Movement Matters: A NBSS Level 3 Intervention to Improve Positive Behaviour for Learning

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Movement Matters was developed by NBSS team members from the disciplines of teaching and occupational therapy in collaboration with the Discipline of Occupational Therapy, Trinity College Dublin, the University of Dublin.

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Overview

Introduction

Movement Matters is an intensive, individualised, multi-sensory movement programme for post-primary students developed by the National Behaviour Support Service (NBSS) in collaboration with the School of Occupational Therapy, Trinity College, Dublin. The programme was piloted in 11 NBSS partner schools during the academic year 2013/2014.

The NBSS, established by the Department of Education and Skills in 2006, offers three levels of behaviour support to post-primary schools - Level 1: School-wide Support; Level 2: Targeted Support; Level 3: Intensive, Individualised Support. Movement Matters is a NBSS Level 3 intervention designed to be delivered by NBSS Behaviour for Learning teachers as part of a programme of support provided to students who require Level 3 intensive, individualised behavioural assistance. The Movement Matters programme was developed in response to the multi-faceted needs of some students who, notwithstanding Level 1: school-wide support and Level 2: targeted intervention support continue to experience difficulty in school. This group of students present with a range of behaviours that can interfere with their social functioning and academic engagement including hyperactivity; social skills deficits; low self-esteem; difficult relationships with adults and peers and poor concentration and attention difficulties in most of their subject classes.

The NBSS Model of Support to Schools

The NBSS model of support draws extensively from Positive Behavioural Interventions and Supports - PBIS (Sugai & Horner, 2002), Response to Intervention - RtI (Fuchs & Fuchs, 2006) and the Comprehensive, Integrated, Three-Tiered Model of Prevention - CI3T (Lane, Kalberg, & Menzies, 2009) frameworks. The integration of these frameworks offers opportunities to address the behavioural needs as well as the social, emotional and academic needs of students effectively, with

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1 Since September 2014, all behaviour support teachers in NBSS partner schools are titled Behaviour for Learning teachers.
interventions at different levels of intensity and support.

The work of the NBSS is carried out by a multi-disciplinary team from the disciplines of teaching, occupational therapy and speech and language therapy. All work undertaken by the NBSS aims to promote positive behaviour and learning throughout the school by focusing on developing:

(a) Behaviour for Learning Skills
(b) Social and Emotional Literacy Skills
(c) Academic Literacy, Learning and Study Skills and (d) Positive Health and Wellbeing Skills. These four skill areas comprise the NBSS Positive Behaviour In-School Curricular Framework.

The Development of Movement Matters

In 2008 NBSS first introduced movement based programmes to the range of interventions offered to schools. This work began with the introduction of two programmes - the Speed, Agility & Quickness Special Education Movement (SAQ/SEM) programme and the ALERT ‘How Does Your Engine Run’ programme.

SAQ/SEM, is based on a system of progressive exercises to develop essential motor abilities, balance, co-ordination and ultimately better control of body movement. It involves the teaching of selected motor skills (Speed, Agility and Quickness), employing the same techniques and protocols used by professional athletes. Physical Education (PE) teachers in forty eight NBSS partner schools received SAQ training to work with both individual and small groups of students at NBSS Levels 2 support and Level 3 support in 2008 and 2009.

In addition to SAQ/SEM, the evidence-based ALERT ‘How Does Your Engine Run’ programme was also piloted by the NBSS in 2008. This programme was initially run by an occupational therapist, assisted by NBSS behaviour support teachers as part of a Level 3 intervention. The ALERT programme aims to help students monitor, maintain and change their level of alertness so that it is appropriate to the situation or task. It identifies students’ sensory needs and preferences and encourages the use of sensory motor strategies to support self-regulation so that their engines are running ‘just right’.

Following the success of this pilot the NBSS approached the School of Occupational Therapy, Trinity
College and in 2009 a formal collaboration between the NBSS and the School of Occupational Therapy, Trinity College was established. In addition to this, the discipline of occupational therapy was also incorporated into the NBSS multi-disciplinary team approach with the employment of two occupational therapists.

In 2009 an adaptation of the ALERT ‘How Does Your Engine Run’ programme was introduced by NBSS occupational therapists to eleven partner schools. For the first two years of implementation, the ALERT programme was taught to students by NBSS occupational therapists (OTs), assisted by each school’s NBSS Behaviour for Learning teacher. In 2012 the programme was introduced in a further 28 NBSS partner schools. Prior to implementation of the programme in these schools, the Behaviour for Learning teachers attended a two day CPD training programme developed by the NBSS occupational therapists that introduced them to the underlying theory behind the programme as well as the aims, objectives and activities of each ALERT session. The programme was then implemented in these 28 schools by the Behaviour for Learning teachers with the support of the NBSS OTs.

Through the experience of implementing SAQ/SEM and Alert in partner schools with individual students as well as small and whole class groups of students, the NBSS believed that a Level 3 multi-sensory movement based programme was also needed for students whose behaviours interfered with their social functioning and academic engagement on a daily basis. NBSS team members, representing the teaching and occupational therapy professions, developed Movement Matters as an individual, intensive movement based programme to support these students to achieve and succeed in school.

Movement Matters was designed to particularly support and develop the behaviour for learning skills of those students who present as inattentive, fidgety, hyperactive and/or restless in class. The programme builds upon the international literature (Biddle & Asare, 2011; Gapin & Etnier, 2013; Gapin, Labban, & Etnier, 2011; McKune, Pautz, & Lombard, 2003; Woods, Moyna, Quinlan, Tannehill, & Walsh, 2010) supporting the association of physical health with educational engagement and students’ long-term wellbeing. The research suggest that physical activity can have an impact on cognitive skills, attitudes and academic behaviour such as enhanced concentration and attention as well as improved classroom behaviour.

The Movement Matters programme is composed of 20 sessions, run each day for 20 minutes with one or two students as part of an individualised plan. It consists of a range of activities to build students’ skills and confidence in four beneficial movement categories: Prone Extension; Bi-lateral Integration; Supine Flexion and Equilibrium. The programme focuses on the internal sensory receptors (proprioceptors) located in the muscles, tendons and joints of the body and aims to develop students’ proprioception system (i.e. body position senses) and vestibular system (i.e. movement and balance
senses) that work collaboratively alongside the visual system to maintain an understanding of one’s body position in space. The short, daily physical activities in the programme aim to not only improve students’ proprioception and vestibular sensory systems, but in so doing also “calm” students and enable them to engage more effectively with their learning during the school day. The programme is guided by the broad view of the Person-Environment-Occupation Model (Law, Cooper, Strong, Stewart, Rigby, & Letts, 1996), a client-centred approach and was developed in line with the Junior Certificate Physical Education (PE) Syllabus which states that students will ‘develop strength, speed, endurance and flexibility through engaging in a wide variety of activities’ and they will ‘develop agility, alertness, control, balance and co-ordination through movement’.

Movement Matters was piloted in 11 NBSS partner schools during the academic year 2013/2014. This report presents the theoretical basis of Movement Matters, the methods that were used to test the programme in the feasibility study and the findings drawn from both the teacher and students who participated in the study.
Movement Matters was designed to assist students who may exhibit one or more of the characteristics on the Inattention/Hyperactivity Spectrum (Griffin & Shevlin, 2007). These would include:

- Constant fidgeting
- Regular inattention
- Hyperactivity
- Excessive motor activity
- Restlessness
- Easily distracted behaviour
- Clumsiness
- Inflexibility
- Low tolerance of frustration
- Acting before thinking

In their discussion of children with SEBD and ADHD, Bilton and Cooper (2013) cite studies that estimate a prevalence rate worldwide of 5.29%. The core symptoms of ADHD (hyperactivity, impulsivity and attention difficulties) can adversely affect an individual’s social development, interpersonal relationships and academic engagement and performance (Buckley, Gavin, & McNicholas, 2009). Described as consisting of three subtypes (i.e. inattention; hyperactivity/impulsivity; combined), it is recognised that there is no solitary cause of ADHD, but that it is likely to originate from a mixture of biomedical, genetic and environmental factors. It has also been shown that the condition often presents concurrently with other disorders such as speech and language disorder, learning difficulties, anxiety and/or depression. Based on their review of the literature, Harvey et al. (2007) assert that “...comorbidity seems to be the norm rather than the exception for children with ADHD...” (p.874). Likewise, a body of literature has emerged that demonstrates comorbidity between ADHD and motor skills deficits (Brossard-Racine, Shevell, Snider, Belanger, & Majnemer, 2012; Flier et al., 2010; Harvey & Reid, 2003; Lavsani, 2010; Pan, Tsai, & Chu, 2009; Tseng, Henderson, Chow, & Yao, 2004; Visser, 2003). For example, in a recent study of Czech children with ADHD, Scharoun, Bryden, Otipkova, Musalek and Lejcarova (2013) state that:

> “Individuals with ADHD typically present with comorbidities, such as other neurological and psychiatric diseases. The most commonly reported comorbidities include oppositional defiant disorder, conduct disorder, affective and anxiety disorders. Nevertheless, researchers have
also noted reading disabilities, developmental coordination disorder and immature motor development in ADHD” (p. 4143).

Research (Ayaz, Ayaz, Yazgan, & Akin, 2013; Cairney, Veldhuizen, & Szatmari, 2010; Fliers et al., 2008; Gol & Jarus, 2005; Mattard-Lebrecque, Ben Amor, & Couture, 2013; Scharoun et al., 2013) indicates that between 30 to 50% of children with ADHD have concurrent fine and/or gross motor skills deficits. In their discussion of sensory and motor deficits in children with ADHD, Finch, Davis and Dean (2010) highlight the extensive functions that comprise sensory motor skills stating that:

“Sensory skills include visual (e.g. acuity, confrontation), auditory (e.g. acuity), and tactile (e.g. discrimination, recognition). Motor skills can be broadly divided into two categories, cortical (e.g. motor speed and grip strength) and subcortical (e.g. balance, motor coordination)” (p. 162).

These authors assert that research has shown that many children with ADHD experience significant sensory motors skills deficits most particularly in the areas of balance, timing and motor control. In their study of 486 ADHD children (269 control), Fliers et al. (2008) affirmed the consistent association of ADHD with impaired motor skills particularly manifesting in coordination difficulties.

