitioners recognise the need for consistency in timing in order to allow the pupils to consolidate their learning, and to develop automaticity in applying these approaches.

As Diane put it "They don't just come and get HeartMath, and tootle off and they're better" (402-403). Consequently, it is important that schools use HeartMath as one strategy of many to support children and young people in developing their emotional well-being.

Dawn identifies that individual time away from class may have a placebo effect for a boy with whom she is working. Beth notes that Billy too enjoys the individual attention away from the class. In line with Asay et al's (1999) research on what works in therapy, Diane notes that the relationship is the key. Therefore, I consider that as part of the initial training that school staff receive, there should be some input on rapport-building techniques.

As part of forging that relationship, Diane speaks of using competition to motivate children, through both intrinsic and extrinsic motivation.

**Competition**

Given that boys (aged 5-10) are twice as likely to have an emotional, behavioural or mental health condition (BMA, 2006), and that the child participants in this research are all boys (even the case studies include only 2 girls), HeartMath as an intervention appears to be used mainly with boys within this age group. Consequently it has been necessary for the practitioners to adapt their practice to motivate boys, in order to encourage them to 'manage their feelings.'

Beth reports 'competitive relaxing' between her two children as they use the games on the software for the first time. Charlie reports the same competition between Carl and Craig when they used the software, and this is evident in Carl's interview when he reports getting a higher score than Craig (73).

Diane reports encouraging competition as a way of motivating boys to engage with the HeartMath processes:

> Which is probably completely not what the makers of HeartMath wanted originally, because it's all relaxation and stress management! (597-599)

Her reason for doing this stems from her experiences as a Behaviour Support Teacher and engaging 'hard-to-reach' boys and adolescents (using video games to build rapport). She too cites the ubiquitous "research says" as another reason to use competition, explaining the evolutionary developmental take on competition as a male attribute, (as discussed by Geary & Bjorkland, 2000) originally necessary to win resources (food, a mate etc.). Palmer (2009) puts forward the argument that it is this maladjustment between modern-day society and the evolutionary heritage of males, which is one possible factor in why boys seem to be less successful than in the past.

The element of competition that Diane introduces is probably advisable given that the content of the games may not be to every boy's taste. 'Winning' at the Garden Game, for instance, causes the appearance of a fawn, flowers and as a rainbow, each accompanied by a 'twinkle' sound which Diane describes as a

level to motivate the individual to better his or her performance. This seems an effective strategy to use to motivate those boys who may not initially be motivated by the actual content of the game, and so other schools may wish to adopt this practice. Goal setting would further enhance this.

**Computer game play**

> I think it's quite a good tool because all kids like computers....You know it quite good um/ from that point of view, it pushes a lot of children's buttons doesn't it? (Beth, 400-405)

These sentiments were echoed by Charlie, Dawn and Diane. One of the main features of HeartMath is the software, particularly the game play element which was often mentioned. The idea of managing emotions through a computer game is accessible to children, parents and school staff. This is one of the main advantages of HeartMath over other methods of self-regulation, such as those approaches devised by Rae & Robinson (2001) on stress-management and Faupel, et al., (1998) and Luxmore (2006) on children and young people managing anger.

The children mainly perceived HeartMath as a computer game, detailing its format, the procedures to use the software and the technique to control the software and hence get the highest score. In line with the research into computer games, one of the more rewarding aspects of the HeartMath software is that of the instant feedback on performance. The intrinsic/extrinsic motivational aspects of obtaining a score during computer game play have been well documented and likewise for the HeartMath technique. Billy, at seven years old, may not be secure with his number concepts but is able to report a good score.

Alex reports "it comes onto a screen which tells you all your stats, like if you were in The Zone." (213-214). The Zone, a sports psychology term, is synonymous with Csikszentmihalyi's concept of Flow (1991). In this case, Alex is referring to a graph which is on the bottom of the screen plotting accumulated coherence score against time (see Figure 21). This function links to the

software's origin in supporting athletes in developing their competitive performance.
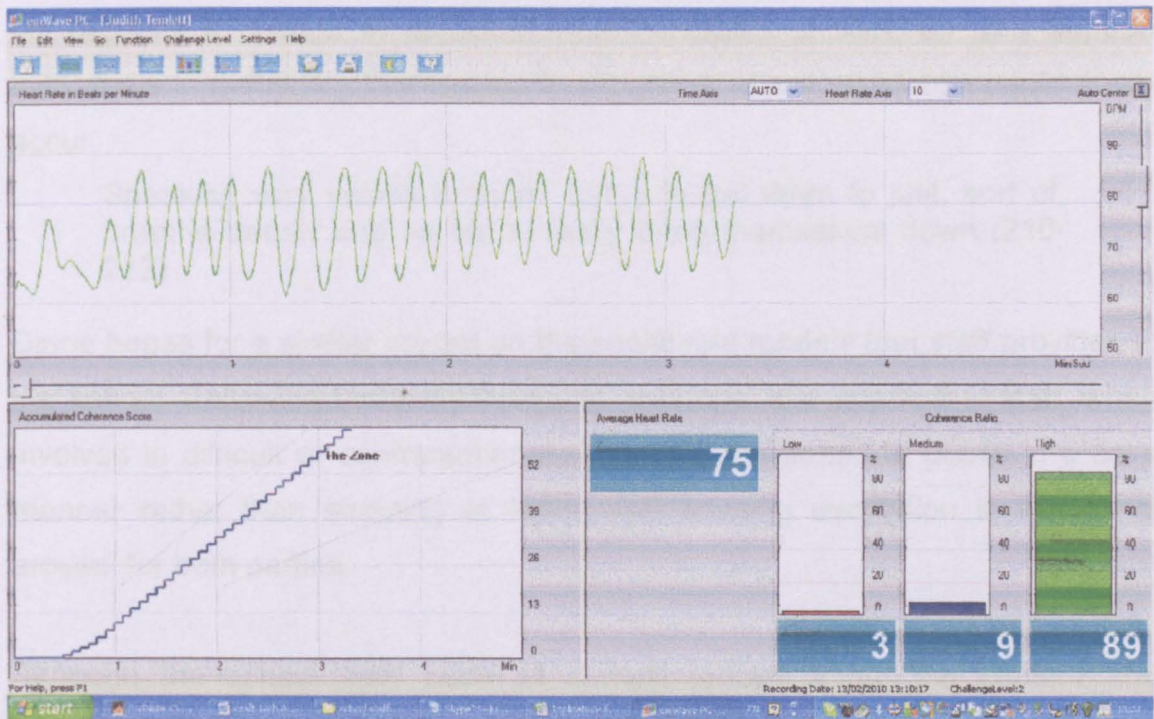


**Figure 21: 'Screenshot' of emWave PC software showing 'The Zone,' the % of high (green), medium (blue) and low (red) coherence and HRV wave graph (13/2/10)**

The prevalence of conversation about game play often dominates the conversation with parents and pupils to the cost of an understanding of the approach and its aims (see discussion on informed consent). Consequently, I consider that a protocol or proforma could be devised in order that parents can clearly give informed consent. Dependent on the child's age (and/or understanding), a further proforma could be used to ensure that the child is agreeable to the intervention too.

**Adults in school**

Charlie reflects on the "caught" aspect, the implicit learning of social, emotional and behavioural skills within the school environment (DfES, 2005, p27) and the role of adults as both a positive and negative role model. He comments on how the children pick up on an adult's "bad mood" and how this can contribute to the children's SEAL work. However, he considers the positive impact of the adults

using HeartMath as far more valuable, in terms of their own stress management and general approach.

He explains a change in approach from members of staff, as they support individuals in managing themselves in situations where escalation could easily occur:

> Speaking very calmly to them, trying to get them to just, sort of, breathe deeply and so on, to really bring themselves down (210-212)

Diane hopes for a similar impact on the social role models that staff provides in her school. Following her twilight training sessions, she hopes that staff, when involved in difficult or confrontational situations, will speak to pupils in a calm manner rather than shouting at them, and causing escalation in emotional arousal for both parties.

Although the school staff were all complementary about the content and delivery of the initial training, practitioners voiced uncertainty about using the HeartMath techniques, Beth reported "so that was slightly frustrating because I thought I'm not quite sure how to / how to move him on." (315-317). Beth, Diane and Dawn all comment on the passive nature of the training -"it was quite a minimal training session and we didn't all get a try" (Diane, 571-572). She opines that "half a day of training does not give the people the confidence to get out there and run with it." Consequently there is a need for staff to have access to ongoing support or advice, such as that Diane offers to Dawn to help her develop her skills over time, through coaching (131-138) and supervision (128-129). As Diane note "there's nothing that beats professional practice," discussing her experiences of learning the approach without advice from others. The format of the initial training could be modified to make it more relevant to the use of HeartMath within educational settings.

