



Evaluation of a

HeartMath / Safe Place Programme with schoolchildren in West Belfast

Sponsored by
Greater Falls Extended Schools
in conjunction with Barnardos

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September 2009

Belfast
Programme
Schools.
Post primary
Primary

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programme Belfast schools Results

Summary

Schools today have perhaps the greatest influence in meeting the needs of children outside the family environment.

It is widely accepted that emotional health is an important factor in the foundation for success not just in school but in everyday life. The Behaviour and Attendance Strategy in England(DfES 2005) highlighted the importance of supporting pupil emotional health and wellbeing to academic engagement and attainment. The Action for Children campaign urges child care and educational practitioners to collaborate on innovative strategies that promote the emotional well being of children. It appears that there are many calls for change in the current provisions for children.

In this pilot project, seven schools in the “Greater Falls Cluster” of Extended Schools were chosen to participate; three Primary and four Post Primary.

The purpose of this project was to investigate the efficacy of the HeartMath /Safe Place Programme as a means to improve student emotional self regulation and associated improvements in emotional stability, relationships and overall student well-being. It was anticipated that this type of improvement would also lead to enhanced classroom behaviour, organization and function.

The results of this project have shown that the children involved displayed significant improvements in various aspects of behaviour such as:

- **Reduction in emotional symptoms**
- **Reduction in conduct problems**
- **Reduction in hyperactivity**
- **Increase in pro-social behaviour**

The strong, consistent pattern of results of this project suggest that the HeartMath / Safe Place programme offers a practical, physiological based intervention to improve behaviours appropriate to learning in a school environment. The integration of programmes such as this which are designed to foster emotional self-regulation and well-being could have an important place as part of the educational curriculum.

It is important that children experience throughout their school life what it's like to feel respected, important, accepted, included and secure and that these needs become a classroom and school value. Once this is addressed, they are more likely to become self confident, independent, responsible, caring, civic-minded individuals.



Introduction

The problems of socio-economic issues, low achievement, inadequate financing, declining student and teacher morale are accompanied by increasingly stronger demands for change in schools. Within these however, it appears that few are highlighting issues relating to the emotional needs of children and the relevance of those needs to their academic achievement and overall development. It is widely accepted that emotional health is an important factor in the foundation for success not just in school but in everyday life.

As children's brains and indeed minds increase in complexity during their development, they can face problems with their own self awareness. They also have to manage their social interactions and relationships and the problems that these entail. Research has confirmed that children and young people are experiencing many difficulties having to deal with a plethora of social and emotional issues including domestic violence, bullying, family breakdown etc. (McElearney et al, 2007; Livesey et al, 2007)

Children who experience such issues and the emotional trauma that it entails are more likely to exhibit behavioural issues in school. The impact of social, emotional, behavioural difficulties (SEBD) can have a negative effect on pupils' academic attainment at school. It can result in a loss of status, rejection by peers, reduced self esteem and lack of emotional resilience. This tends to foster the belief that they are unable to cope which in turn can result in further anxiety.

Inevitably, children with SEBD will experience disadvantage and underachieve academically resulting in further stress. (Mannassis et al, 2007) Unfortunately, in many schools children with SEBD can end up being labelled as disobedient or lazy when in fact they are expressing anxiety or emotional distress. Many of these children have no awareness of the changes in their behaviour or indeed of the underlying causes. Their behaviour communicates what they are unable to articulate.

According to the ongoing government review of primary education in the UK, 'The Primary Review', (Alexander & Hargreaves, 2007) examinations are a factor in what they describe as the pervasive levels of anxiety in young children. The challenge and responsibility for educationalists is devising methods to support a child's well-being, build resilience and equip them with strategies to manage the pressure of examinations.

The diagnosis, misdiagnosis and appropriate interventions for children experiencing transient or persistent emotional and behavioural difficulties and its

impact on learning and attainment, are growing concerns for educationalists and child care agencies.