In terms of determining the reason(s) why so many children with ADHD exhibit motor skills deficits, there is still no consensus, with some researchers suggesting that Developmental Coordination Disorder (DCD) ² and ADHD share similar neurological characteristics. Others hold the view that it is the characteristics of ADHD (such as impulsivity) that cause the motor skills deficits. Harvey et al. (2007) make the point that it is essential to make the distinction between hyperactive behaviour and actual motor skills deficits. Those authors found that many children with ADHD manifest both quantitatively and qualitatively, movement skills differences from children without ADHD. They hypothesise a blended model of causation that would include some or all of the following factors:

“(a) lack of physical skills and experience, (b) poor social skills, (c) an inability to regulate play, sport learning and performance, (d) comorbidity, (e) motivation and (f) time constraints and performance conditions may be potential underlying factors to consider for the movement skills difficulties experienced by many children with ADHD” (p.879).

Fliers et al. (2008) to a degree concur that there is still much work to be done in order to determine the factors that cause motor skills difficulties in some children with ADHD. Those authors however

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² Cairney, Veldhuizen and Szatmari (2010) state that until recently there was little agreement on how to define or categorise deficits in motor coordination and summarise the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition’s definition as “DCD is defined, essentially, as the presence of motor coordination problems that interfere significantly with functioning and are not due to a pervasive developmental delay or medical conditions such as cerebral palsy or muscular dystrophy” (p. 324).
challenge the reliance on citing inattention as the predominant cause. Citing a study by Miyahara, Piek and Barrett (2006), Fliers et al. argue that:

“In the past it was suggested that children with ADHD have motor coordination problems as a result of their poor attention. Recent findings of inaccurate drawings in children with ADHD showed that these were not related to an attention deficit, but to a motor deficit as a separate entity from attention deficit” (p. 212).

While DCD and ADHD are distinct and the presence of one does not suggest the inevitable existence of the other (Ayaz et al., 2013; Visser, 2003), it is noted by a number of authors (Finch, Davis, & Dean, 2010; Fliers et al., 2008; Harvey et al., 2007; Scharoun et al., 2013) that sensory motor skills are not usually part of the ADHD screening process. Hence deficits may remain unidentified with repercussions in terms of the individual’s general well-being, social and emotional development as well as academic performance.

Research has shown that students with ADHD can benefit from occupational therapy interventions (Fedewa & Erwin, 2011; Gol & Jarus, 2005; Lin, Lee, Chang, & Hong, 2014; Maeir et al., 2014). Whether working in a school or clinical setting, occupational therapists aim to support the individual to participate in the day to day occupations that have meaning in their environments. In a school context, this can include academic performance, behavioural norms as well as interpersonal relationships with peers and adults. The work of the OT is to design and implement interventions that address the individual’s motor-sensory impairment(s) and/or adapt elements of the individual’s context (for example aspects of the classroom environment, noise and light levels, etc.) to allow for better participation. The former is grounded in Ayres’ (1972) Theory of Sensory Integration (SI).

Based on her experience of working with children with learning disabilities, Ayres theorised that in part, their difficulties were due to atypical processing and integrating of sensory information. This inability to integrate sensory information, in Ayres’ view contributes to the obstacles they encounter both with their learning and their behaviour in school. In their discussion of the development of Ayres’ theory, Schaaf and Miller (2005) state that:

“The theory is based on principles from neuroscience, developmental psychology, occupational therapy, and education: 1) sensorimotor development is an important substrate for learning; 2) the interaction of the individual with the environment shapes brain development; 3) the nervous system is capable of change (plasticity); and 4) meaningful sensory-motor activity is a powerful mediator of plasticity” (pp. 143-144).

Individuals who experience sensory integration dysfunction (also referred to as Sensory Processing Disorders [SPD]) can have difficulty learning and paying attention in school because these occupations depend on one’s ability to integrate and organise information inputs from the senses. Sensory
Integration Therapy (SIT) offers the individual sensory motor activities that are abundant in vestibular, proprioceptive and tactile sensations. Proprioceptive sense is the awareness of one’s muscles and joints and how they move in space. Vestibular sense is concerned with head position and movement and plays an essential role in coordination, balance, attention, eye control and elements of language. Tactile sense is the way in which, through touch, one gains information from the environment.

Extensive literature indicates that a conservative estimate of ADHD prevalence worldwide is over 5.0% of the population and that within that cohort anywhere from a third to half of these individuals will have concurrent sensory motor skills deficits. This would suggest that there is a need for interventions that address these skill areas. A recent study (Woods et al., 2010) sponsored by the Irish Sports Council reiterates the physical health benefits of exercise, but goes on to state that:

“In addition, physical activity reduces depression and anxiety (especially in shy children), enhances mood, self-esteem and quality of life. Participation in regular health enhancing physical activity has also been found to reduce rule-breaking behaviour, and to improve attention span and classroom behaviour. It has positive effects on academic performance, including achievement in maths tests and reading, academic grades and perceptual skills. Involvement in sports and physical education can play a significant role in the enrichment of a child’s social life and the development of social interaction skills” (p. 7).

Work has been done on in-class physical activity programmes and their effect with regard to attention and on-task behaviour. In his review of evidence-based Level 3 behavioural interventions in school settings, Thompson (2011) states that “Mindfulness strategies incorporated within physical activities such as martial arts and yoga lower the frequency of aggressive behaviour and increase students’ time on task” (pp. 314-315). Similarly, Whitglover et al. (2013) reviewed the research on a number of in-class, short break physical activity programmes. From their analysis, the authors concluded that “…short physical activity breaks during the school day may increase physical activity, improve student behaviour and on-task behaviour, and improve some measures of health” (p. 6). One such programme highlighted by Whitglover et al. is the Energiser. A study of that programme designed for students in primary schools (Mahar et al., 2006) found that across all students participating in the programme, there was an 8.0% improvement in on-task behaviour. More critically however, there was a 20.0% improvement for those students who would be measured as the least on-task. Mahar (2011) in his review of the research on the effects of short physical activity breaks on students’ on-task behaviour concludes that:

“Evidence is moderate to good that physical activity incorporated into the school day can improve attention-to-task and teachers can be trained in a relatively short amount of time to effectively lead such activities” (p. S64).
In their discussion of educational strategies for working with students with ADHD, Griffin and Shevlin (2007) state that “When periods of seat-work are punctuated by regular intervals of structured physical activity, incidences of behaviour problems are decreased” (p. 222). While the causes of ADHD are believed to be multi-faceted, it is thought that the symptoms related to cognition and behaviour are caused by an irregularity of dopamine, a hormone and neurotransmitter in the brain. Buckley, Gavin and McNicholas (2009) describe the role of dopamine in attention and motivation in this way:

“Dopamine is thought to be important in helping us pay attention. When we are concentrating it is released and activates a postsynaptic receptor to create a nerve signal in the brain. This decreases background noise and helps a person to focus. It is thought that children with ADHD are born with a relative deficiency of dopamine...Dopamine also influences motivation and this improves the ability to sustain concentration on tasks by increasing the interest it evokes and thus improving attention and performance” (pp. 24-25).

In their controlled experimental study, Tantillo, Kesick, Hynd and Dishman (2002) explored the effects of exercise on dopaminergic-like and behavioural responses in children with ADHD. While the authors cautioned that their findings were preliminary, they do suggest that, along with medication, exercise can serve as a dopaminergic adjuvant for children with this disorder.

More recently, Gapin, Labban and Etnier (2011) prepared a literature review of studies that address the efficacy of physical activity in the management of the cognitive and behavioural symptoms of ADHD. The authors describe the multidimensional aetiology of ADHD and state that research has shown that the disorder is characterised by deficits in Executive Function (EF). The authors explain that:

“In the classroom EF deficits may interfere with the ability to process incoming information while listening to a teacher, to identify relevant information, to inhibit relevant thoughts to hold information in mind while linking it to other relevant information and to stay focused on task” (p. S71).

The authors cite a study conducted by Gapin and Etnier in 2010 in which parents were surveyed to gain their perspectives on the impact of regular physical activity on their children’s ADHD symptoms. The researchers found that over half (54.0%) of the respondents thought that generally it had, 63.0% reported that it had an impact on their child’s inattention and 53.0% indicating that regular physical activity had an impact on their child’s hyperactivity. Their review concludes that while more research needs to be done, there is evidence that physical activity can improve the behaviour and cognitive performance of children with this disorder.

Kamp, Sperlich and Holmberg (2014) also conducted a literature review of recent studies of the treatment of children (aged 7 to 13) with ADHD with physical exercise. While citing limitations of the
studies they selected (for example, absence of control groups, inability to calculate effect sizes, etc.) the authors drew the following conclusion:

“The present review summarises the impact of exercise interventions (1-10 weeks in duration with at least two sessions each week) on parameters related to ADHD in 7 to 13 year-old children. We may conclude that all different types of exercise (here yoga, activity games with and without the involvement of balls, walking and athletic training) attenuate the characteristic symptoms of ADHD and improve social behaviour, motor skills, strength and neuropsychological parameters without any undesirable side effects” (p. 713).

One study included in Kamp, Sperlich and Holmberg’s review was conducted by Verret, Guay, Berthiaume, Gardiner and Beliveau in 2012. The researchers hypothesised that involvement in a moderate to high intensity activity intervention would have a positive impact on students with ADHD in terms of their overall physical health, their cognitive processes as well as on those behaviours typically associated with the disorder. The programme was delivered to 21 children with ADHD ranging in age from 7 to 12 years. Delivered in a school setting over a ten week period, three times every week, each session included a warm up session to start and a cool down period at the end. Activities such as soccer, basketball, various other ball games and tag were used interchangeably in order to maintain participants’ motivation. Employing a range of fitness, motor skills, behaviour and cognitive functioning instruments pre and post intervention, the authors found that the physical activity programme had led to improvements in the students’ strength, motor skills, behaviour and cognitive processes, in particular their attention.

Similarly, O’Connor et al. (2014) report on a study that investigated whether including a specific sports training element into an overall intensive behavioural intervention programme can have an impact on functional sports outcomes in children with ADHD. The authors cite Harvey and Reid’s (2003) meta-analysis of 49 comorbidity studies and state:

“…children with ADHD perform worse than age-matched peers on both gross and fine motor tasks, as well as sport-specific motor processes, such as running, jumping, catching, throwing and kicking” (p. 1006).