## Working with Parent/carers

Diane and Mrs Cox discuss this. Diane has devised her own detailed routine for introducing the HeartMath software to parent/carers of children who will use the intervention, which contrasts starkly with the limited knowledge and experience

Annie and Cara and Connor have about the software, and the intended purpose of the intervention.

## Summary of implications for school practice:

Given the perceptions and experiences which have been explored in this chapter, the following points are a summary of possible implications for schools:

- Use HeartMath as a 'tool' to support other strategies to help the child 'manage his/her feelings.'
- Train staff in techniques to engage and build rapport with pupils.
- Use the computer games to motivate children, especially boys but ensure that this is appropriate to the child's self-image and sense of efficacy. However, it is important that the child understands the nature of the intervention, and the skills they are aiming to learn. Goal setting may enhance this sense of purpose.
- Devise a protocol or proforma for informed consent from parent/carers and/or children (dependent on age and understanding)
- Introduce the HeartSmarts materials and modify to suit the ethos of each setting. Refer to the underlying principles of emotional regulation regularly to ensure that they remain fresh for the children, even when the HeartSmarts programme is completed.
- Use more established practitioners as mentors or coaches to newcomers to the approach.
- Consider revising the format of the initial training programme to make it more practical or applied to educational settings.
- Promote staff use of the approach, through making the software available somewhere private.
- If HeartMath is going to be used as a universal approach, the whole school staff, including welfare, lunchtime and administrative staff, should be informed, so that they can modify their behaviour to reflect the school's ethos and aims.

- Consider how parents will be introduced to the HeartMath techniques, and give strategies so that they can help support the child in his or her use of the approach.

- Offer refresher sessions for the parents of new intake, to reiterate the values that the school is trying to promote.

## What are the possible implications of using HeartMath for my practice as an Educational Psychologist?

The practical implications link to the provision of training and support to the schools and individual parents and practitioners. For practitioners, there is a need for guidance and advice on supporting individual pupils and in using the software. Advice could also be offered on strategies which may be complementary to the use of the biofeedback software. As mentioned previously, I hope to write an information leaflet containing a mixture of theoretical knowledge and practical know-how (see Appendix L, for suggested content).

The next implication is that of training. As a practitioner who has provided one-off in-service training (INSET) to school staff, I was especially interested in the perceptions of the school staff about the half day training event on 24/2/10. The comments relate not to the quality of the training, which was reported as excellent, but the format of one-off, 'hit and run' training events.

Joyce & Showers (2002) have analysed in-service training for teachers and suggest that five steps are required to provide effect training to school-based staff:

**Theory**: explain and justify the new approach
**Demo**: show/model how it can be done in practice
**Practice**: let the staff try doing it this new way
**Feedback**: Give the staff feedback on their new way of working
**Coaching**: help staff work out what to do next to improve their new approach

(Joyce and Showers, 2002)

If I am required to offer training on HeartMath (and two of my schools would like this), I think it is important that I offer a model which is going to be supportive of the staff's long-term development.

The nature of introducing an intervention has also caused me some reflection. The intervention was introduced to the local authority in a piece meal fashion, and therefore there has been no strategic 'lead' on this piece of work. Coming into the authority to an already established piece of work means that I have had little influence on how this intervention is used, and I have noticed a range of practice across schools in the local authority. I hope that in the event that I am asked to lead on a piece of work such as this, I would ensure a little more structure, to help the approach embed into the culture of the school and local authority.

I hope to be trained in the Penn Resiliency Program soon and that I will be able to merge the learning from this research into my future resiliency work, to support emotional health and wellbeing.

# Chapter 6: Conclusions

## Limitations of this study

The potential limitations of using IPA as a research approach were documented in the methodology chapter. However the following additional factors are worth noting:

The major difficulty in compiling this research has been the amount of data. The strategy needed to analysise the perceptions of 12 participants, from 3 groups across 4 schools, has been complex. The use of the hermeneutic cycle has necessitated not only looking within each interview for trends and themes, but also across and within settings (e.g. examining practice within school D), and across and within the groups (e.g. comparing Alex and Craig's experiences as children). The data used within this study has been selected either on the basis of being representative of the views of several participants, or having interest as a discomfirming case (Yardley, 2008), an exception to the rule. I would, if given the opportunity to revisit this, focus more upon the voices of fewer participants, allowing greater depth of analysis rather than the breadth which has been necessary in this study.

The complexity of the research design, combined with the nature of much of the HeartMath research (mainly positivist or experimental), means that I have had at times felt like I was working a 'mixed methods' research project. I needed to evaluate research from quantatitive studies, and then use this to illustrate lived experiences. Consequently I have struggled at times to find my own voice, and to reconcile the two paradigms.

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**Reflection on reflections**

I have been surprised how difficult it has been to write my reflections and reflexivity within this document. To try and capture my subjective thoughts and feelings, and then record them for posterity, has been harder than the reflections which are part of my day to day practice and are aired in supervision. Knowing this is a public document has felt restrictive, whereas I usually openly share. Consequently I feel that this probably is not truly representative of my usual reflective practice.

Reconciling quantatitive and qualitative approaches has impacted significantly on the structure of this written report. Having spent a long time considering and formulating my epistemological position, I have found it difficult to reconcile my ontology with the requirement to write this report in a manner usually used for quantitative research. Therefore if working with IPA in the future I would adopt a format for the final report which is more in keeping with the research approach, such as the ones outlined by Smith et al. (2009) and Larkin & Shaw (2009).

Issues of power arose all the way through the research process. The format of the research interview (I decided on and set the questions without input from the participants) and how I, as the researcher, interpreted someone else's life experiences, meant that there has been a power imbalance between me and the participants. Additionally, the discourses I have constructed are outside the participants' control. Although I have attempted to consider the way in which I write, think about and interview the participants, inevitably a power imbalance exists. Kvale (2006) is fairly damning of interviewers like me – who manage their appearance (to make participants feel comfortable), build rapport and trust, all in order to gain their research "data." I'm even guilty of building a therapeutic alliance, as people discussed their emotional lives. So, as Kvale (2006) critiques, I am guilty of using the power asymmetries inherent in the qualitative research interview to my own (research) ends. The main way that power issues could have been minimised was for the research design to have incorporated participation with the informants becoming co-researchers.

One of the potential weaknesses in an IPA study is that it is dependent upon the participant's narrative skills, and articulation of their thoughts, feelings and experiences. This may particularly be the case for the boys who were interviewed. Carl in particular, provided the essential information and was co-operative throughout, but would have struggled to articulate his thoughts and feelings further about his experiences. Likewise, for Billy, whose emotional vocabulary was unsurprisingly, quite limited in its nuances and used concepts such as "happy." Therefore the scripts do not have many instances of

metaphor, imagery and reflection (Smith et al., 2009) that facilitate access into the participants' world.

## Recommendations for further research

As mentioned above, I have observed a range of HeartMath practice in the schools in the local authority outside of this research. The most striking is when school staff link HeartMath to the school's disciplinary policy – for instance, using it as a time-out strategy, or expecting a child to self-calm using the software when already aroused. I think the opportunity to explore further the context of the use of HeartMath in schools, as both a tool to use in reaction to arousal and when it is used as a skill to be practiced, and utilised as needed.

The use of HeartMath as a universal strategy, as in school C, is a new phenomenon, and it would be interesting to explore whether the approach does help children be "calm, relaxed and ready to learn."

This research has been idiographic in nature, but provides only an initial snapshot of the use of the technique. It would be interesting to track the longitudinal development of emotional regulation skills across age, as the pupils mature, or even across a school year as a case study to explore the perceptions of staff and pupils as they use the approach. Does the novelty wear off? Do pupils lose interest over time? Is the enthusiasm for the approach a reflection of the age (or gender) of the boys in this study?

The boys in this study have mainly displayed externalising behaviours. The existing research reports that HRV is a valid predictor of depression and anxiety. So research could be conducted exploring the use of biofeedback (as part of a package of support) to support pupils prone to low mood or anxiety.

This study has examined the lived experiences of boys. Would there be any difference in the management of feelings for girls?