“ our children, the country's most important resource, are in increasing numbers, failing to thrive emotionally, are less able to cope with the ups and downs of life, and increasing numbers of them are going on to develop severe and enduring mental health problems”.

(Mental health Foundation 1999)

The need for educational practice and policy to address the issue of well being is emphasised in the recent report in the UK by the Department for Children and Families, 'The Social and Emotional Aspects of Learning' (DfES 0110-2005G. 2007). The Children's Charity "Action for Children" is also attempting to highlight the child well-being agenda, recently launching their campaign, 'Growing Up, Growing Strong', following a report and literature review entitled: 'The Emotional Harm and Well-Being of Children', (2007). The Action for Children campaign urges child care and educational practitioners to collaborate on innovative strategies that promote the emotional well being of children. It is apparent that there are many calls for change within the current provisions for children.

For the purpose of this pilot project, seven schools in the "Greater Falls Cluster" of Extended Schools were chosen; three Primary and four Post Primary. Two to three classes in each school were chosen by teaching staff to participate.

Each class was trained in a one day interactive session to use the HeartMath emwave software. During this training session, the pupils were taught a set of straightforward techniques, which are based on 15 years of scientific research on the psychophysiology of learning and performance. As part of the intervention, it was recommended that the Safe Place CD be used on a daily basis preferably at the beginning of the school day. In order to maintain and enhance the pupil's techniques, the teaching staff were also encouraged to allow the pupils to use the emwave software once or twice weekly, timetable permitting. A support programme was provided to teaching staff over the period of the project. Strengths & Difficulties questionnaires (SDQ) an internationally recognised metric of behaviour, were completed pre and post intervention for each child by the respective class teachers. The data from the results of the intervention and the statistical analysis were externally validated.

The results of this project have shown that the children involved displayed significant ($P < .05$) improvements in various aspects of behaviour.

Comments from Teaching Staff involved

Following the initial project, all the participating schools have since requested that this Programme be implemented as an entire school initiative. This is due to take place in the Autumn term 2009.

"The pupils enjoyed the programme and it encouraged them to think about managing their behaviour and emotions. Observations: Pupil's ability to talk about managing and controlling emotions and behaviour. Improved levels of concentration and definite change in noise level after each "Journey to safe place" Pupils definitely left form class in a more calm and controlled way. I believe all staff should be trained in this programme and have access to the software. It needs to be a whole school initiative in order for pupils to fully benefit from it."

Year 10, Form teacher, Post Primary School F

"We used the CD before each KEY STAGE 3 exam. The pupils were much more focused during the tests and this has been reflected in their results, which exceed NFER predictions in most cases."

Year 10, Form teacher, Post Primary School D

"We noticed that children who generally take a lot of time to settle down appeared to be calmer and stayed focused longer. The children engaged a lot more in class discussions and reading groups."

Classroom assistant, Post Primary School D

"10H are a group of 14-15 yr old pupils (male) who have behavioural, academic and emotional difficulties. Without exception all the pupils listened intently to the CD. None of the boys spoke during the session but rather focused on the words of the speaker. The intensity of their concentration took me by surprise."

Year 10 Form Teacher, Post primary School D

"We are delighted with the overall benefit to our pupils and hope to extend the HeartMath Programme to a much wider audience. The safe place CD had a calming , soothing effect and our pupils found themselves able to relax and de-stress in a way they had not before.

Thinking skills and capabilities are key to the new curriculum and we would love HeartMath to feature in this."

Teacher, Learning & Support Unit, Post Primary School G

"For a significant number of the students using the Programme, the teachers noticed a change in the children – more able and willing to pay attention and less likely to distract others.

Classroom management issues became less difficult to manage. Teachers who used the

Programme felt that the class settled and were much calmer than usual."

Head of Year, Post Primary School E

"The benefits were evident in every single child's behaviour. I was delighted with the results – children calmer, quieter, and more focused. The children were definitely more ready to learn. This was the thing that was most obvious and of most benefit in the day to day management of the classroom."