The authors note that in addition to the short and long term benefits of participation in organised sports, engagement in team sports is also beneficial in assisting children to develop and practice positive social skills including “...effective communication, turn taking, cooperation, leadership, conflict resolution, affective self-regulation, and problem solving” (p. 1005). Further, they contend, that if participation in sports is consistent then it would follow that the prosocial skills gained would also transfer into other spheres of the child’s life (for example, the school classroom). The authors additionally point out that the literature shows that often children with ADHD do not participate in
sports successfully with their peers. The findings of their study were that having a sports training element as part of an intensive behavioural intervention for children with ADHD led to significant improvements in participants' sports functioning. The authors describe the areas of improvement including “fundamental skill tasks” that would imply progression in gross motor skills. The parents of participants identified benefits that have been categorised by the authors as “…improved sports skills and good sportsmanship” (p. 1005) hence reiterating the findings of previous studies that interventions that include a movement component can help children with ADHD with regard to their physical, cognitive and social emotional development.
Methodology

Drawing upon the relatively recent research about the benefits of short, in class activity breaks (Centre for Disease Control and Prevention, 2010; Mahar, 2011; Mahar et al., 2006; Stewart, Dennison, Kohl, & Doyle, 2004), the NBSS developed Movement Matters with the idea that the programme might help students’ on-task behaviour. It was proposed that the short, daily physical activities inherent in the programme would not only improve the students’ proprioception and vestibular sensory systems, but in so doing would also “calm” them and enable them to engage more effectively with their learning during the school day.

In their paper “The importance of pilot studies”, van Teijlingen and Hundley (2001) describe the different reasons for conducting pilot studies, identifying feasibility studies as “trial runs” prior to undertaking a major research study. The authors state:

“One of the advantages of conducting a pilot study is that it might give advance warning about where the main research project could fail, where research protocols may not be followed, or whether proposed methods or instruments are inappropriate or too complicated. In the words of De Vaus (1993: 54) ‘Do not take the risk. Pilot test first’” (p.1)

In piloting any programme (such as FRIENDS for Life, SAQ, ALERT, Catch Up Literacy, the Vocabulary Enrichment Programme, etc.), the NBSS would be particularly rigorous in addressing the feasibility of delivering an intervention within an Irish post-primary school context. Because Movement Matters was developed “in-house” and had not been tested, the NBSS in designing a research framework for the programme determined that prior to a full scale research study it would be useful to conduct a feasibility study over the course of one academic year. The study would set out primarily to test:

- If teachers (who provide Level 3 support in their schools), with sufficient training were able to deliver the programme as designed in a classroom setting with one teacher working with two students for a period of 20 minutes
- If the teachers thought they had achieved the objectives of each Movement Matters session
- If the teachers had sufficient time to complete every activity in the 20 sessions within the specified timeframe i.e. 20 minutes daily
- Whether the students were able to complete each activity
- Whether the students enjoyed the activities and the extent to which they engaged with the programme
• The students’ progress in developing their skills in the four movement categories: Prone Extension; Bi-lateral Integration; Supine Flexion and Equilibrium.
• Whether Movement Matters had a “calming” effect on the students who participated in the programme.

Primarily, the NBSS was concerned with finding if Movement Matters as designed could be implemented by Behaviour for Learning teachers in partner schools. Because it was a new intervention, the NBSS wanted to gain information in order to, if necessary, adjust or change elements to improve the programme and its delivery. Therefore, the feasibility study was designed to gather quantitative and qualitative data from both the teachers who would be piloting the programme as well as from the students who participated.

Due to the logistics of bringing teachers out from school for training, the study was based on two waves of data collection. In the Autumn 2013, five Behaviour for Learning teachers from five NBSS partner schools were given a full day’s training in Movement Matters during which they were introduced to the theoretical foundation of the programme, provided with the necessary equipment to run the intervention, worked with occupational therapists to practise the activities and given information about the research element of the project. The teachers were informed that throughout the project they would be supported on-site by the NBSS Movement Matters team (occupational therapists, PE/SEN teacher) on a weekly basis. In the Spring 2014, an additional seven Behaviour for Learning teachers (from six NBSS partner schools) were given similar training and subsequently implemented the programme and participated in the research. At the end of December 2013, five teachers provided data for the study. At the end of May, data were received from 11 of the 12 Behaviour for Learning teachers (one teacher trained in the Autumn, was unable to deliver the programme in the Spring Term).

There is a growing interest in the literature about the need to attend to the fidelity of implementation when assessing the effect and outcomes of interventions (Hagermoser-Sanetti & Kratochwill, 2009; Keller-Margulis, 2012; McKenna, Rosenfeld, & Gravois, 2009; Schulte, Easton, & Parker, 2009; Sheridan, Swanger-Gasne, Welch, Kwon, & Garbacz, 2009). In her proposal for a Fidelity Implementation Framework for school based RtI models, Keller-Margulis (2012) notes that while implementation fidelity or integrity is recognised as of great value, it is often not done. She states:

“Attending to fidelity of implementation when evaluating interventions is a best practice issue in the field of school psychology (Roach & Elliott, 2008); however it is often ignored in school-based intervention work (Lane, Bocian, MacMillan, & Gresham, 2004). Gresham, Gansle, Noell, Cohen, and Rosenbaum (1983) reviewed behavioral intervention studies conducted in schools and concluded that 14% of studies provided data about integrity whereas 10% reported
monitoring integrity but provided no outcome data. Gresham, MacMillan, Beebe-Frankenberger, and Bocian (2000) reviewed academic intervention studies, finding that only 18.5% addressed treatment integrity, including measurement and reporting outcomes” (p. 343).

Fidelity checklists are a common method of exploring the viability, the implementation and interpreting the impact of educational interventions (August, Realmuto, Hektner, & Bloomquist, 2001; Barrett & Turner, 2001; Breitenstein et al., 2010; Fairbanks, Sugai, Guardino & Lathrop, 2007; Henefer & Rodgers, 2013). A fidelity checklist was designed to be completed daily by teachers during their delivery of the programme. The checklist identified the objectives for each session. The instrument was comprised of both closed and open-ended questions. Each activity was listed and the teachers were asked to indicate whether the students had completed the activity and whether the students had liked the activity. Teachers were encouraged to add comments about each activity. This was critical in order to provide the authors with information that could be used to adapt or change aspects of the programme. For each session, the teachers were asked to assess whether they thought they had achieved the stated objectives of the session, students’ attendance as well as whether they felt they had sufficient time to complete all the activities in each session. The checklist asked to rate both students’ participation on a five point Likert scale (1=very willing to participate, 5= not willing to participate) and their progress, again on a 5 point Likert scale (1=very able to do the activity, 5 = not able to do the activity).

At the end of each section of the fidelity checklist, teachers were asked to comment upon whether they felt as a teacher well prepared and equipped to deliver the session. In their research briefing during the training, they were encouraged to use this space to additionally write down any impressions, experiences and/or observations, whether negative or positive. It was emphasised that as they were the first individuals to pilot Movement Matters, their views in delivering it were vital to deciding if the programme was viable and effective and if so, whether there were elements of the programme that needed to be improved or changed.

Additionally, NBSS was interested in learning whether the activities contained in the programme had a calming effect on the students. In the first wave of data collection, the five teachers were asked to rate each student’s level of calmness at the start of each session and at the end of each session on a five point Likert scale (1= very stressed, 5 = very chilled out)³. The teachers were provided with a laminated, illustrated chart with the same scale and asked to use this to gather and record pre and post data from the students to determine whether the students themselves felt calmer after doing

³ After the first wave of data collection, the teachers suggested altering the scale by replacing "stressed" with "hyper" as they felt this was more appropriate in relation to their students' vernaculars.
the programme each day. It was decided prior to the second wave of data collection, that all teachers and students would be asked to do the same but additionally the Movement Matters teachers were asked to collect a measurement from those teachers who had taught a student the lesson before Movement Matters as well as from those teachers who worked with a student in the lesson after the programme.

In December 2013 the five completed fidelity checklists were analysed. Qualitative data were collated and analysed using NVivo9 software to identify emerging themes and to pinpoint specific indicators of activities or areas of the programme that needed some degree of adjustment or removal based on teachers’ comments. NBSS used this information to make revisions to a few of the planned activities. Quantitative data from the checklists were entered into SPSS. Frequency analyses and measures of central tendency were conducted as well as paired samples t-tests to determine overall significance in the case of the calmness measure. The same process was undertaken on all of the data when the checklists were received in May 2014. Overall, 18 completed fidelity checklists were analysed.

An integral element of the feasibility study was the consistent support provided during the programme delivery by the NBSS Movement Matters team. This support included weekly visits to the schools to observe the delivery of sessions as well as reflective discussions with the teachers both before and after a session. This provided invaluable information for the team about how the programme works in schools as well as adding to the team’s sense of whether Movement Matters was being implemented with fidelity by the teachers.

The importance of ensuring that Student Voice is heard in educational research and educational change is agreed in most jurisdictions and stems directly from the recognition of the rights of the child. Mohamed and Wheeler (2001) state that Student Voice can lead to a meaningful improvement for students who are underachieving or disengaged. A number of researchers (Cooper, 2006; O’Connor, Hodkinson, Burton & Torstensson, 2011; Sellman, 2009) indicate that Student Voice is of particular importance for young people with Social Emotional and Behavioural Difficulties (SEBDs). They make the point that there is not only a need, but also a great value for educators for additional Student Voice research with this cohort. In their discussion of “pupil voice”, Flynn, Shevlin and Lodge (2013) concur with that view stating that:

“Despite the contention that with the engagement of student voice comes the potential to improve teacher-pupil alliances and the quality of school life, which may empower marginalized pupils (Tangen, 2009), it is also evident that some groups of children and young people are seldom given a voice: specifically, children under the age of five; children with disabilities; and children from ethnic minorities (Clark et al., 2003). Although there have been many studies
that focus on the perceptions of pupils in mainstream education, very few have focused on pupils with EBD (Cefai and Cooper, 2010; Davies, 2005). This is in spite of evidence which shows that the empowerment of students with EBD can contribute to the resolution and prevention of some of the associated difficulties experienced by these students in school (Cefai and Cooper, 2010; Norwich and Kelly, 2006)” (pp. 247-248).

NBSS research projects, as a matter of policy, incorporate methods to engage student voice. For this feasibility study a quantitative and qualitative 12 question student survey was devised. The survey was posted up on to Survey Monkey. Once students completed the 20 sessions of Movement Matters, they were asked to spend a few minutes to complete the survey on-line. Participation was voluntary and surveys were anonymous. Data from 32 students (male students – N=28; female students – N=4) were collected from December 2013 to May 2014.

Finally, in May 2014 the team conducted semi-structured interviews with two of the Movement Matters teachers. This originally had not been part of the methodology developed for the Feasibility Study. However, at the end of the academic year, each individual teacher expressed an interest in contributing to the analysis of the programme so individual interviews were conducted as a contribution to the study. Both teachers taught in DEIS schools located in the Dublin region. One of the interviewees had run the programme throughout the academic year, the second interviewee was in the second cohort of trained Movement Matters teachers. The latter had used the programme only with male students, while the former had taught it to both male and female students. Each interview lasted between 45 minutes to an hour. Interviews were audio recorded and transcribed shortly afterwards. The transcriptions were entered into NVivo9 software for qualitative analysis.
Movement Matters: A NBSS Level 3 Intervention to Improve Positive Behaviour for Learning
Findings

This section will present the findings from the analysis of the data collection for the Movement Matters feasibility study. It will be divided into three sections. The first section will be comprised of the data submitted by teachers through the fidelity checklist. The second section will report the findings from the survey completed by the students who participated in the pilot. The data from the interviews with the two Movement Matters teachers will be presented as case studies in Section 3. The main findings from these two interviews will be set forward. Additional information provided by the teachers alongside analysis is provided in the Appendix.