One of the schools with which I currently work provides Yoga as an after-school club. The teacher who runs the sessions and I have already discussed the possibility of a small-scale research project comparing the benefits of yoga to biofeedback techniques.

Finally, there appears to be a gradual increase in the use of biofeedback techniques within the EP profession. It would be of interest to establish the extent of this and how it would link to other initiatives. The local authority are just moving into the Targeted Mental Health in Schools Project. Therefore I consider that the use of HeartMath could be evaluated (in line with the TAMHS guidance) to identify good practice from a more generic stance.

## Conclusions

This IPA study set out to explore the lived experiences of children, parents and school staff when initially introduced to the biofeedback technique, HeartMath, and whether it might help in the management of feelings.

To parents and children, HeartMath is primarily "a calming down game" – a piece of computer software which can aid in the management of feelings, mainly the regulation of emotions which are perceived negatively, such as anger. The super ordinate theme of "learning the technique" shows how the children view the approach mainly as a breathing technique, with the other aspects of the intervention, positive thought and mindfulness being secondary to this. The children spoke of using the HeartMath technique within the context of other 'anger management' strategies to 'calm themselves.' However opportunities to apply the techniques seem limited, as explored in the theme 'transferring HeartMath to other contexts.'

Parental experiences of raising a child with emotional needs seemed to have a significant impact upon the parents involved in this study, as explored through the theme 'having a child who needs to manage their feelings' and 'emotional triggers.' This was also the case in relation to their dealings with the school, where two of the parents reported some negative experiences. Consequently

the families were wary when first approached about HeartMath (displaying 'intervention fatigue') as I called it, and agreeing to a trial basis with little knowledge or information. Hence the level of parents' understanding of the technique is questioned in the theme 'fully informed consent?' and issues of consent are examined further in the discussion chapter. However, most parents were pleased to notice positive change in their child coinciding with the use of the intervention.

School staff perceive HeartMath as a useful tool to support and complement other interventions for individuals in 'managing feelings'. Initial impressions of the approach were informed by the introduction that participants had to the technique and how they 'made sense of HeartMath' (the title of the super ordinate theme). Consequently, amongst school staff, there were divergent views of the approach upon first acquaintance, with some people being impressed with the science underpinning the approach, explored in the theme 'blinded by science?' and others being 'a little bit sceptical.' Some staff reported initially feeling 'insecure and uncertain' about using the approach. School staff framed their use of the approach through the lens of 'social justice and inclusion,' wanting to 'reduce marginalisation' and 'do their best for children' the school as a whole, and increasingly moving towards community engagement.

The findings from the analysis were discussed in light of some of the power issues inherent in identifying children as needing to manage their feelings, and the potential misappropriation of the construct of emotional health and wellbeing to exercise social control.

Implications for practice were explored in relation to practice in primary school and my practice as an EP. The main practical implication for my practice as an EP concerns the model of training and support offered when introducing an intervention like HeartMath. An abundance of information has been provided for this research and this will be used to formulate guidance to practitioners, including colleagues in the EP Service and the participant school. This will be

written over the summer 2010, with a view to circulating it in the next academic year.

For schools, the implications for practice mainly consist of 'tightening' up the processes which they use, such as partnership working with parents and informed consent, as well as continuing to use HeartMath alongside other interventions to support individuals.

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# Appendices

## Appendix A: Managing feelings

Below are the skills listed in the Primary SEAL materials (DfES, 2005, Appendix A) which it is aimed pupils acquire before transition to secondary education:

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### Managing how I express my feelings

- I can stop and think before acting.
- I can express a range of feelings in ways that do not hurt myself or other people.
- I understand that the way I express my feelings can change the way other people feel.
- I can adapt the way I express my feelings to suit particular situations or people.


### Managing the way I am feeling

- I can calm myself down when I choose to.
- I have a range of strategies for managing my worries and other uncomfortable feelings.
- I have a range of strategies for managing my anger.
- I understand that changing the way I think about people and events changes the way I feel about them.
- I can change the way I feel by reflecting on my experiences and reviewing the way I think about them.
- I know that I can seek support from other people when I feel angry, worried or sad.
- I know what makes me feel good and know how to enhance these comfortable feelings.

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## Appendix B: Quick Coherence Technique

This is the description of the quick coherence technique contained in the emWave PC software (Childre, 2008, p 3):

Step 1- Heart Focus
The first step is to focus your attention in the area of your heart. Gently focus on the area in the center (sic) of your chest, the area of your heart, If you'd like, you can put your hand over your heart to help.

Step 2 – Heart Breathing

In the second step, focus on the area of your heart and pretend you are breathing through your heart. Pretend your breath is flowing in and out through that area. Breathe slowly and easily out through your heart to a count of 5 or 6 (about 4 or 5 seconds). Do this until your breathing feels smooth and balanced – not forced. As you continue to breathe with ease for a few moments, you will find a natural inner rhythm that feels good.

Step 3 – Heart Feeling
The third step involves positive feelings and attitudes. Continue to breathe through the area of your heart and find a positive feeling, like appreciation, care or compassion. You can recall a time you felt appreciation or care to make it easier to find a positive feeling now. This could be the appreciation or care you have towards a special person, a pet, a place you enjoy, or an activity that was fun. If you can't feel anything, its okay, just try to find a sincere attitude of appreciation or care. Once you have found a positive feeling or attitude, you can sustain it by continuing your heart focus, heart breathing and heart feeling.

## Appendix C: Pen portraits of participants

For ease of navigation, these pen portraits are organised initially by school, and then the order is school staff, parent, and finally, child. The pen portraits are written from my 'field notes' taken immediately after the interview, and my reflections on phenomenological coding, as well as the transcripts themselves.

## School A

## A. – Learning Mentor

A. was absent from school on the day of the interview (up until the start of the summer holidays), so I was unable to interview her within the time-frame for this study. I met with A. on 22$^{nd}$ June, to set up the research interview, so have included the following information gathered on this occasion as background.

A. reported that HeartMath was mainly used at the moment with specific children to aid them in calming down after (behavioural) incidents. A. had introduced HeartMath as a whole class intervention, with a Year 2 class, who were practicing the visualisation and breathing technique. A. reported that the Classteacher had said that the class were "noticeable calmer" after a HeartMath session. A. also outlined Alex's emotional and behavioural needs.

## Annie – Parent

Annie is in her 30s. She is a single parent, having been widowed in January 2009. Despite the fact that she and her husband were separated at the time, his death was sudden and unexpected, and has had a significant impact upon the family. Annie has yet to return to her work as a Civil Servant, a fact which her two sons, Alex and his younger brother Andrew, question as they have to go to school.

Annie is articulate. She knows her son Alex, well and is realistic about his emotional and behavioural tendencies.

Annie is sometimes tearful, and becomes distressed during the interview. She insists on continuing with the conversation, even though I feel that we should stop. Hence the conversation mainly becomes a consultation about how to support Alex and Andrew as they adjust to the loss of their father, and re-assuring Annie that her feelings are 'normal' given the circumstances.

The theme of 'loss' is naturally a recurring theme in her interview (and to a lesser extent, Alex's), and how to support her sons throughout this "grieving period." Annie is supported by her extended family and her in-laws. She hints at differing approaches to the parenting of children, which have caused tension with her in-laws.

---

**Reflection**

I remember feeling uneasy. Was I doing the 'right thing?' After all I am not the school EP, but ethically it would have felt wrong not to have 'intervened.' After all, Annie spent time with me, and was open about the 'problem.' I felt I had a duty not just to "listen to the pain," but also to try and help Annie form some ideas of how to move herself and her family forward.

At a personal level, there was that 'connection.' I felt empathy with and sympathy for this bereaved woman, and a wish to help improve this situation for her and her family.

On my return to the office, I sought my supervisor, who advised I wrote a very general memo to the school EP, outlining the circumstances and my 'intervention.'

---

Alex's behavioural needs have been ongoing since nursery, when Annie thinks an Educational Psychologist offered advice that Alex's needs were developmental and would therefore diminish over time, especially when admitted into school, with its more appropriate challenges for Alex's above-average abilities. Annie feels let down that this did not happen and Alex's behavioural difficulties have been an issue throughout his school-life.

Annie reports that this is Alex's second primary school, after particularly negative experiences for her and her son in dealing with his previous school. This resulted in a managed move to School A in Year 1.

## Alex – Child

Alex is 8 years old. His mum, Annie opts to stay for his interview, explaining that Alex has had a negative reaction in the past to professionals, following an angry outburst after meeting a CAMHS worker. Consequently the conversation is sometimes between the three of us.