P5 Teacher, Primary School C

"Observation: calm afterwards – children settled into lesson with ease. I have a well behaved bunch, therefore no great change in classroom behaviour. Benefited children with emotional issues – death, grief & also temper.

A few of the boys were much more focused & alert during lessons. Hands were up eager to respond!"

P6 Teacher, Primary School B

"The class appeared calmer and children encouraged each other to go to their safe place when upset. They were more receptive to learning and positive towards the lesson. They enjoyed it very much and would ask "when are we going to our safe place" I felt it was very useful to me and of benefit to all."

P3 Teacher, Primary School A

This programme's effectiveness in responding to the needs of Primary and Post primary children has been clearly demonstrated.

Objectives of Project

The primary purpose of this project was to investigate the efficacy of the HeartMath /Safe Place Programme as a means to improve student emotional self regulation and associated improvements in emotional stability, relationships and overall student well-being. It was anticipated that this type of improvement would also lead to enhanced classroom behaviour, organisation and function.

Participants

Three Primary Schools (titled Schools A,B,C for this project). Four Post Primary Schools (titled Schools D,E,F,G) All schools participating are part of the Extended Schools Greater Falls Cluster in West Belfast.

Intervention

The HeartMath system is a set of emotional regulation techniques, the learning and maintenance of which is supported by heart rhythm coherence biofeedback technology, designed to enable self induced shifts in the cardiac rhythms. The basis of the effectiveness of the techniques is that they enable the individual to self-activate a specific, scientifically measurable state of optimal function, known as Psychophysiological coherence (PPC). Research has shown that PPC is characterized by increased harmony in cardiac rhythms, increased emotional stability and improved cognitive and task performance. (McCraty et al 2006).

The rationale for this investigation derived from evidence from other research which indicated that HeartMath training could help pupils to build psychophysiological resilience to environmental stressors in a school context. The HeartMath system assists individuals to self regulate through self management of physiology. Using a finger-tip or earlobe sensor, the interactive HeartMath emwave technology monitors and displays the individual's heart rate variability patterns in real time as they practice the positive emotion focused techniques. This process helps to reinforce the association between the cardiac rhythm coherence achieved and positive feelings. In simple terms, the individual can see on screen how their cardiac rhythms are affected instantaneously by negative or positive emotional feelings. The aim is to teach individuals specific techniques how to make the shift in their emotional state which will achieve a coherent cardiac rhythm and hence PPC.

The Safe Place Programme has been developed to aid the attainment of PPC within the classroom / home

environment. For this exercise, the individual does not need to use the emwave software. It is a 10 minute audio CD which is played to pupils in the classroom. Pupils sit at their desks in a relaxed state either upright or with their heads resting on folded arms on the desks. They are encouraged to close their eyes and start the rhythmic breathing taught in the earlier HeartMath training session. The voice-over content of the CD encourages the pupils through creative visualization to create an imaginary safe place. In this "safe place" they are encouraged to "let go" of negative thoughts and emotions that are troubling them. This safe place is a construct of their imagination where they feel safe, peaceful and happy.

The pupils are encouraged to:

1. Use the breathing techniques (at 0.1 Hz) to aid physiological coherence
2. Shift to and sustain a positive emotional state for the duration of 10 minutes.

For the purpose of this pilot project, seven schools in the "Greater Falls Cluster" of Extended Schools were chosen; three Primary and four Post Primary. Two to three classes in each school were chosen by teaching staff to participate. Each class was trained in a one day interactive session to use the HeartMath emwave software. The pupils were shown how to shift to a state of PPC using breathing techniques and emotional shift techniques. The pupils & teachers were also trained in the use of "Journey to my Safe Place". Teaching staff were asked to use the Safe Place CD on a daily basis with the pupils and they were also encouraged to allow the pupils to use the games on the software once or twice weekly, timetable permitting.