Section 1: Teachers’ Fidelity Checklists

The fidelity checklist was designed to reflect the format of Movement Matters. The programme starts with a physical “Warm Up” before the activities are undertaken by the students and ‘Cool Down’ sessions are run at the end of the sessions before students return to their mainstream classrooms. The programme introduces a series of activities in one session which are subsequently repeated in the following session. For example, students are introduced to the following exercises: 1) Prone Extension and Jigsaw (2) Curl and Hold/Egg Roll; (3) Ladder Drill Walk/Run Through; and (4) Ball Balance in Session 1 and then have the opportunity to practise and reinforce the skills again in Session 2. Four different activities are introduced in Session 3, practised and reinforced in Session 4, and so forth.

At the start of each section of the checklist is a list of the specific programme objectives of the double sessions. Teachers were asked to indicate upon completing the sessions whether they thought that the identified objectives had been achieved. Table 1 presents a frequency analysis of the data for this question. ⁵

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⁴ Exercises 1 and 3 are focused on the development of students’ proprioception (body position sense) whilst the remaining activities concentrate on the vestibular (movement and balance).

⁵ For example, in Sessions 1 and 2, the stated objectives are:
- Students complete the four activities.
- Students are introduced to the aim of the Movement Matters Programme.
- Students are introduced to the rules and routines of the Movement Matters Programme.
- To record student’s perception of their calmness before and after the session.
- To record teacher’s perception of student calmness before and after the session.
- To record subject teacher’s perception of student calmness before and after the session.
Table 1: Do you think the objective(s) of the sessions was/were achieved

<table>
<thead>
<tr>
<th>Sessions</th>
<th>Respondents</th>
<th>Yes</th>
<th>Somewhat</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>1&amp;2</td>
<td>15</td>
<td>86.7% (N=13)</td>
<td>13.3% (N=2)</td>
<td>0.0% (N=0)</td>
</tr>
<tr>
<td>3&amp;4</td>
<td>16</td>
<td>93.8% (N=15)</td>
<td>6.3% (N=1)</td>
<td>0.0% (N=0)</td>
</tr>
<tr>
<td>5&amp;6</td>
<td>17</td>
<td>94.1% (N=16)</td>
<td>0.0% (N=0)</td>
<td>5.9% (N=1)</td>
</tr>
<tr>
<td>7&amp;8</td>
<td>13</td>
<td>76.9% (N=10)</td>
<td>23.1% (N=3)</td>
<td>0.0% (N=0)</td>
</tr>
<tr>
<td>9&amp;10</td>
<td>14</td>
<td>85.7% (N=12)</td>
<td>14.3% (N=2)</td>
<td>0.0% (N=0)</td>
</tr>
<tr>
<td>11&amp;12</td>
<td>15</td>
<td>93.3% (N=14)</td>
<td>6.7% (N=1)</td>
<td>0.0% (N=0)</td>
</tr>
<tr>
<td>13&amp;14</td>
<td>16</td>
<td>93.8% (N=15)</td>
<td>6.3% (N=1)</td>
<td>0.0% (N=0)</td>
</tr>
<tr>
<td>15&amp;16</td>
<td>16</td>
<td>93.8% (N=15)</td>
<td>6.3% (N=1)</td>
<td>0.0% (N=0)</td>
</tr>
<tr>
<td>17&amp;18</td>
<td>15</td>
<td>86.7% (N=13)</td>
<td>13.3% (N=2)</td>
<td>0.0% (N=0)</td>
</tr>
<tr>
<td>19&amp;20</td>
<td>11</td>
<td>100.0% (N=11)</td>
<td>0.0% (N=0)</td>
<td>0.0% (N=0)</td>
</tr>
</tbody>
</table>

Figure 1: Do you think the objective(s) of the sessions was/were achieved

From the data that were received, it is clear that the majority of the teachers thought that the objectives of all sessions had been achieved. Only one teacher indicated that the objectives had not been met in Sessions 5 and 6. Across Movement Matters as a whole, 90.5% of the teachers thought that the programme’s objectives had been achieved.

An important element of determining how feasible it is to implement the programme in schools is whether there is sufficient time within the school timetable. Teachers were asked to record, for each session whether their students had sufficient time to complete all of the activities. Table 2 provides a frequency analysis, for each session, of teachers’ responses.

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6 This teacher explained that one of her students had not been able to complete all four activities and, therefore, the objectives of the sessions had not been achieved.
Table 2: Was there enough time to complete all activities in the session?

<table>
<thead>
<tr>
<th>Session</th>
<th>Number of Respondents</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>16</td>
<td>93.8% (N=15)</td>
<td>6.3% (N=1)</td>
</tr>
<tr>
<td>2</td>
<td>14</td>
<td>100.0% (N=14)</td>
<td>0.0% (N=0)</td>
</tr>
<tr>
<td>3</td>
<td>16</td>
<td>81.3% (N=13)</td>
<td>18.8% (N=3)</td>
</tr>
<tr>
<td>4</td>
<td>13</td>
<td>92.3% (N=12)</td>
<td>7.7% (N=1)</td>
</tr>
<tr>
<td>5</td>
<td>16</td>
<td>93.8% (N=15)</td>
<td>6.3% (N=1)</td>
</tr>
<tr>
<td>6</td>
<td>14</td>
<td>92.9% (N=13)</td>
<td>7.1% (N=1)</td>
</tr>
<tr>
<td>7</td>
<td>13</td>
<td>84.6% (N=11)</td>
<td>15.4% (N=2)</td>
</tr>
<tr>
<td>8</td>
<td>11</td>
<td>90.9% (N=10)</td>
<td>9.1% (N=1)</td>
</tr>
<tr>
<td>9</td>
<td>11</td>
<td>81.8% (N=9)</td>
<td>18.2% (N=2)</td>
</tr>
<tr>
<td>10</td>
<td>10</td>
<td>90.0% (N=9)</td>
<td>10.0% (N=1)</td>
</tr>
<tr>
<td>11</td>
<td>13</td>
<td>84.6% (N=11)</td>
<td>15.4% (N=2)</td>
</tr>
<tr>
<td>12</td>
<td>12</td>
<td>91.7% (N=11)</td>
<td>8.3% (N=1)</td>
</tr>
<tr>
<td>13</td>
<td>8</td>
<td>87.5% (N=7)</td>
<td>12.5% (N=1)</td>
</tr>
<tr>
<td>14</td>
<td>7</td>
<td>85.7% (N=6)</td>
<td>14.3% (N=1)</td>
</tr>
<tr>
<td>15</td>
<td>14</td>
<td>100.0% (N=14)</td>
<td>0.0% (N=0)</td>
</tr>
<tr>
<td>16</td>
<td>11</td>
<td>100.0% (N=11)</td>
<td>0.0% (N=0)</td>
</tr>
<tr>
<td>17</td>
<td>13</td>
<td>100.0% (N=13)</td>
<td>0.0% (N=0)</td>
</tr>
<tr>
<td>18</td>
<td>13</td>
<td>100.0% (N=13)</td>
<td>0.0% (N=0)</td>
</tr>
<tr>
<td>19</td>
<td>13</td>
<td>92.3% (N=12)</td>
<td>7.7% (N=1)</td>
</tr>
<tr>
<td>20</td>
<td>10</td>
<td>90.0% (N=9)</td>
<td>10.0% (N=1)</td>
</tr>
</tbody>
</table>

The majority of teachers stated that there had been sufficient time to complete the activities in each session. In those instances where a minority of teachers offered a negative response, these tended to be only one or two of the teachers, the most negative responses was for Session 3 (N=3). Taken as a
whole, 91.7% of the respondents thought that there had been sufficient time within their school timetable to complete all of the activities in Movement Matters.

Because Movement Matters is a short, intensive behavioural intervention it was important to record the levels of attendance in schools across the 20 sessions. In the fidelity checklist, the teachers were asked to record for every session the attendance of each of their two students. Table 3 presents the findings from a frequency analysis of the data.

Table 3: Attendance

<table>
<thead>
<tr>
<th>Session</th>
<th>Number of Respondents</th>
<th>Reported 100% (N=2) of students attended session</th>
<th>Reported only 50% (N=1) of students attended session</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>18</td>
<td>94.4% (N=17)</td>
<td>5.6% (N=1)</td>
</tr>
<tr>
<td>2</td>
<td>18</td>
<td>100.0% (N=18)</td>
<td>0.0% (N=0)</td>
</tr>
<tr>
<td>3</td>
<td>18</td>
<td>100.0% (N=18)</td>
<td>0.0% (N=0)</td>
</tr>
<tr>
<td>4</td>
<td>18</td>
<td>88.9% (N=16)</td>
<td>11.1% (N=2)</td>
</tr>
<tr>
<td>5</td>
<td>18</td>
<td>88.9% (N=16)</td>
<td>11.1% (N=2)</td>
</tr>
<tr>
<td>6</td>
<td>18</td>
<td>77.8% (N=14)</td>
<td>22.2% (N=4)</td>
</tr>
<tr>
<td>7</td>
<td>18</td>
<td>72.2% (N=13)</td>
<td>27.8% (N=5)</td>
</tr>
<tr>
<td>8</td>
<td>18</td>
<td>66.7% (N=12)</td>
<td>33.3% (N=6)</td>
</tr>
<tr>
<td>9</td>
<td>17</td>
<td>70.6% (N=12)</td>
<td>29.4% (N=5)</td>
</tr>
<tr>
<td>10</td>
<td>17</td>
<td>70.6% (N=12)</td>
<td>29.4% (N=5)</td>
</tr>
<tr>
<td>11</td>
<td>18</td>
<td>88.9% (N=16)</td>
<td>11.1% (N=2)</td>
</tr>
<tr>
<td>12</td>
<td>18</td>
<td>77.8% (N=14)</td>
<td>22.2% (N=4)</td>
</tr>
<tr>
<td>13</td>
<td>17</td>
<td>88.2% (N=15)</td>
<td>11.8% (N=2)</td>
</tr>
<tr>
<td>14</td>
<td>16</td>
<td>68.8% (N=11)</td>
<td>31.3% (N=5)</td>
</tr>
<tr>
<td>15</td>
<td>18</td>
<td>77.8% (N=14)</td>
<td>22.2% (N=4)</td>
</tr>
<tr>
<td>16</td>
<td>17</td>
<td>58.8% (N=10)</td>
<td>41.2% (N=7)</td>
</tr>
<tr>
<td>17</td>
<td>17</td>
<td>64.7% (N=11)</td>
<td>35.3% (N=6)</td>
</tr>
<tr>
<td>18</td>
<td>17</td>
<td>70.6% (N=12)</td>
<td>29.4% (N=5)</td>
</tr>
<tr>
<td>19</td>
<td>15</td>
<td>73.3% (N=11)</td>
<td>26.7% (N=4)</td>
</tr>
<tr>
<td>20</td>
<td>13</td>
<td>84.6% (N=11)</td>
<td>15.4% (N=2)</td>
</tr>
</tbody>
</table>

Figure 3: Attendance
In each session, the majority of teachers reported that both students attended. Taken across the 20 sessions as a whole, 79.2% of the respondents recorded 100.0% attendance. However, nearly a quarter (20.8%) indicated that attendance was only 50.0%. A number of teachers expressed their frustration with absences during the Movement Matters programme in the comments they wrote in their fidelity checklists. For example:

“All objectives were achieved. However, it was disappointing Student A was absent, especially on Day 1.”