Alex is initially nervous, in answering the questions and his early answers to the questions are peppered with "like" and "er" as conversation fillers. At this point in the interview, the questions I ask are short and closed. Alex relaxes when he starts drawing, and chatting with his mum and the conversation from this point flows more naturally. Although Alex's vocabulary is quite basic, some of the concepts he offers are quite sophisticated.

## <u>School B</u>

## Beth – Teaching Assistant

Beth is 43. She is a mother of three children, the youngest of whom is 8 years old, whilst the oldest attends secondary school. Beth works part-time as a Teaching Assistant three days a week, mainly with the Year 2 class in School B, (which is the only Infant School in the study).

Beth does not mention the class-teacher directly in the course of her interview, which leads me to surmise that Beth's role is largely to support Billy, and to prevent him from disturbing the flow of the lesson and the learning of others in the class. I think that Billy, particularly his attention and behaviour, and HeartMath are viewed solely as Beth's role, and she therefore feels very responsible for Billy's progress with the intervention, and his behaviour within class.

Beth missed the INSET session, which introduced HeartMath to the SEAL schools (Half day 24/2/09). However, she has attended the whole school twilight training session, where she took notes for her own interest and

curiosity. Beth explains that she likes to know how things work, in order to understand them ("like a television" she adds).

Consequently, Beth sees our interview as a chance to develop her understanding of the approach and her work with Billy. She brings her notes along from the Twilight training session and we talk through them prior to the interview. Co-incidentally, I have my notes from 24/2/09, and we use those to supplement Beth's.

---

**Reflection**

Throughout this I am ill-at-ease. I am aware that this is a 'research interview' and I am impatient to get on with it (which I try to hide from Beth). University sessions have talked about the potential conflict of doing 'casework' when interviewing and I worry about 'spoiling' the research.

However, I have an inherent need to build a relationship with Beth, in order to complete the interview (that sounds mercenary, but at a fundamentally level is true). Therefore unwilling to lose Beth's goodwill (and probably her good opinion of me as a helpful person), I co-operate with her.

However, I am uncomfortable at being placed in this expert role. Beth has more experience of using the software with a child, as I have only used it on myself. My understanding of the 'technical' side of HeartMath is in its infancy, so I feel on shaky ground.

---

When we get to the interview, Beth is nervous, and proclaims her status as a novice but her wish to learn more. We return to her concerns about Billy's progress and her worry that she may not be able to "move him on."

Beth employs a deficit model of Billy as a child "with all these difficulties." She hints that there are social / family issues outside of school which have affected Billy, without ever saying explicitly what these are.

## Becca - Parent

Becca, Billy's mother, is in her 20s. A single parent, she and Billy live alone, although Billy sees his Dad regularly.

Becca is really nervous about both the research interview and her meeting with an Educational Psychologist. We have a long conversation before the formal interview starts, where I build rapport with Becca, and present a 'human' face, alongside the 'professional' status which Becca appears to be a little intimidated by. There is lots of laughter and giggling as we talk about the school generally, and how we both come to be in the room doing an 'interview.'

When I judge the time to be right, I outline the purpose of the interview, the initial information and we sign the consent forms. The interview opens with a discussion of Billy, whom she is very positive about, whilst openly acknowledging that Billy can be difficult because he is always on the go.

## Billy - Child

Billy is 7 years old. He comes to see me with his hair especially spiked for the occasion. Becca stays for a few minutes just to say hello to Billy and to introduce me.

Billy seems to be instantly at ease. We are in the room where he usually does HeartMath with Beth, which is across the corridor from the main hall, where rehearsals for the end of term production are in full swing. Consequently, there is a level of background noise throughout our time together, which is unavoidable.

Billy is lively and chatty as we work. He is open about things, but shows little awareness that his behaviour is sometimes viewed as being a barrier to his learning, and that of his class mates.

When drawing, Billy and I chat about his interests which I have learned about from Becca, in particular his motorbike, his BMX bike and school.

> **Reflection**
>
> Billy has an intriguing mix of naivety and insight. When discussing his friend, he tells me that he "was born brown," a comment which I handle by saying "Was he? Tell me a little bit more about what you and X like to do together." whilst feeling that somehow I haven't handled this appropriately. In attempting to be 'colour-blind,' have I failed to acknowledge this boy's culture identity? The discomfort is mine, not Billy's, who has moved on to a different subject, as I ponder this point.

Billy's interview terminates after 16 minutes, as the music from the hall changes. "That's my song," he says, as he heads for the door.

> **Reflection**
>
> Being aware from Beth, that Billy's attention and concentration are likely to be an issue, and being mindful of his age, I attempt to keep this interview fast-paced. There is noticeable more talk from me, using short questions to elicit more information from Billy. Consequently the interview is more structured than others, with a great deal more instruction. With Billy I use scaling to try to get a comparison of his rating of HeartMath compared to his other interests, as I consider a concrete prompt helpful to him.

## School C

## Charlie, Class-teacher

Charlie, who is in his early 40s, teaches the Year 4 class to whom Carl and Craig belong. Charlie came out of class to speak to me, leaving a Teaching Assistant in charge of his class. Hence he is hard-pressed for time and so the interview is conducted at a rapid speed. Charlie had been briefed by me about the content of the interview etc, during the playtime, and we conduct the interview with the schedule between us, meaning that Charlie does not require prompts. He has obviously thought about what he wanted to say between playtime and the start of the interview, and so in places, Charlie's speech sounds less spontaneous and more like a rehearsed job interview question.

Charlie is unable to offer any detail about HeartMath, largely because Craig and Carl have worked with a Behaviour Support Teacher outside of class. I suspect he has not actually used the software himself, despite having attended the training.

Charlie is confident in speaking about the two boys and has a good understanding of the underpinnings of the technique. Charlie emphasises the progress that has been made with the two boys and accredits this to the school, in partnership with the home. Charlie has strong opinions about social justice, and equity of opportunity which he discusses at the end of the interview.

## Mrs Cox, Headteacher

Mrs Cox is a well-established Headteacher who is in her 50s. She is proud of her school, and its position as a Lead school for one of the three local SEAL Clusters. I speak to her at Charlie's suggestion, because he is unable to answer questions pertaining to the school's 'direction of travel.'

Mrs Cox is keen to speak to me. She speaks quickly and fluently about HeartMath, perhaps reflecting the many presentations which she has made on the subject. She enjoys positive relationships with the other agencies involved in the introduction of HeartMath, but does not acknowledge her own role in this. Instead she attributes the acquisition of resources or training to "luck," "good fortune," or "generosity" rather than examining the motivations behind these contributions.

The interview is conducted at a pace, again because of time constraints. Mrs Cox is keen to discuss her plans to introduce HeartMath as a whole-school approach, to encourage "her" children to be "calm, relaxed and ready to learn." She discusses working with parents too, through parents' meetings re HeartMath.

## Cara and Connor – Craig's Parents

Cara and Connor are in their late 20s. They are the only couple interviewed in the study. Connor had been living away from the family home and returned five months prior to the interview. The year had been one of change for Craig. Connor returned to his family home. His paternal Grandmother was visiting

from Australia at the time of the interview, and Craig had consequently given his room up for her, and Cara was expecting a baby.

Cara and Connor were consistent in their view that Craig is not a 'naughty' boy but that any outbursts of temper are usually as a result of frustration. Although they discuss that he finds reading and spelling difficult early within the interview, they do not use the word "dyslexic" until the 19th minute of the interview, which made me wonder if they are slightly embarrassed by Craig having a learning difficulty. Both parents are open that their own experiences of school were not particularly positive, which is why they are so keen for Craig to succeed.

Connor comes to the interview, determined to secure further support for Craig, as he moves from Charlie's class into a Year 5 class, and hence returns to this point frequently. Both parents are delighted with Craig's progress. Having been the parent who has had to deal with the school the most over a long period of time, Cara carries the emotional burden and fatigue of having been 'called in' by the school to deal with behavioural incidences. Hence, Cara is a little more negative about Craig's behaviour than Connor who sees him as "still only a little boy." The parents re-affirm each other's narratives about Craig's outbursts as an expression of frustration.

Their conversation focuses mainly on their experiences of parenting Craig. Their knowledge of HeartMath is scant, and is based purely upon the information that the Behaviour Support Teacher has given to Cara. Craig adds to Cara's knowledge prior to the interview and she admits to being surprised by how much he knows.