Strengths and Difficulties Questionnaires (SDQ) an internationally recognised behavioural screening questionnaire for ages 4 - 16 were completed pre and post intervention by the class teachers. SDQs measure 5 scales of behaviour:

1. Emotional Problems (displaying nervous behaviour in new situations, loss of confidence, being worried or fearful, unhappy, downhearted or tearful, often complaining of headaches, stomach-aches or sickness).
2. Conduct problems
3. Hyperactivity / inattention
4. Peer relationship difficulties
5. Pro-social behaviour

Results

This programme evaluated impact measures on a population of (n=121) children of post primary school age and (n=122) children of primary school age; (n=243).

The results are divided into two categories:

1. Primary schools
2. Post Primary schools.

Results were analysed using SPSS 17 utilising a Wilcoxon Non Parametric Test (Paired). The programme and intervention produced a number of important findings which are summarized below:

1. Primary Schools

The degree of statistical significance for the primary schools scores is 0.0001 and therefore statistically significant in all categories showing:

51% improvement in emotional problems
43% improvement in conduct problems
40% improvement in hyperactivity (reduction)
50% improvement in peer relating

2. Post Primary Schools

Results for the Post Primary schools using same analysis were:

9% improvement in emotional problems - demonstrating a positive trend but not statistically significant at 0.08

9% improvement in conduct problems - demonstrating a positive trend but not statistically significant at 0.63

12% improvement in hyperactivity (reduction) that is statistically significant at 0.009

27% improvement in peer relating that is also statistically significant at 0.000 (degree of probability)

As expected Primary School children benefitted more than Post Primary School children - though this may of course be due to adherence to protocols for the intervention which are easier to control in Primary Schools. Also teachers completing the questionnaires in Primary Schools will more than likely know the child participants better and therefore offer more accurate data pre and post intervention.

There are various factors which may explain the difference in achieved results between the Primary and Post Primary Schools:

1. The pupils in the Primary Schools were in situ in the same classroom throughout the day and the intervention was easier to facilitate on a daily basis. In contrast the pupils in the Post Primary Schools moved from class to class throughout the day and it was more difficult to set up a routine to support the intervention
2. By and large all the Primary School children had access to the emwave software on the school computers and were able to access the games once or twice weekly to reinforce the techniques taught. In contrast most of the Post Primary schools experienced technical difficulties with the software and the pupils had limited access (or none at all) to the software throughout the programme.
3. Due to the initial training timetable of pupils within each school most of the Primary Schools were operating the project several weeks before the Post Primary schools. Due to staffing issues two of the Post Primary Schools, did not complete their training until the beginning of May. The remaining schools started the programme in March / April. The schools trained at the beginning of the project thus had a greater period of adaptation.
4. One of the limitations of this evaluation was that the views of the pupils involved were not taken into account. It is important to remember that the data collected was based on observation and rating from a single source - the class teacher. It was felt at the onset of the project, that many of the pupils did not have sufficient literacy skills or the ability to effectively articulate their feelings in order to complete the SDQs. It was suggested that each child could be interviewed orally to complete the questionnaire. However there was insufficient financial or staff resources to facilitate this suggestion.

Overall, the children displayed significant ($P < .05$) improvements in various aspects of behaviour. Despite the limitations, the results are significant and suggest that the HeartMath / Safe Place Programme offers a physiological based intervention to improve behaviours appropriate to learning in a school environment.

Results of individual Primary Schools

School	Change in Emotional Symptoms	Change in Conduct Problems	Change in Hyper-Activity	Change in Peer Problems	Change in Pro-social Behaviour	Regularity of compliance with intervention
School A						
Class 1	- 58%	- 27%	- 22%	- 47%	+ 1.5%	CD - daily Software – once weekly
Class 2	- 80%	- 69%	- 55%	- 84%	+ 26%	CD - daily Software – once weekly
Class 3	- 26%	0	- 57%	+ 77%	0	CD - daily Software – once weekly
School B						
Class 1	- 32%	- 44%	- 34%	- 50%	+ 48%	CD – once/twice daily. Software – once/twice weekly
Class 2	- 26%	- 24%	-30%	- 44%	+ 7%	CD – once / twice daily Software – once / twice weekly
School C						
Class 1	- 76%	- 33%	- 65%	- 78%	+ 13%	CD - once / twice daily Software – once weekly
Class 2	0	- 23%	- 42 %	- 18%	+ 5%	CD - daily Software – once weekly
Class 3	- 60%	- 37%	- 54%	- 44%	+ 33%	CD - daily Software – once weekly