“I worked with another student when Student B was absent – this completely unsettled Student A.”

“Objectives achieved, yet frustrating on student absence.”

“Session 10 was slowed down as Student 2 had returned from a week of being absent and was not used to the exercises.”

These comments highlight a number of issues that arose because of absences during the intervention. Clearly, in some cases students’ absenteeism during the programme made it more difficult for them when they returned to school and re-joined the programme. However, the data also reveal that absenteeism also could affect the other student taking part in the programme as well as slowing down the overall implementation of the programme.

In completing the fidelity checklists teachers were asked to rate students’ progress or their ability to do the activities for each session. An analysis of the data was conducted to obtain a measure of central tendency. Table 4 presents the number of students for whom data were collected as well as the mean rating for each of the 20 sessions.

<table>
<thead>
<tr>
<th>Session</th>
<th>Number of Students</th>
<th>Progress</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>31</td>
<td>3.2</td>
</tr>
<tr>
<td>2</td>
<td>32</td>
<td>2.7</td>
</tr>
<tr>
<td>3</td>
<td>33</td>
<td>2.8</td>
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<tr>
<td>4</td>
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<td>5</td>
<td>31</td>
<td>2.5</td>
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<td>6</td>
<td>31</td>
<td>2.3</td>
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<td>7</td>
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<td>29</td>
<td>2.6</td>
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<tr>
<td>14</td>
<td>22</td>
<td>2.6</td>
</tr>
<tr>
<td>15</td>
<td>25</td>
<td>2.9</td>
</tr>
</tbody>
</table>

This statistic may be skewed by irregular response rate.
The analysis demonstrates that in all but two cases, the students made progress (i.e. from the introductory session to the practice/reinforcement session) in terms of their ability to do the activities. In the case of Sessions 13 and 14, students’ ability to do the activities was considered constant (2.6). With regard to the slight reduction in Sessions 19 and 20, this may be related to a number of teachers not completing checklists for these because of time constraints.

These findings were reiterated in comments made by the teachers in their fidelity checklists. They wrote on many occasions that while students found some activities difficult during the introductory sessions they in most cases experienced success in the practice/reinforcement sessions.

“Yes, there was a lot for the students to think about because it was new to them but the atmosphere was positive, caring, encouraging, team approach. Both students really enjoyed the session. Session two went very well, improvements in balancing and ladder.”

“Both students found the activity difficult. Student A found it difficult to remain on task, however improved Session 2.”
“These two sessions went really well. Student A is holding his own always steady, cooperative and tries. Student B has made great progress and has really gained strength and confidence. It’s great to watch.”

“Students were much improved from the last time this activity was performed.”

“Found this difficult – definite progression from start re core, balance.”

“Both showing much more balance.”

“Student B is showing good core strength development compared to start of programme. Both enjoyed going back to earlier activities and seeing how they had improved.”

“Day 4 much easier for them! First session is always harder.”

“Yes – students becoming more competent at the activities and more willing to listen and participate. Less messing amongst them. This makes things easier for me to explain to students when they are focused.”

“Students finding extensions easier, good improvement in control.”

“Student B found the exercises harder. He is quite tall however he did complete the activities with a lot of encouragement from myself and the OT. He has grown in confidence because he has performed really well in some exercises and we can build on this. I am thrilled with the positive effect this programme has on Student B. Fantastic, clever, flexible programme that will certainly help students experience success and therefore open doors for them to experience more.”

In addition to assessing their students’ progress, the teachers were asked to record for each session students’ engagement or willingness to participate in the activities. The data were analysed to determine the mean rating for each of the sessions. Table 5 presents both the number of students for whom ratings were taken and the mean score for each of the 20 sessions.

Table 5: Student Participation (1=very willing to participate, 5=not willing to participate)

<table>
<thead>
<tr>
<th>Session</th>
<th>Number of Students</th>
<th>Participation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>33</td>
<td>2.4</td>
</tr>
<tr>
<td>2</td>
<td>34</td>
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<td>1.8</td>
</tr>
<tr>
<td>20</td>
<td>21</td>
<td>1.9</td>
</tr>
</tbody>
</table>
Across the 20 sessions, teachers felt that their students’ participation or willingness to do the activities was good and in some sessions very good. In half of the cases, the students’ participation improved from introductory to practice/reinforcement sessions. Again, as with the progress rating, there was a slight reduction in participation in Sessions 19 and 20. Nevertheless, across the 20 sessions, these were amongst the highest participation ratings.

The overall positive participation of the cohort of students was reiterated in many of the comments made by the teachers throughout their fidelity checklists. They reported that while many of the students found the activities challenging, they did persevere and expressed their enjoyment of Movement Matters. For example:

“Really lovely to see students laughing, smiling and enjoying a programme that benefits them so much. The student enjoyed using the language associated with Movement Matters and they got very familiar with the four areas very fast.”

“Students wanted to make sure they “get” their session in and approached me yesterday.”

“Boys are really enjoying exercises and it’s not difficult to get them to engage.”

“Yes, students are engaging really well, they are used to the programme.”

“I was pleased with session, boys were calm. Student B was better, had been challenging the last two sessions. He is beginning to come around again. Gave boys breakfast after session and spoke about the programme – both say they are enjoying it.”
“Absolutely - great resources – I am using a small space but as time goes on I am using my space more efficiently. The students are also getting into a good routine/using the language/taking out and putting away the equipment, etc. Students have a great sense of ownership over the programme. It really is great.”

“Students enjoyed both sessions and returned to classes in a good place.”

One of the aims of this feasibility study was to measure whether participation in Movement Matters had a calming effect on the students. The analysis of the data comprised working with each data set individually (i.e. pre and post ratings from students, pre and post ratings from Movement Matters teachers and then pre and post ratings from the students’ subject teachers). A measure of central tendency was conducted in each of the 20 sessions. The mean scores for each session are presented in Table 6.

Table 6: Perceptions of Calmness (1=Very Hyper, 2=Hyper, 3=Ok, 4=Chilled Out, 5=Very Chilled Out)

<table>
<thead>
<tr>
<th>Session</th>
<th>Student Pre</th>
<th>Student Post</th>
<th>MM Teacher Pre</th>
<th>MM Teacher Post</th>
<th>Subject Teacher Pre</th>
<th>Subject Teacher Post</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2.5</td>
<td>3.7</td>
<td>2.3</td>
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</table>
Subsequently a paired-samples t-test for statistical significance was conducted on each of the data sets. In all cases there was a significant difference in calmness once the students had completed their Movement Matters activities.

<table>
<thead>
<tr>
<th>Students</th>
<th>Pre (M=2.3667, SD=.20423)</th>
<th>(M= 3.4115, SD=.23922)</th>
<th>t(19)= 26.635</th>
<th>p = .000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Movement Matters Teachers</td>
<td>Pre (M= 2.3885, SD=.17239)</td>
<td>(M= 3.3560, SD=.25521)</td>
<td>t(19)= 19.867</td>
<td>p = .000</td>
</tr>
<tr>
<td>Subject Teachers</td>
<td>Pre (M= 2.2690, SD=.23215)</td>
<td>(M= 2.9555, SD=.22612)</td>
<td>t(19) = 14.518</td>
<td>p = .000</td>
</tr>
</tbody>
</table>

Comments made by teachers in their fidelity checklists support these findings. While in some cases teachers identified a need to work with their students on understanding calmness, many remarked how over the course of the programme students became more adept at recognising their levels of calmness.

“How chilled out (calm) do I feel? Both students found this very difficult to answer. A piece of work needs to be done with them around this. Students have a very poor understanding of “hyper”. Student B does not think he is ever this!”
“Students becoming better at reading their own calmness.”

“The students are very familiar now with the card that grade their level of calmness. They will nearly tell me without being asked. Great routine.”

“Yes. The effect that this programme has had on Student 2, in my opinion, has been excellent. He is a very challenging student and has a lot of OT difficulties. This opinion has been backed by members of our Care Team who have reported that he seems calmer and physically more able to stay seated in class. It must be mentioned also that this student has himself requested to continue with this programme as he is aware that it helps him to stay focused in class.”

“The last few sessions were most enjoyable for both me and the students. Student A has a lot of boxing training behind him and so he performed well in nearly all the activities. The programme has helped him to calm down when stressed. He was most cooperative and engaged really well, he was helpful towards the other student, patient and encouraging towards him.”

“From the students’ feedback it was clear to me that the students recognised the calming effect the programme had on them. The programme naturally encourages positive feedback that gives students a great sense of pride and achievement when doing the movements. A great self esteem builder.”

Section 2: Student Survey

Thirty-two of the students who completed Movement Matters submitted surveys on-line. The majority (87.5%, N=28) were male students with only four (12.5%) female students completing the survey. Of those who responded to Question 2 (“Did you enjoy Movement Matters”) all of the students indicated that they did and nearly all (96.6%) stated that they liked doing it every day. This would confirm their teachers’ ratings of their participation or willingness to engage with the programme across the 20 sessions (Table 5). When asked if they would recommend Movement Matters to their friends, again 96.6% respondents reported that they would (one respondent stated that they were “not sure”, no students indicated that they would not recommend the programme to other students).