## Craig - Child

Craig is 9 years old and the only child of Cara and Connor. He is in Year 4 and has a very positive relationship with class teacher, Charlie. In fact, Cara and Connor explain that Craig is very reluctant to leave Charlie's class. Craig's speech presents as slightly immature. He is enthusiastic, lively, chatty and

open. He knows his strengths, and enjoys being interviews, sharing his achievements enthusiastically. Whilst drawing, Craig chats comfortably to me about Lego, Star Wars, James Bond and other topics, suggesting a familiarity with adult company.

Craig's knowledge of HeartMath stems from his inclusion in a 'Friendship Group' intervention run by a teacher from the Behaviour Support Team, whom Craig speaks warmly of. Craig discusses HeartMath in the context of the behaviour and anger management strategies which were part of the intervention, alongside social skills training. Craig even returns to the classroom to get his Friendship Group folder and talk me through the work that they have completed.

## Carl – Child

Carl's father has given permission for me to interview his son, although he declined the opportunity to be involved himself.

9-year old Carl was also part of the Friendship Group, so his experiences of using HeartMath are very similar to Craig's. Carl's route to School C was somewhat unusual as Charlie reported. Carl had lived with his mother, in the South East, until she died suddenly during the summer holidays prior to Year 2. Carl came to live with his father in the North-West, losing contact with his friends, his mother's extended family and school at the same time. He presented with some behaviour difficulties and anger management issues, which resulted in his inclusion within the Behaviour Support Team's intervention.

Carl was quiet. He was difficult to engage. He gave short answers, even to direct closed questions. Carl was ill at ease throughout the interview, but showed some real insight into the HeartMath techniques. Emotionally, he was guarded, and seemed wary of me throughout the interview. He was co-

operative, but I think this was mainly an 'anything for a quiet life' compliance, rather than active engagement.

I later found out from Charlie that Carl and Craig had had a tussle over the football during break-time, and had consequently been told-off. I interviewed Carl immediately after play-time when he may still have been feeling upset /indignant about this.

## School D

## Dawn – Teaching Assistant

Dawn is in her early 40s, and works as a Teaching Assistant supporting the Year 6 classes.

She is nervous about the interview, feeling that her knowledge is insignificant compared with that of Diane, the Assistant Headteacher. She re-iterates her small role, and recent introduction to the technique, especially at the beginning of the interview. However, she shows herself to be an optimistic and conscientious practitioner. She obviously enjoys the work and in particular, making a difference to the individual children with whom she works.

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**Reflection**

Dawn's nervousness makes her initially reserved, and harder to engage with than some of the other participants. She is formal with me initially, but warms up as we begin to discuss individual pupils. The interview has a very 'professional' tone (i.e. not much laughing) but very business-like and focused. As I report in the research diary "This one seems to be far more 'professional' – with less revelatory factors about herself."

---

Throughout the interview, she compares her practice unfavourably to Diane's. She is uneasy about discussing HeartMath, possibly for fear of getting something wrong. Throughout the interview, I get the idea that Dawn would like 'hints and tips' on using the technique, but she does not ask outright. However, she is curious about the technique and keen to know more.

> **Reflection**
> From Dawn's transcript, I identified lots about the specifics of the intervention, as it is run at School D. I note in the research diary the need to 'bracket' these for later consideration, because these were of interest to me as a practitioner, but not necessary relevant to addressing the research question.

Dawn's introduction to, and practice of HeartMath is supervised by Diane. Diane provides support, in the role of a mentor, when Dawn feels stuck with a particular child. Of all the schools, this is the one with the most structured approach to the use of HeartMath.

## Diane – Assistant Headteacher

Diane is in her mid 30s. She has a daughter who is in Year 6 in the school where she works. Diane's previous role as a Behaviour Support Teacher means that she has considerably more experience than the other members of school staff interviewed in using HeartMath.

Diane tells me a lot about her use of the software and how she has refined her technique over time, to reach a wide range of 'clients' including teenage boys. She has presented on HeartMath to a range of audiences – practitioners, Governors, and the Chief Executive of the Council. She is confident in her knowledge of the approach and her ability to achieve results with it.

Diane displays empathy towards children with emotional and behavioural needs, and discusses her inclusive ethos.

Diane and I have a long conversation, which is wide ranging. We appear to have got on well together, connecting at a 'human' level as well as professionally. During the interview we laugh a great deal. Diane is open and honest about her experiences of using the HeartMath approach and her work within the school. She discusses her future plans as well as reporting on her progress with HeartMath. Diane uses narratives and case studies to illustrate her points.

Diane does share her personal use of HeartMath as part of the interview at a time of personal stress. I agreed with her that I would omit the specifics of this time from the transcript, given that her position previously within a local authority team means that she is more likely to be identifiable than other participants.

## School D – parent and child

Plans to interview a child and parent in School D, were abandoned when the family who had been identified to speak to me experienced a family event which impacted upon the family members significantly emotionally. It was therefore decided not to proceed with the interviews, for the wellbeing of the child and the parent.

# Appendix D: Sample page from interview transcript

| | | |
|---|---|---|
| Cara | | [No] |
| Connor | | It's just isolated –like this one. |
| Cara | | I was saying to Mr *classteacher's name* yesterday on the phone. Every year I find myself sat here in this room |
| Judith | 6:00 | Yeah |
| Cara | | Because it's the end of term. And Craig gets silly and I end up in tears. I usually end up saying why is he doing this because/ he's been so. But, in the past, he hasn't been so good, but this year I can actually say it's just a problem that's just occurred in the last week. Yeah. He's had quite a smooth run. |
| Connor | 6:20 | He has. Because we were getting a phone call every week. Can you come in? Can you come in? Weren't we? |
| Cara | | Yeah. He was hitting others |
| Judith | | And that gets quite wearing for you |
| Connor | | It does |
| Judith | | [As it does] for Craig |
| Connor | | [He says] to us, he's sorry but then he goes do it again. And he thinks / But yeah, yeah, like you say, he hasn't had many for |
| Cara | | I think his anger sometimes gets the better of him |
| Judith | | Yeah. Which is all of us. |
| Cara | | Yeah |
| Connor | | Like you say, he just gets frustrated. He's frustrated within himself. |
| Cara | | And he can read. He reads. When you read. He struggles with little, silly. Little words. |
| Connor | | He can read. reads the big words. |
| Cara | | [He says] the children in my class get 16 spellings, and I only get 6. That upsets him "I'm not doing it" |
| Judith | | Yeah |
| Cara | 07:05 | But Craig, you'll get 16 soon. If you got 16 now, it would be too much. So come on, let's do what you got. |
| Connor | | Yes, that's why he, he's trying to catch up too quick. |
| Judith | | Yeah |
| Cara | | That upsets him, you know and I think that's why it [was so] |

## Appendix E: Reflexive position

It is necessary to consider the factors which will influence me as researcher, throughout the research process.

### The Institute of HeartMath

As mentioned in the literature review, there has been a great deal of research conducted into HeartMath techniques, led by the Institute of HeartMath, and resources have been produced to support the use of the HeartMath techniques. Although a non-profit making the organisation, the Institute is an advocate for the use of HeartMath techniques and ultimately, a sales organisation promoting a commercial product, resulting in a positive bias, with little in the way of critique.

How does this impact on my positionality – it makes me a little cynical and a little sceptical about the product. The website is a little too enthusiastic in its endorsement, and that makes me feel that it's just too good to be true. This bias (and cynicism) is something which I will have to ensure does not impact upon my analysis of the data.

### The internet

Two main websites are dedicated to HeartMath – both in the United States (www.HeartMath.com and the Institute's website, www.HeartMath.org) but a search engine returns 165,000 internet 'hits' when a search is conducted for the term HeartMath (Google website, 18/1/10). As a commercial product, much of the information on the internet is linked to sales, and therefore has a positive bias, emphasizing the desirability of using this product for a range of purposes, from stress management to optimising sports' performance.

### Personal Communication

The most powerful influences on me are through the conversations which I have engaged in regarding this area of research. EP colleagues from within the

service, Trainee EPs and University Tutors have all voiced their opinion about HeartMath. Comments have ranged from extremely positive, keen advocates of the approach to those who have limited knowledge or had negative experiences of using the software. One member of the management team within the Service described HeartMath as "at best, a do-no-harm intervention" (as it is based on deep breathing and positive cognition). Comments such as these have been noted within the research diary, and I have tried to retain a balanced view.