Results of individual Primary Schools

Results from the 3 Primary Schools show strong consistent evidence of a positive effect of the intervention on children of primary school age. As the data shows there was a substantial reduction in most of the measures. An improvement in the pro-social behaviour was also evident in all schools.

There are several anomalies in this data: In Class 3, School A, the data indicates that there was a substantial increase in peer problems which is inconsistent with the other classes. Further analysis of the SDQ data has shown that the increase in this score was attributed to 4 pupils out of the class of 23. The initial total score for the class was 2 and the follow-up score was 18 both of which would be considered low scores in terms of total difficulties. In the follow-up scoring 2 children showed a follow-up score of 2 and the remaining 2 children showed a follow-up score of 6 and 8.

The subjectivity of the teachers' marking should be considered as a possible limiting factor. Another factor to be considered is that the follow-up SDQs were

carried out in the last week of the school year when many pupils' levels of excitability may have been increased which in turn may have affected the subjectivity of marking.

The primary school data reflects the importance of compliance with the intervention and the results show that all the classes complied on a daily basis (some twice daily). All the children were given the opportunity to use the software at least once weekly. Due to factors associated with training, the Primary Schools used the intervention for several weeks longer than the Post Primary Schools and the pupils thus had a longer period of adaptation to the techniques.

Results of individual Post Primary Schools

The results from the Post Primary Schools are less consistent than those from the Primary Schools. Again it is apparent that positive effects were more marked when the intervention was used on a more regular basis. Results achieved by the schools * who used the software rarely or not at all, were not as

Results of individual Post Primary Schools

Secondary School	Change in Emotional Symptoms	Change in Conduct Problems	Change in Hyper-Activity	Change in Peer Problems	Change in Pro-social Behaviour	Regularity of compliance with intervention
School D						
Class 1	- 30%	- 17%	- 32%	- 50%	+ 18%	CD - daily Software – once weekly
Class 2	+ 18%	+ 11%	- 14%	- 15%	+ 5%	CD - daily Software – once weekly
School E						
Class 1	- 27%	0	- 18%	- 27%	-17	CD - 3-4 times weekly Software – *
Class 2	+ 4%	+ 13%	+ 9%	+ 13%	+ 25%	CD - 3-4 times weekly Software – *
School F						
Class 1	- 60%	- 33%	+ 20%	0	+ 5%	CD – 3-4 times weekly Software – once weekly
Class 2	0	- 50%	+ 17%	- 50%	+ 18%	CD – twice weekly Software – once weekly
School G						
Class 1	+ 8%	- 32%	- 14%	- 75%	+ 25%	CD - 3-4 times weekly Software – *
Class 2	- 2%	- 19%	- 12 %	0	+ 15%	CD - 3-4 times weekly

* HeartMath software used very rarely or not at all over the period of project due to technical or other difficulties

positive as those achieved by the schools who used the combination of the CD and software on a more regular basis.

Again there were several anomalies within this group. The analysts of the data who carried out “blind analysis” identified one of the classes (**Class 1, School F**) as having irregular base-line data. The analysts highlighted that the baseline data for pro-social behaviour and the other difficulties scales were not consistent with the data in the other schools. Interestingly all the schools are in the same demographic area which has been identified as an area of high socio-economic difficulties. This again highlights the problems that can arise with Teacher’s subjectivity when marking the SDQs.

Class 2 in School E showed no improvement in their difficulties. This class did not get the opportunity to use the intervention on a regular basis.