The survey was comprised of both closed and open-ended questions. Students were invited to comment about what parts (if any), they liked about Movement Matters. Responses in the main reflected different activities and/or equipment (for example, the “ball” and the “ladder” feature frequently in the responses). The following is a selection of the students’ replies:

- Popcorn exercises, prone extension, rainbow pass, supline flexion.
- All of them were grand using the ball prone position.
- The ball especially the bowling.
- Doing the popcorn excercises. The balancing on ball work.
- It is like getting extra PE. I liked the ladders.
- Getting out of class, all the exercises but some were hard. The big ball the games.
- The magnet rainbow pass, balancing on the ball and doing things. All the ladder things
- Liked it all.

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8 Some punctuation, spellings and grammar have been changed in the students’ comments to assist readability.
• Connect 4, bowling, ladder work.
• Stuff for building up the core, press ups, the ladder stuff.
• Playing the games on the yoga ball, the ladder.
• I liked all the exercises, prone extension. I liked the transformer. The eckky shuffle. I WAS THE BEST AT THAT.
• I really liked the games and some of the exercises. I liked getting a break from school work and getting a chance to chat about school.

Additionally, the students were asked to describe any parts of Movement Matters (if any) that they didn't like. Of the twenty-three students who answered this question, nearly a third (30.4%, N=7) indicated that there were no parts of Movement Matters that they didn’t like (one student wrote “none. I liked all the things”). The other respondents identified specific activities. Some went on to explain why they didn’t like a particular activity. These responses referred to finding an activity difficult physically to do. Students’ responses included the following:

- Liked everything.
- The popcorn and rainbow pass because it was hard on the belly.
- The ladder, all parts.
- The ladder.
- The warm up exercises, I just don’t like them.
- Doing the rainbow pass because it was very difficult and hard on the core.
- When you had to plank.
- I didn't like the ladder ones.
- Some of the sitting up ones
- When you had to do the plank lifting one arm and one leg…it was hard.
- Don’t no becase all them were good, maybe the part picking up the letters with your stock and passing the cones from the table.
- Ladder but got better at it.
- At the beginning I didn't like the hand exercises on the ladder. I didn't like the plank.
- Egg rolls.
- I didn't like some of the exercises because they made me sore. The exercises with your arms.

One of the objectives in conducting the feasibility study was to gain suggestions about the ways in which the programme as originally devised could be improved. This information was collected from teachers in their fidelity checklists and during the on-site visits by NBSS personnel during the programme’s implementation. The NBSS Movement Matters team thought it was vital to gain suggestions as well from the individuals who received the programme. So in the survey, the students were asked if they could suggest ways in which NBSS could improve Movement Matters. Of the 26 students who responded to this question, nearly half (46.2%, N=12) said “No” or indicated they could not suggest ways to improve it because they thought all parts of the programme were good. One student wrote “No it's very good. I liked when we started getting the sandwich after”. Another students replied “no because its great the way it is (all activities excellent) However i would like to continue doing it”. Students’ suggestions for ways to improve the programme included the following:

- Do it for longer.
- I would prefer more on the ball.
• Use the ball more.
• Longer.
• No exercising at the start. cause you would be sore after it.
• Longer sessions.
• Do it with your mates.
• Do more.
• Add more stuff.
• Add more levels more warm ups. Different one stretching our legs and passing the soccer ball high and low for arms.
• Outside when the weather is fine
• should be made into a double class for everyone
• Make it longer so you don’t have to rush as much.

As described in the Methodology section, the students self-rated their levels of calmness pre and post session across the 20 sessions of Movement Matters. On the survey, they were asked additionally whether they felt that Movement Matters had helped them feel calmer in their other lessons. Table 7 presents a frequency analysis of their responses.

Table 7: Did you find that Movement Matters helped you feel calmer in your other lessons?

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>All lessons</td>
<td>8</td>
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<tr>
<td>Most lessons</td>
<td>13</td>
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<td>Some lessons</td>
<td>7</td>
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<td>A few lessons</td>
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<td>No lessons</td>
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<td><strong>Total</strong></td>
<td><strong>30</strong></td>
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Figure 7: Did you find that Movement Matters helped you feel calmer in your other lessons?

Nearly three quarters (70.0%, N=21) of the students who responded indicated that they felt that doing Movement Matters had helped them to feel calmer in all or most of their other lessons. Over a
quarter (26.7%, N=8) stated they felt calmer in all of their lessons. The findings of the survey support the calmness self-rating that the students did during the 20 sessions of Movement Matters and suggests that the majority were able to carry that calmness through to their subsequent mainstream lessons.

The NBSS was interested in finding out whether any of the students applied aspects of Movement Matters in their lives outside school, therefore reinforcing and developing the skills they were learning in the classroom. Table 8 presents a frequency analysis of these data.

Table 8: Are you using some of the Movement Matters activities outside of school?

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Percentage</th>
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<tr>
<td>Yes</td>
<td>12</td>
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<tr>
<td>No</td>
<td>15</td>
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<tr>
<td>Not Sure</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>28</td>
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</table>

The findings are fairly even, with just slightly over half of the respondents stating that they did not use any of the activities outside of school. While only one respondent stated that they were “not sure”, it may be that some individuals who selected “no” may have interpreted the question in a literal sense (meaning having the Movement Matters equipment, etc.) rather than practising some of the skills outside the classroom. Alternatively, those who selected “no” may see it solely in terms of being a school based programme only.

As the final question in the survey, the students were given five categories of positive behaviour for learning skills. These included:

- Your learning in the classroom
- Your behaviour in the classroom
- Getting along with other students
• Getting along with teachers
• Other

The students were asked to pick any of these areas that they felt Movement Matters had helped them with. The question indicated that they did not have to restrict their response to just one area. Additionally a comment box was provided under each area and respondents were invited to describe in what way(s) the programme had helped them in that particular area. Twenty-seven students responded to this question.

Twenty-one students (77.8%) reported that they felt Movement Matters had helped them with their learning in the classroom. Many of their responses to describe how it had helped them in this area referred to being calmer. The following illustrate the types of responses submitted:

• Yes was not fidgeting as much in class.
• I’m a bit more calm in the classroom.
• Yes, was calmer when I went back.
• It calmed me down.
• It calmed me down more.
• Sometimes I feel good from doing it.
• I focus on my work.
• Calm me down, I was quite.
• I got out of class. Keeps you calm.
• Yes, I have been listening.
• Yes. Didn’t get into trouble after doing it.
• Yes because I was very chilled going back to class.
• Yes a bit. It makes you focus more when you go back in.

Nearly all of the students (92.6%, N=25) indicated that Movement Matters had helped them with their behaviour in the classroom. Again, many of the responses referred to the way Movement Matters had calmed them down and so their behaviour in lessons had improved with the implication that they were better able to learn skills and subject content during mainstream classes.

• It improved.
• Easier to behave as I was calm.
• Good, listen more.
• Helped me calm down.
• It’s a bit more improved.
• I can sit still in class more.
• Yes I was chilled out.
• Yes kind of, it was just easier to relax in class.
• It calmed me down.
• Better at staying in my chair in class.
• Feel better after.
• Quieter.
• Stop listen and think, got all 1s some days ⁹

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⁹ i.e. student receiving a top mark on his behaviour target sheet or its equivalent.
• Didn’t get into much trouble.
• Yes, I don’t go on a mad one.
• I was good after doing it.
• Was better
• Most days it was good.
• Sometimes because it gives you a break from class. I behave better when I go back.

Sixteen (59.3%) of the students indicated that Movement Matters had helped them get along better with other students. While they selected this area, many of the students found it difficult to articulate in what ways it had helped. A number of them merely responded “Yes” and a few stated that they always did get along with other students. The following is a selection of other responses:

• Yes kind of.
• I did, people didn’t annoy me as much in class.
• Yes but I get on with them anyways.
• Yes didn’t let them bother me.
• Yes, cause I was just more calm and if they annoyed me I just ignored them.
• I always did.
• Got on well with (other student) doing it.
• I have not been suspended in 8 weeks.
• Don’t know.

Over two-thirds of the students (66.7%, N=18) thought that Movement Matters had helped them to get along better with teachers in their school. As with the previous area, some students had difficulty explaining in what way(s) it had helped. The following are some of the responses for this part of the question.

• Yes, kind of.
• Was able to concentrate more on what they are saying.
• Yes, I did my best.
• Yes, cause I was chillaxed and able to listen.
• Getting less behaviour notes for messing in class.
• Some of them, I’m doing my work.
• Yes, I started to get all 1s.
• Got on better with teachers.
• Getting on well, not sent to office.
• Yes, I was in a better mood after doing a few exercises and I want to carry on doing it.
• A bit because teachers let me out to do my exercises.

A third of the students selected the “Other” area. In terms of describing how Movement Matters had helped them in other ways, the following offer a selection of the students’ responses.

• It helps me keep calm.
• I got on well in the gym during my mocks.
• Got on better at home. I told them all about it.
• It made me come to school even when I was really sick.
Section 3: Case Studies

The follow section provides two qualitative case studies (School A and School B) based on interviews held with two Movement Matters teachers\(^\text{10}\) at the end of May 2014. Both schools, located in the Dublin region, have been NBSS partner schools since 2007. The schools are co-educational and operate under the DEIS scheme. The schools generally have similar student populations (in the academic year 2012/2013 395 students were enrolled in School A, 424 in School B).

School A:
The Movement Matters teacher in School A has worked as a Behaviour Support Classroom teacher since 2007. A fully qualified and experienced teacher of Physical Education (PE), Alice has participated in implementing a range of NBSS programmes and interventions over the years. She received Movement Matters training in the Autumn of 2013 and ran the programme with a number of students throughout the year. The following is an account of the main themes that emerged from an interview conducted in May 2014.

In her experience of Movement Matters, the timing of the programme has been of key importance. Despite the NBSS request to run the programme in between two mainstream lessons (in order to collect pre and post calmness measures from subject teachers), Alice decided to implement the programme at the start of the school day. Her decision was based on a number of factors. She spoke about how having Movement Matters first thing in the morning motivated her students to come to school. Alice also thought that because the programme ensures that students experience success that taking part in Movement Matters at the start of the day would provide students with positive support to handle their subsequent mainstream lessons

“…the first in the morning just settled them and it gave them time to do that…and they were ready and they loved coming in, they loved coming into school because they knew that they had the movement first.”

“…if you can start their day off with a sense of success and where they can talk about things. And they would be coming in on a Monday after having a weekend where they might have been engaging in all kinds of things and so they would come into you and say I am wrecked and so you would be getting up their levels of confidence.”

“And so a lot of the students would come in in the morning and be like we don’t want to be here and so on …it is kind of all negative and they are going in with that, you know. So if you can get them within the first three periods it is how they will start their day and that is the key.”