Ad hoc conversations with staff at the other school settings which I regularly visit ("my patch of schools," none of whom participate in this research deliberately) also influence me. Conversations about the thesis invariably end with colleagues giving an opinion on HeartMath and/or SEAL. Again, these have been noted in the research diary, and range from the extremely positive (e.g. a high school who have used it as an intervention to address exam anxiety) to near ignorance (in a primary school) but whom would like to know more, and "could I do some training?"

Attendance at meetings, both regarding the roll-out of HeartMath within the local authority and negotiating this piece of research has been another source of 'data' influencing the researcher. This has included a meeting (25/09/09) where enthusiastic advocates for HeartMath from across Children's Services, met with the Chief Executive of the Council to advocate for HeartMath (and other biofeedback software packages) to be used to support Positive Mental Wellbeing across the whole council (i.e. not just within Children's Services' settings).

Additionally, I, along with other colleagues from the Service, attended the training event for the schools (22/02/09), introducing HeartMath techniques to the SEAL primary schools. The presentation, skilfully delivered by a representative of Hunter Kane Ltd, is another source of influence on my thinking and the development of my work. Since seeing this presentation in February, I have since heard it again. The presentation has been updated and

is more in line with my psychological understanding (For instance, it refers to neurological evidence). As such it is even more persuasive now. My reflective (and critical) thinking skills will hopefully prevent me from being unduly swayed by this, but it will be a necessary to note my attendance at the event as a possible influence on positionality.

I took over a 'patch' of schools in April 09 from an EP who has been a keen advocate of the use of HeartMath. The use of this approach has been embedded within some schools, with Learning Mentors being well versed in using HeartMath to benefit individuals. Other schools have recently being trained and have taken delivery of the software, as part of the roll-out of the SEAL curriculum. As the named EP for these schools, I envisage that I will have a role in continuing to develop practice to support emotional wellbeing.

## My personal use of the HeartMath Software

In order to feel confident in pursuing this research, I considered that it was necessary to become familiar with the HeartMath techniques and software. Although having had access to the software, for over 12 months, my use of HeartMath remains ad hoc. I am unsure of the reason for this. I have not found the software hard to use, and the ear sensor remains reliable (unlike some USB adaptors that some schools have complained of), I have just lacked the motivation to achieve the 12 minute 'lock-in' on a regular basis.

## Personal views and stance

Having supported friends, family and colleagues through challenging life experiences, and non-life events which have resulted in long-term anxiety, stress, or depression there is also a personal aspect to this inquiry. If HeartMath techniques are shown to have helped individuals to manage difficult situations and emotions, then there could be a role in supporting adults (particularly teachers) in similar circumstances, and it would be of benefit to learn more about it.

## Appendix F: Letter of introduction to school headteachers

Dear Headteacher,

I am writing to ask formally for permission to carry out research in your school into the use of HeartMath to support the SEAL curriculum. I am currently in the second year of a 3 year Doctorate in Educational and Child Psychology at the University of Sheffield, and the research would be the basis of my thesis.

I am seeking to work with primary schools who have introduced the Social and Emotional Aspects of Learning (SEAL) programme into their curriculum, and who are utilising HeartMath to support their SEAL work. As a school which has been engaged with the Emotional wellbeing agenda for a number of years, I know that your school is well-established in its use of these approaches.

I am hoping to explore the experience of using HeartMath. To achieve this, I would like to interview a child who is using HeartMath, his/her parent (or carer), and a member of school staff who is involved in supporting the child is their use of HeartMath (usually a teacher, teaching assistant or learning mentor). These interviews would occur in July, and would last no longer than one hour each. Follow-up work would be minimal, but if necessary may involve clarification and checking of information with the interviewees. Further information will be given to interviewees, prior to them being interviewed, which I have enclosed.

In terms of safeguarding, as a current LA employee, I have been subject to a CRB check within the past twelve months, and would be able to show the school my current certificate if needed. My research will be closely supervised by X and Y (Senior Lead EPs in the LA)

The outcome of the interviews and the geographical context will be reported anonymously within the thesis. However I intend to provide a summary of the outcomes of the research to the participating schools and the UK licensee. This will include implications for practice in using HeartMath to support SEAL, and how this could link to an Educational Psychologist's role.

In order to proceed, I require formal written permission from you as Headteacher to conduct my research in your school. I would be grateful if you could write back by 19th June confirming that you are satisfied that the research to proceed.

Thanking you in advance of your co-operation. Any queries, please contact me on the number above.

Yours sincerely


Judith Temlett
Educational Psychologist in Doctorate training

Cc EP Service School EP

If you change your mind about talking to me, or the things you said being part of the report you just have to tell me at any time.

I have given my phone number to your parent and they will be able to ring me. Or you could tell someone in school and they would let me know.

I do hope that you decide to talk to me. I look forward to meeting you in school

Judith

**Using HeartMath In Primary Schools**

**Information for children**
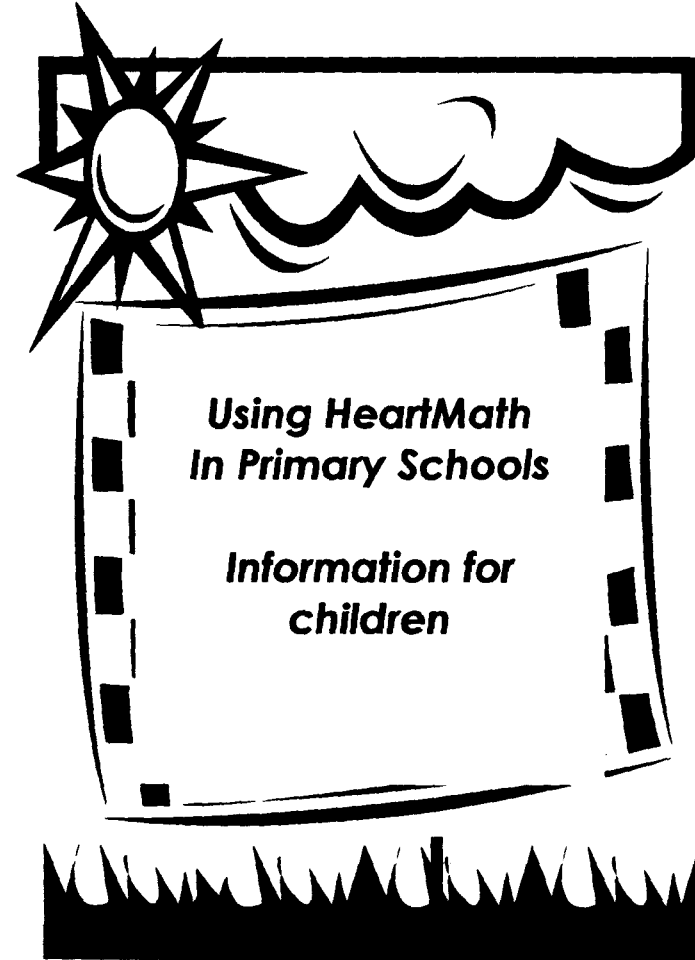
Hi,
My name is Judith and my job is an Educational Psychologist (or EP). All this means is that I'm interested in schools and the things that children think, do and feel when at school.

I hear from your teacher that you are using HeartMath and I would like to come to school to talk to you about it.

I would come into school and meet you once or twice, sometime before the summer holidays. To make it more fun, I thought we might do some drawing or some other things (depending on what you like).

I will record our time together, so that I don't have to write things down whilst we're together, and then I'll be able to listen to it again at home.

The things you tell me would be used in a report I am writing about HeartMath but I would change your name so that people wouldn't know that it was you who talked to me. I am also going to talk to your parent/carer and your teacher.

## RECORDING & CONFIDENTIALITY

Each interview will be recorded on a digital recorder and transferred to a password protected laptop immediately afterwards. The recordings will not be heard by anyone but me as the researcher, as I will be transcribing them myself. The full transcript will not be included within the final thesis report but short quotes or sections will be used instead.

The transcript will be shared only with my immediate research supervisors (see over for their names) when necessary to ensure the quality of the research.

The transcripts will be stored in a locked filing cabinet and will be destroyed upon receipt of a pass mark for the thesis.

You have the right to request a copy of the original recording and the transcript at any point in the research process. Additionally a copy of the interview transcript will be sent to you as soon as possible after the interview, for you to check that you are happy with the contents to be used as part of the research project.

## COMPLAINTS PROCEDURE

In the event that you have a complaint about the researcher or the research, these issues should be raised with Judith Temlett, the researcher in the first instance.