Class B in School D, a group of 14-15 yr old males who had a range of emotional and behavioural issues showed an increase in their emotional symptoms and conduct problems which was contrary to the anecdotal reports submitted by the teachers. On further analysis of the data, 7 out of the 12 boys showed a decrease or no change in the measures which is consistent with the other class. The data showed that one pupil in particular had made significant increases in both measures which affected the total outcome. The Form Teacher commented on the questionnaire that this pupil had been absent from school during much of the programme and had not engaged in the intervention.

However, overall the data shows clear evidence of a positive effect of the intervention with schools showing a reduction in behavioural difficulties and increases in the pro-social behaviour scores.

Conclusion

Most educationalists recognise that the emotions and feelings of pupils affect their learning and performance in the classroom. Young people bring a variety of problems into the classroom and this can affect their ability to engage effectively with the curriculum.

Understanding the biological correlates of emotion and how to empower children to acquire autonomic nervous system balance can enable teachers to reduce anxiety in children and improve behaviour and learning. The HeartMath / Safe Place Programme may provide an effective template to address such a need.

The DENI Document & Policy on Pastoral care in Schools 2001 takes a view on the many issues surrounding the prevention, management and aftermath of specific behavioural issues in the school environment. There is, however very little in this document which looks at those children / young people who may have non-specific emotional needs. In any classroom, there may be several children who have obvious behavioural and emotional issues; however there may also be children in that classroom whose behaviour is insufficient to register concern but whose emotional needs may require parental / teacher's attention. There are many children in schools today who "slip under the radar" of the teacher's attention but who still require their emotional needs to be understood and addressed.

The strong, consistent pattern of results of this project suggest that the HeartMath / Safe Place programme offers a practical, physiological based intervention to

improve behaviours appropriate to learning in a school environment. The integration of programmes such as this which are designed to foster emotional self-regulation and well-being could have an important place as part of the educational curriculum. Similarly, the intervention could be broadened to include parents' groups or other forms of family work carried out by schools.

It is important that children experience throughout their school life what it's like to feel respected, important, accepted, included and secure and that these needs become a classroom and school value. Once this is addressed, they are more likely to become self confident, independent, responsible, caring, civic-minded individuals.

Acknowledgements

I would like to thank the following for their contribution and support.

The pupils and teaching staff in the participating schools. Phil Lindsay, the Extended Schools Co-ordinator for Greater Falls. Dr A. Lloyd and Dr I. Gee, John Moores University, Liverpool for statistical analysis and results. UnLtd for sponsoring the production of this report.



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Teacher's comments:

Some of the pupils found it an excellent way to start the day. It proved to be a very calming influence on some of the children.

Observations: more calm and focused pupils.
Pupils settled to work quicker.

Year 9 Form teacher, School F

The children really enjoyed the programme. They were a lot calmer and focused during lessons and at playtime. They became more engaged and showed enthusiasm to learn and concentrate fully in the task at hand

P6 Teacher, School C

I observed a more relaxed atmosphere; children able to control emotions more easily. Better T & L environment. Also noticeable was that children were getting on together (I can't remember the last argument which required my intervention)

P7 Teacher, School C

Pupil's were more focused and enjoyed the "Safe Place" activity – more focused and alert during immediate lesson. There was greater reflection and calm afterwards.

Classroom behaviour not noticeably different; the class didn't have any serious behavioural or emotional problems prior to project.

P6 Teacher, School B

It appeared to be of benefit to all pupils. There was no way of quantitatively measuring the benefits but class appeared calmer and would use the techniques outside safe place time. Definite improvement in children's attention and readiness to learn directly after Journey to my safe place.

P2 Teacher, School A



How do I find out more about these programmes?

If you would like a demonstration for teaching staff, please contact FCC Performance and we will arrange a visit to your school or college. Telephone 028 9066 1058
Email info@fccperformance.com or visit our website: www.itsmysafeplace.com