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\(^{10}\) To ensure anonymity, the interviewees have been given the following pseudonyms – Alice and James.
Referring to one student particularly, Alice described the effectiveness of starting him first thing in the morning with Movement Matters in this way:

“Because we have one student and he had been expelled from another school and he came up here to us and he doesn’t survive anywhere else but on the movement. He has ADHD...he can’t sit, he can’t manage, he is getting into a lot of trouble and on some days you wouldn’t know what humour he would be in ...I would start him with this...it would give him some sense of achievement.”

Throughout the interview Alice emphasised this aspect of the programme i.e. the immediate achievement gained by the students. She identified this element of Movement Matters in contrast to other programmes as follows:

“I have some students who are very, very weak academically, their reading would be way off the spectrum, not measurable. So every day they came in here, every day they don’t achieve a level of success in classes...but starting with the Movement they could achieve a level of success...So it started their day off...it just made a complete difference to them. That was something that came out of it...they could really see their success. There are other programmes, there are lots of programmes that you have but this is instant success...and it is real success in their lives. It is ‘Yes, I can run through the ladder’ or ‘Yes, I can do the Connect’. It is instant success as opposed to ‘Yeah, okay I read to the end of that or something’ and that is just another day and you had the teacher telling you, the teacher helping you to do it, but this was something that they did on their own. And they got that success on their own. So they were good at something.”

Alice explained how the effects of the programme for her students were multi-faceted. While she felt that the stated aim of the programme was to help students settle in their mainstream classes, that Movement Matters also had additional benefits in terms of raising the young people’s awareness of their bodies and physical fitness. She gave examples of how some students, because they had experienced success in the activities went on subsequently to get involved in extra-curricular and in-school sports.

The cognitive element of the programme was also highlighted during the interview. Alice spoke about how her students had engaged with the theoretical basis of the programme in this way:

“And they know the words you know. And they look at the words. And they like telling people about it, about prone extension. And you know you have your receptors ...they go in and tell the principal about it. So it is this learning little bits, you know. It gives them some sense you know.”

Alice went on to describe how other teachers had heard about the programme and demonstrated an interest in learning more about Movement Matters. When asked whether her teaching colleagues had noticed any changes in the students from doing Movement Matters, Alice replied:

“They thought it was great. They said you know why hasn’t somebody thought of this before... They said that the students changed, they seemed happier ...now I am not going to say that they went in and remained quiet for the whole lesson, but they went in and engaged in a more positive way than they would have engaged previously.”
School B:
Similar to Alice, James has had extensive experience working as a NBSS Behaviour for Learning teacher in his school. James received Movement Matters training in the Spring Term but at the time of the interview, had implemented the programme with several students. Like Alice, he had a very positive experience teaching Movement Matters and was interested in extending it beyond NBSS Level 3 support. Having worked as a Behaviour for Learning teacher, James has implemented a range of interventions and programmes with his students. He noticed that with some of his students, Movement Matters had produced greater effects than previous interventions.

“...from a behavioural point of view found it fantastic as in one of the students I was working with ...I have worked with him for two years now and I have done various different interventions , Crucial Skills...and while we had some success with him the success we had with him when we did this was unbelievable. The difference in the child...the way he reacted in class, how he was able to settle and it wasn’t just the fact that he was coming in and he liked doing it...it definitely made a difference. Teachers were coming back and saying to me how he was more focused, that he was actually getting involved, that he wasn’t just being quiet for the sake of just getting the mark to be able to come back in, he was engaging more with it, with the lessons even when he had the class after the Movement Matters or before, that would usually be a class that he would get in trouble in, he was engaging in class, he was answering questions, he was doing the bit of homework, he was interacting with the other kids...so from that point of view it really, really made a difference.”

James continued to discuss the effect (which he described as “phenomenal”) that Movement Matters had had on this particular student. He said that many of the boy’s teachers commented to James that the “difference was unbelievable”. Additionally, the programme seemed to have made a difference in the student’s life outside of school.

“And his dad was very impressed with what was going on because the lad was just coming home and going on about this Movement Matters. And it was very unusual for him to be coming home and talking about school at all because all he wants to do is put his skates on and disappear if you know what I mean...but apparently what his dad was saying was that he was very big into it. Calmer even at home. You know, not as hyper. Not as ...how would I put it? He is not like disruptive, or aggressive or anything...he is just that bit...that bit hyper, that bit bouncing around the place. And his dad said that he was constantly on about it, loved it, made a difference to his homework and all, that he wants to do his homework I guess because of doing this Movement Matters.”

In thinking about the effect of Movement Matters on his students generally, James made the point that it was very obvious that the programme had had a noticeable calming effect as well as developing the students’ self-regulation skills. He stated that during the intervention

“...when they were going out you could see the difference. You could see the calmness. And especially those individuals and when we went to the teachers in the classes before and afterwards and they are saying yes, great, fantastic...they could see the difference.”
Like Alice, James found that his students were very motivated to do the programme. He holds a similar view that because students experience visible success in each session, they enjoy a sense of achievement which then impacts on their behaviour for learning.

“I was giving him different target sheets every day and he was getting excellents, excellents, excellents while he was in the programme...which is unheard of. Crying out for it. I mean that’s all he wants to do...getting out the ladder and the system, doing the bilateral movement, this type of thing and you are explaining how it works and yeah, they got it and they could see the successes. I think that is the biggest point. That they could see their successes...very quickly.”

James, like Alice, talked about the cognitive element of the programme and the ways in which his students engaged with the theoretical aspect of the programme. He found that teaching them the theory through the actual practice of the activities served to embed and reinforce the information, in essence active learning.

“They really learned it a lot more when they were actually doing the exercises...They were concentrating on bilateral movement and you are going through why they are doing it, as you said, the cognitive end of it and then they could relate that back to you. Whereas sitting down with these same lads and going through a piece of work, you might have to go through the same thing ten times...even when they were at the start or you were doing a new piece and they were trying to get used to it...they still, even though they were learning and trying to work out their feet and their hands or whatever else, while they were doing this they were still able to listen and still be able to bring back why they were doing it...It was really incredible how they managed to do that. Like they were kind of thinking about the whole physical aspect of what they were doing but they were still listening to you and taking in that information...It really made a difference to them”
Movement Matters was designed with the aim of helping students to improve their behaviour for learning skills by developing their sensory integration abilities. Additionally however, each of the short sessions were devised in such a way that students could achieve success independently. The data collected for this feasibility study, both from the Movement Matters teachers and the students who participated in the programme, provide clear evidence that students did experience success. In their fidelity checklists teachers were asked to rate students’ progress in performing the activities for each session. Across the student cohort, in all but two of the “double sessions”, teachers reported that students had made progress from the introductory session to the practice/reinforcement session. On occasion, some teachers made note of the fact that a student may have found a particular activity challenging, but were able to succeed in others. Students were able to build upon the success they had to tackle activities that they found more difficult.

The success students experienced was reflected as well in their enjoyment of Movement Matter. All of the students who completed the student survey said that they enjoyed the programme with almost all (96.6%) indicating that they liked doing it every day. Equally, the students’ enjoyment of the programme was evidenced in the data provided by the teachers both in their comments as well as in their measure of participation rates (i.e. across all 20 sessions students were reported to be willing or very willing to participate in the activities). These findings were given additional weight by the reflections of the two teachers in the case study school. Their comments confirm that Movement Matters was an enjoyable experience for the students in which they achieved success.

Attendance was another variable that Movement Matters teachers recorded. Research (Byrne & Smyth, 2010; Casoli-Rearden, Rappaport, Kulik, & Reinfeld, 2012; Dube & Orpinas, 2009; DuPaul, Weyandt, & Janusis, 2011; Esch et al., 2014; Hayling, Cook, Gresham, State, & Kern, 2007; Kearney, 2008; Kim & Page, 2013; Reid, 2012; Wood et al., 2012) draws an association between school absenteeism and behavioural disorders. Wood et al. (2012) state that:

“The most common disorders and mental health syndromes linked with absenteeism are disruptive behaviour disorders (and high levels of conduct problems) and depressive and anxiety disorders (and high levels of internalizing symptoms)” (p. 352).
Reid (2012, p.212) ascribes chronic truancy to individuals’ low self-esteem and academic self-concept. DuPaul, Weyandt and Janusis (2011, p.36) argue that school absenteeism and the risk of early school leaving (“dropout”) is markedly higher for students with ADHD.

Over the course of the year, the majority of Movement Matters teachers reported that both students attended each session. However, in just over a fifth of the cases, teachers reported that only one student attended. As in their mainstream classes, students’ absence from school impacted not only on their own continuity and progress in Movement Matters but in some cases affected the experience for their peers. Nevertheless, teachers commented that their students looked forward to doing the sessions. Explaining her decision to run Movement Matters first thing in the morning, Alice said that many of her students came in to school just so they could do the programme.

One of the variables this study set out to measure was whether Movement Matters had a “calming” effect on students. The design of each session requires a “Warm Up” at the beginning” and a “Cool Down” period at the close. The process of self-rating their degree of calmness both before and after a session afforded students with the opportunity to recognise their own stress levels and work towards regulating these. Following the “Cool Down” period, some teachers introduced effective follow-up strategies. For example, Alice introduced a Mindfulness exercise at the end of each session and said that her students very much looked forward to that part of a session before they returned to mainstream class. Other teachers wrote that they provided a sandwich or snack at the end. It was clear from the data that according to mainstream teachers, Movement Matters teachers and the students themselves, there was a significant improvement in students’ stress levels after completing a session. This finding is supported by the data from the student survey in which 70.0% of the students reported that Movement Matters had helped them feel calmer in all or most of their other lessons. Additionally the majority of students indicated that the programme had helped them with their learning and behaviour in their mainstream classrooms as well as in their relationships with both their peers and subject teachers.

Children and young people with SEBD can have difficulty forming positive relationships with adults (teachers) and/or peers. Literature on the importance of teacher-student relationships, particularly for SEBD students, has demonstrated that establishing a supportive relationship can have positive implications for students’ academic achievement, motivation, school completion, mental health, social and emotional growth as well as behaviour for learning (Cefai, 2013; Couture, 2013; Macleod, 2013; Mihalas, Morse, Allsopp, & McHatton, 2009; Muller, 2001). In some cases, students with SEBD have few or no suitable caring adult relationships. Equally, during the period of early adolescence the overriding need is to create identity, a sense of self (Erikson, 1969). One of the developmental tasks necessary to do so is becoming less dependent on parents (Havighurst, 1952). Mihalas et al. (2009)
propose that it is during this time that teachers’ influence (such as modelling positive school and lifetime behaviours) becomes even more important. From their analysis of the literature on supportive teacher-student relationships, the authors emphasise how critical this is for SEBD students, stating:

“Overall, students are willing to engage in successful school behaviors and even strive towards high levels of achievement when there is a level of trust, respect, and communication (i.e. an established relationship between student and teacher). Indeed the level of emotional support in a classroom is enhanced when teachers take the time to communicate to students that they care about their well-being. Malecki and Demaray (2003) examined the types of support from teachers that most strongly related to students’ social, behavioral, and academic outcomes. Student perceptions of emotional support provided by teachers were found to be the greatest predictor of students’ social skills and academic competence among the types of support examined (e.g. emotional, informational, appraisal, and instrumental)” (p. 111).