Alternately, concerns can be raised with the Research Supervisors who are overseeing this research:

*Names deleted*

**Judith Temlett,**
**Trainee Educational Psychologist,**

# HeartMath and SEAL
## (Social Emotional aspects of Learning)

**A Research Project**

**Information for parents**

## A QUICK INTRODUCTION

Hi, I'm currently training to become an Educational Psychologist in Sefton. As part of my Doctorate, I need to complete a research project for my thesis and I'm writing to you because I hope that you may consider taking part in my study.

I'm interested in children's emotional well-being, so I've decided to work with schools such as yours who have introduced the SEAL programme and are using HeartMath. My research aims to find out about what you think and feel about using HeartMath, and how that knowledge can help people in other schools start to use HeartMath.

The time commitment won't be too great, as all I would like to do is come and interview you for about an hour in June or July sometime. The conversation would be recorded and would form the basis of my research.

Over the page is more information about the research, but if you have any queries or questions please contact me on the number /email address overleaf.

## WHAT ELSE SHOULD I KNOW?

I'm interested in gaining your views about:
- your son /daughter using HeartMath;
- what you think about it,
- what's gone well,
- what could have been done better
- whether you think HeartMath has made a difference to your child.

However, if there are other things you wish to talk about, they can become part of the interview too! As I said, the interview will be recorded, so that I won't have to take notes whilst we're talking.

If you agree to go ahead with the research I would like to give you a choice of where to meet – at home, at school or maybe somewhere else like a Children's Centre, and at a time which is convenient to you.

As well I would like to go into school to see your child. I want to find out from them, how they feel about using HeartMath, what they think about it and whether they have noticed any changes in the time that they have been using HeartMath.

## CONSENT

In order to go ahead with the research I need your written consent to talk to you and your child. Please complete both the enclosed

Please note you can withdraw from this research at any stage and ask for your interview data to be destroyed.

## ANONYMITY

All individual names (and other information such as the school name and location) will be changed, so that the conversation will be anonymous within the final report.

When transcribing the interviews I will change all names which lead to people or places being identifiable, and will ensure that the final write up does not include any information which can result in a school, place or person being identified.

In the event that I consider that the use of a quote from a transcript which may contain identifiable information is unavoidable, I will telephone and obtain your view as to whether you feel it appropriate to use this information.

## COMPLAINTS PROCEDURE

In the event that an interviewee has a complaint about the researcher or the research, these issues should be raised with Judith Temlett, the researcher in the first instance. Alternately concerns can be raised with the Research Supervisors who are overseeing this research:

Tutor,
School of Education,
University of Sheffield,
388 Glossop Road,
Sheffield
S10 2JA

Tel: X
Email: X

Y

Senior Lead Educational Psychologist,
LA Educational Psychology & Portage Service,

(Address/telephone overleaf)

Email: Y

## WHAT ELSE SHOULD I KNOW?

The aims of the research are two-fold:
- To find out what teachers' experiences and views are of using HeartMath to support schools' work with SEAL.
- To suggest some practicalities of using HeartMath in an educational setting

I expect that the interview will cover the following areas:

- Your knowledge of HeartMath
- How you have used HeartMath (with a specific child and personally (if applicable)
- What you have learnt through using HeartMath?(positives & issues/challenges)
- Any outcomes of using HeartMath?
- Implications for future practice

However, you can widen the discussion as much as you wish, as it's your interview!

**Judith Temlett,**
**Trainee Educational Psychologist,**
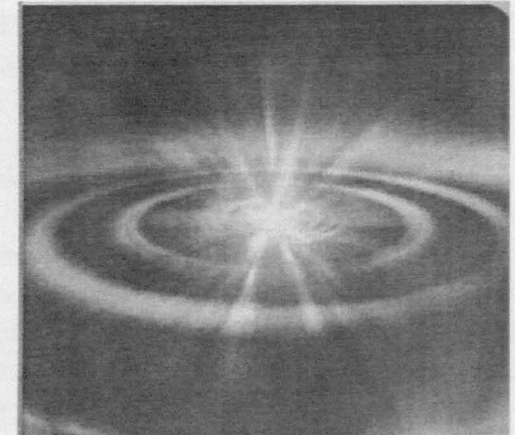
**LA Psychology & Portage Service,**

**Phone:**

**Email:**

# HeartMath and SEAL
## (Social Emotional aspects of Learning)

**A Research Project**



**Information for school staff**

## A QUICK INTRODUCTION

Hi,

I'm currently training to become an Educational Psychologist in LA. As part of my Doctorate, I need to complete a research project for my thesis and I'm writing to you because I hope that you may consider taking part in my study.

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Over the page is more information about the research, but if you have any queries or questions please contact me on the number /email address overleaf.

## RECORDING & CONFIDENTIALITY

Each interview will be recorded on a digital recorder and transferred to a password protected laptop immediately afterwards. The recordings will not be heard by anyone but me as the researcher, as I will be transcribing them my

included within the final thesis report but short quotes or sections will be used instead.

The transcript will be shared only with my immediate research supervisors (see over for their names) when necessary to ensure the quality of the research, and will hence be subject to the usual confidentiality arrangements pertaining to professional supervision within the Educational Psychology profession.

The transcripts will be stored in a locked filing cabinet and will be destroyed upon receipt of a pass mark for the thesis.

You have the right to request a copy of the original recording and the transcript at any point in the research process.

## ANONYMITY

All individual names (and other information such as the school name and location) will be changed, so that the conversation will be anonymous within the final report.

Anonymity will be guaranteed throughout.

When transcribing the interviews I will change all names which lead to people or places being identifiable, and will ensure that the final write up does not include any information which can result in a school, place or person being identified.

In the event that I consider that the use of a quote from a transcript which may contain identifiable information is unavoidable, I will telephone and obtain your view as to whether you feel it appropriate to use this information.

# Appendix H: Ethical Approval

**The University Of Sheffield.**

**The School Of Education.**

Ms J Temlett

9 June 2009

Head of School
Professor Peter Hannon

Department of Educational Studies
The Education Building
388 Glossop Road
Sheffield S10 2JA

Telephone: +44 (0114) 222 8177
Fax: +44 (0114) 279 6236
Email: l.h.thomas@sheffield.ac.uk

Dear Judith

**Re: Doctor of Educational and Child Psychology (DEdCPsy)**
**An exploration of experiences of using HeartMath to support Social & Emotional Aspects of Learning (working title)**

The above project has now been ethically reviewed and has been approved; with minor optional amendments (please see attached ethical reviewers' comments forms).

Yours sincerely

*Lucy Thomas*

**Lucy Thomas**
**Programme Secretary**

# Appendix I: Interview Schedule

## For school staff

| | Interview Question | Prompts / Reminders to self |
|---|---|---|
| Introduction | Purpose of research - <br> Recording – transcript – storage – confidentiality <br> Consent –right to withdraw at any stage – consent forms | |
| RQ1 | Tell me about (school's use of) HeartMath | How it's being used? <br> When? <br> Where? <br> By whom? <br> How do you feel it's going currently? |
| RQ1 <br> RQ3 | How did you go about introducing HeartMath? | |
| RQ2 <br> RQ3 | What were the expected outcomes when you started using HeartMath? | What effects have you actually noticed? <br> For individual, adults, within school? <br> Does it fit in with school life? |
| RQ1 <br> RQ2 | Tell me about X's (child's) use of HeartMath techniques. | Why? When? How being used? Progress? <br> What does s/he do when it's not available? <br> Can s/he generalise to other contexts? |
| RQ1 | Tell me how you feel – personally and professionally -about HeartMath? | Feelings? <br> Perceptions? <br> Opinions? <br> Why do you feel this? Is there anything which could be done to change this? |
| RQ3 <br> RQ4 | What advice or comments would you give to other schools about using HeartMath? | Why is this important? What could have been done differently? <br> What support could have been offered? |
| Closure | Is there anything else you would like to say?  Summarise the interview. <br> What happens next..... Transcribed- sent to you at [email/home/school?] fortnight to reply <br> Anonymity in final report. Copy of final findings will be sent to school.  Thanks | |

**For parents**

| | Interview Question | Prompts / Reminders to self |
|---|---|---|
| Introduction | Purpose of research /reassurance (not a test of their knowledge)<br>Recording – transcript – storage – confidentiality<br>Consent –right to withdraw at any stage – consent forms | |
| RQ1 | Can you tell me what you've been told about HeartMath? | How was it introduced to parents?<br>When?<br>Where?<br>By whom?<br>Have parents tried it? Do parents have access to it? |
| RQ1<br>RQ4 | Tell me about X's (child's) use of HeartMath techniques. | Why? When? How being used? How is X's use of HeartMath going? Does s/he enjoy it?<br>What does s/he do when it's not available?<br>Can s/he generalise to other contexts? |
| RQ2 | Have you noticed any change since X started to use HM? | If no, why do you think that may be?<br>If yes, what effects have you actually noticed? |
| RQ1 | Tell me what you think and feel about HeartMath? | About X's use of HM? About your own use (if relevant)<br>Why do you feel this? Is there anything which could be done to change this? |
| RQ3<br>RQ4 | What advice or comments would you give to others about using HeartMath? | Why is this important? What could have been done differently?<br>What support could have been offered? |
| Closure | Is there anything else you would like to say? Summarise the interview. Thanks<br>What happens next..... Transcribed- yours & child's is sent to you at [email/home?]. Fortnight to reply<br>Thanks | |

**For child**

| | Activity | Question | Prompts / Reminders to self |
|---|---|---|---|
| Introduction | My name /role. Purpose of research /reassurance (not a test of their knowledge) Recording – transcript – storage – confidentiality Consent –right to withdraw at any stage  - Ok to go ahead? | | |
| RQ1 RQ3 | Initial mindmap | Can you tell me HeartMath? | What is it? What is it for? When do you use it? Where do you use it? Why do you use HeartMath? |
| RQ1 RQ3 RQ4 | Drawing / writing – dependent on age | What do you do when you use HeartMath? | Pretend you had to describe it/teach it to someone who had never used HeartMath |
| RQ1 RQ3 RQ4 | Drawing – think bubble | What do you think about when you do HeartMath? | (Reminder that this is a private thought so don't have to share it) |
| RQ1 | Drawing – think bubble | What do you think about HeartMath? | Do you like it? What is it like to use HeartMath? |
| RQ1 | Conversation | How does it feel to use HeartMath? | Do you feel different? |
| RQ1 RQ2? RQ3 RQ4 | Drawing/ writing | Have you noticed any changes since you have been doing HeartMath? | Link back to response from first question |
| RQ3 RQ4 | Drawing – speech bubble | What would you say to other children about using HeartMath? | Why is this important? What could have been done differently? |
| Closure | Is there anything else you would like to say? Thanks.  What happens next.... | | |

# Appendix J: Sample page of interview transcript with coding
From the interview transcript with Charlie.

- Initial noting (Left hand side) Orange pen=linguistic comments, blue pen= conceptual comments, pencil=descriptive
- Emergent themes (right hand side)

| | | | Transcript | |
|---|---|---|---|---|
| *[handwritten notes]* | | a be | techniques that have gone with HeartMath have really helped certain teachers in the way that they deal with children and certain welfare staff as well | Behaviour intervention impacted on staff - approach /behaviour. |
| | Judith | | Yeah | |
| | Charlie | 8:18 | Speaking very calmly to them, trying to get them to just, sort of, breathe deeply and so on, to really bring themselves down | Staff adopt calm, positive approach |
| | Judith | | Yeah | Children connect to adult stress |
| | Charlie | | Because, as you well know, if you're stressed, that feeds into the children. They pick up on that um, you know/ | |
| | Judith | | Yeah | |
| | Charlie | 8:30 | I also think that's it's sometimes. It's good for the kids to see that adults do get upset and do get stressed as well and can be in a bad mood. | -ve emotional being *[modelled]* to pupils |
| | Judith | | Yeah | |
| | Charlie | 8:45 | So to speak. Um and that feeds into all that you talk about with SEAL. | HM + SEAL in partnership |
| | Judith | | Yeah | |
| | Charlie | | And it all goes hand in hand, doesn't it? And you / you are quite, you really see in the class that the children have a real handle on different types of emotions from the SEAL lessons, | Improved emotional vocab due to SEAL. |
| | Judith | | Yeah | |
| | Charlie | | And are quite happy and are quite able to explain what going's on. And they like to refer to their own lives and they like to, they like you as a class teacher to refer to your own life as well. So I think that if HeartMath is to be totally successful, then it's good for them to see that you as a teacher, are embracing it too | Emotionally literate. Experiential learning own lives + staff. 'Embracing SEAL' emotive word to denote authentic |
| | Judith | | Yeah | teacher identity linked to being good example + role model |
| | Charlie | | And are carrying it through in the lessons. | |
| | Judith | 9:19 | So, have you used it? | |
| | Charlie | | Well, we do, we do, er a lot of er, calm, sort of um | Hasn't used HM software |
| | Judith | | Yeah | |
| | Charlie | 9:30 | "Close your eyes. Feel still." We also have a lot of activities, so within the lessons to try and build in a lot of. It's not exactly HeartMath but it certainly gets rid of angst and feelings and stuff like that. | Uses more class relaxation techniques |
| | Charlie | | I've done a bit of it. But I'm quite anxious to, to embrace more next year, when we have specific examples. I think that the training that we had was very good, We saw the science side of it and | Concept that emotions can be got 'rid of' Keen to develop. Science training. Application needed. Examples. |

## Appendix K: Sample of Excel spreadsheet

This sheet consists of emergent themes collated together (from the right hand coding), to answer research question 2 (How may HeartMath help an individual manage his/her feelings) from the Children's perspective.

KEY

⬜ Craig          ⬜ Billy          ⬜ Alex          ⬜ Carl

**HM Techniques**

| | | | |
|---|---|---|---|
| Breathing | breathing | 14 | Then//um you got to just breathe normally |
| | Breathing technique | 322-329 | And then. You just need to go, breathe in for 5…(voice softens to a 'therapeutic' tone) out for 5…In for five / Out for five/in for five/Out for five. You just keep on doing that and then it will calm you down, then the things come up |
| | specifics of HeartMath use | 474-475 | 1 / 2/ 3/ 4/ 5. Then, just breathe in (demonstrates) and sniff out (demonstrates) |
| | breathing | 61 | You breathe in and out |
| | breathing | 105-106 | First you need to breathe in and out for five seconds. |
| | breathing technique | 144-152 | You have to breathe in for 4 (demonstrates)…And then out for 4…J: That's a really good demonstration. I liked the way you used your fingers to count the 4.  So, do you just do it once?... B:You do it loads of times until it's finished |
| | breathing | 25-27 | When you're doing it, what it's like, it's a picture and you've got to get your breathing up. |
| | breathing | 27-29 | And then, as your breathing, and you've got to keep it at the steady pace. |
| | breathing | 135-136 | In our family. Well my Nanna Joyce (….) we make that funny noise when we breathe out. |

| | | | |
|---|---|---|---|
| positive thought | not positive thought | 120 | Nothing really. |
| | adult expectations cf child's | 173-175 | When me and friend's name. This is a long time ago.  Friend's name, my friend watched "Wanted" which is a grown-up film. It's a 12. |
| | focus/being mindful | 13-14 | Well, it makes you concentrate on something |

| positive thought - naturally | 241-242 | Just like, like what'll happen tomorrow and all the good things that'll happen. |
|---|---|---|
| positive thought not taught | 231 | I don't think I've been on the other one. |
| positive thought not taught | 238 | We might do but I don't really quite recognise it |

| | | | |
|---|---|---|---|
| **Heart rate** | specifics of HeartMath use | 422-425 | When you're doing this game, if you talk. When you talk and your heart goes faster. If you talk you'll do it all wrong. Or if anyone else talks in the room. |
| | heartbeat not understood | 215 | or like if you were, there's like a heartbeat thing. |
| | heart rate balance | 110-113 | And that's it basically. / You can't move...Um/ your heart rate changes. Um, goes out of balance |

# Appendix L: Outline of information leaflet for practitioners

The leaflet will have two main sections, Theory and Practice.

The theory section will contain information about the psychological underpinnings of the technique.

The practice section will contain the hints, tips, and case studies which I have been fortunate to gather through this research project. My initial thoughts are:

| Theory | Practice |
|---|---|
| • Quick coherence technique<br>• Physiological underpinnings of the breathing technique<br>• The benefits of positive emotion<br>• Encouraging mindfulness<br>• The adaptive benefits of negative emotion<br>• Resources / useful sources of information | • How to.. (use the software etc.)<br>• Hints and tips on supporting individual children<br>• A model HeartMath session<br>• Good practice in working with parents<br>• Using the approach with adults<br>• Case studies |