NBSS Level 3 work is grounded in the belief that relationship building is key to better outcomes for students who require intensive individual support. Movement Matters is just one of many programmes and supports that NBSS behaviour teachers provide for their students. Their work with students is based on developing their supportive relationships in which students feel they are safe and have a teacher they feel they can trust. In his interview, James spoke about the number of students who had asked if they could do Movement Matters. However, he also commented on the overall work that is done in his classroom in this way:

“This is the class that you can just come down to and get on… the amount of kids who ask me ‘when are you taking me on?’, ‘how do I get into that… do I have to hit someone?’ So there is a kind of… I think it is seen as a kind of safe environment, as such…”

The findings from this study indicate that Movement Matters has similarly provided teachers with an opportunity to further develop their supportive relationships with the students. In their fidelity checklists, teachers wrote that not only did the students enjoy the activities in the sessions but also that they liked the opportunities the sessions provided for them to “have a chat” with the Movement Matters teacher about their lives in and outside of school.

In terms of the fidelity of implementation, the majority of the Movement Matters teachers (90.5%) felt they had achieved the objectives of each session and that there had been sufficient time to complete each session as designed (91.7%). In some cases, working alongside the NBSS Movement Matters team, small adaptations were made to some activities without affecting its purpose or benefit in order that students could achieve success. Additionally, the authors of the programme were eager to use this pilot to gain feedback. As a result, after the first wave of the project, the authors took on board the teachers’ experiences and suggestions and subsequently replaced several activities with new ones in time for the second wave of the study. Hence, from the quantitative and qualitative data provided by the teachers, it can be inferred that after some slight adjustments, teachers with
sufficient training and continuing support were able to deliver Movement Matters in a classroom setting as it is designed.

From a research point of view, there are limitations to the study as shown in the presentation of the findings. Teachers’ completion of the fidelity checklists was not consistent. Elements of the checklists in some cases were left blank and so could not be included in the analysis e.g. with regard to attendance, the quantitative finding that just over a fifth of the students did not attend all sessions may not present a fair view. However teachers in some schools did indicate that students were absent from sessions and described how this impacted on the delivery and effectiveness of the programme. This perhaps is a more important finding, i.e. the need for students to have consistency in their intervention for optimal benefit.

Similarly, the introduction in the Second Wave of data collection of asking mainstream teachers to rate students’ stress levels pre and post Movement Matters Sessions proved difficult for some Movement Matters teachers to implement. Thus, in some schools data collection was incomplete in this area meaning that it was difficult to ascertain effect size. Again, this was a deficiency in the research design in that because of the timetabling constraints in schools, NBSS behaviour teachers can encounter difficulty gathering data from their mainstream colleagues. Nevertheless, the findings from the Movement Matters teachers and the students’ self-reports indicate that there was a significant change in their stress or “hyper” levels having completed a Movement Matters session.

**Conclusion**

The findings from this feasibility study suggest that Movement Matters is an effective intervention for young people who experience difficulties staying on-task in the classroom. The “calming” effect of the programme was indicated as significant through the quantitative findings and in the comments from both the students and their teachers. Students reported that they were calmer after taking part in Movement Matters and subsequently felt that they were better able to attend to their mainstream lessons. The study also has shown that engagement in the programme has contributed to students’ social and emotional literacy skills. Working with another student during the sessions engendered mutual support. Equally, in Case Study School B, students gained skills in communicating with others through explaining the programme to other students. A critical element of the programme is developing and teaching students about their vestibular and proprioceptive senses. The teachers’ fidelity checklists reported that students engaged well with the activities and made consistent progress in their skills. The qualitative data indicate that many students had integrated the theoretical element of the programme, demonstrating ease and fluency with both the skills and terminology.
From the perspective of mental health and well-being skills, the findings show that many students benefitted in terms of their holistic well-being (O’Brien, 2008) by participating in Movement Matters.

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References


APPENDIX

Case Studies

School A:
For several years, Alice and her colleague in the Behaviour Support Classroom have been working with their students on Mindfulness. She decided to incorporate the Mindfulness exercises they had developed as part of the “Cooling Down” element of Movement Matters. She explained it in this way:

“We had worked on mindfulness and we knew about that…but this was a new concept where you could incorporate the mindfulness bit at the end and I would say that one thing with it if it could tag on to…you know at the end you have the cool down phase, if there was an actual tag on …if you actually had a taught cool down session…I actually thought that the kids loved the mindfulness bit of it... They would lie down and watch the clouds go by if it was a nice day and they loved that. They would say ‘How much longer until we get to that?’ And you know I think that the programme could be developed further to include an actual mindfulness part attached to it. You know with the sessions.”

During the interview, Alice also spoke of how she had used the programme with students who would not necessarily be categorised as those in need of Level 3 support. She described the effect of Movement Matters on one of her students who suffers from an Obsessive Compulsive Disorder. The girl was described as at risk of not leaving her home and not attending school. She is in receipt of support from CAMHS and has a Special Needs Assistant (SNA) when she is in school. The girl would be extremely introverted and suffers incapacitating anxiety regularly. Her SNA mentioned to Alice that the girl enjoys movement and so the idea of offering Movement Matters to the student arose.

“So she came in, she worked through it, she loves it, it made a difference to her whole day. I could actually see the way it had changed the way she could communicate with me...we did it for a long time...we started it in February. She is more settled in class. Her mother rang me and she said to her mom over the weekend (she would never leave her house) ‘I think we should go out of the house and go for a walk to get some exercise’, so her mother bought her one of the balls two weeks ago because she wants it to roll on with her...she loves it because it is something that she can be good at doing. Because she is kind of gymnastic. She is quite flexible so you can say ‘That is fantastic...nobody else can get that done’. Her mother has reported that the psychologist in Mater CAMHS has said that she has seen an improvement in her. The only thing she talks about in school is the Movement Matters. It changes with people with OCD. She has maintained...she has stayed with it since February so this is the longest thing that she has stayed in . Her attendance has improved. Her SNA has said that she is more relaxed. She is coming to school for it. She is definitely...she is outside that room waiting for me. Yes, she comes specifically into school for this. She comes into school knowing that this is her time. And she worked really well with the other girl as well. And her mother was asking me you know can you give me some exercises so that we can do it as well at home. It has made a difference to her. I would look at her at the end and she didn’t look stressed, she looked okay.”

Alice said that the process of identifying levels of calmness as part of the programme, has additionally helped the student to articulate to others (for example to her SNA) when she is feeling stressful, rather than internalise these feelings as was her custom. The use of the chart, designed for the research project, has provided this student with a method to communicate her levels of stress in an easy, unthreatening manner.

As well as benefitting the students, Alice felt that professionally she had gained from involvement in the pilot. Having worked as a behaviour support teacher for a number of years, it was only through teaching Movement Matters that she realised how physical activity could play a very useful role in...
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She explained how her experience delivering Movement Matters had led to her colleague and herself developing a movement programme for their students.

“And if I was to go on about the things that came from it I would say that as a teacher once you are given something for a teacher it starts to open your mind as well…you start thinking why wasn’t I doing something with movement before in school and as a PE teacher as well why didn’t I think that these kids could come up here and…I mean even the Why Try, they love the Why Try…or even the literacy or the numeracy and all those other programmes that are wonderful, that are here, the FRIENDS and all that right…without actually incorporating a very intensive movement programme. So then outside that came three classes on a Wednesday when we would take them down to the local park and we did bowls and there were lots of things that went on in that. We joined up with the Active Living Group, the old age pensioners, and there were two kids down there and they taught them how to play it. So it brought on their social skills and then it just started to awaken in our heads that this is what is needed here…and so the actual introduction of the movement programme has I suppose kind of branched out into many different ways and has gotten us to think differently about the need for it.”

As she referred to her teaching specialism, Alice was asked whether she thought teachers who were not trained in PE would be able to deliver Movement Matters. While allowing that some teacher might lack confidence she replied

“No, it is open for anyone. It shouldn’t put anyone off...it is like dummy-proof really. I mean you have got your Session 1, Session 2…but it is just about having the confidence, even the warm up you know. Just having the confidence to be able to do that. If you are not that way inclined you just need that little bit more encouragement. That’s all. Because it is you know dummy-proof. You have it so well done.”

School B:

He continued by describing the work he had done with two students in particular. He explained how the programme helped these two individuals learn to regulate their own behaviour in this way:

“Very, very lively lads. You know if they started a bit of messing or inappropriate behaviour it could very easily escalate and they would be kicking things around the room. However, when they were in this, they...you know when it would start to escalate they would throw bean bags at each other and you would say ‘alright lads, will you settle down’, and they would, they would de-escalate themselves, which was phenomenal for those two individuals. Usually that is kind of a 5 or 10 minute process where you have to kind of go and talk them down but this really helped them do it themselves...And yet, they did engage in this, that was the success of it. That when they were getting lively here, they were able to pull back, and you know when a teacher told them to calm down, they would, whereas before it was a lot harder for them to do that. So it was very successful...that is all I can say about it...it was very successful.”

In addition to finding that the students enjoyed and were motivated to undertake the range of Movement Matters activities, he also found that students had a sense of ownership of the programme. This was shown by the initiative some of them took in engaging with the programme. Describing the typically competitive, antagonistic relationship between two of the students, James commented:

“As I said they were kind of competitive and the environment they exist in...that is how it works. If you see a bit of a weakness you jump on it. You have a go at him and he will have a go at you back. It’s all chest puffing, this sort of thing. Young fella stuff. But not so much in this. I mean a small bit of the old what you call it but I came in one day and these two lads it

11 Over the years, Alice has been trained and supported by the NBSS in delivering interventions such as Why Try, FRIENDS for Life and a number of literacy and numeracy programmes.
could have been a nightmare because there had been a bit of a serious incident and we had to go and sort something out and I came in and the two lads were playing the Connect 4 in the prone position. Now they weren’t just playing the Connect 4, they were on the balls in the prone position. I was incredibly impressed you know. And hear, I thought the place was on fire because I couldn’t hear a thing, you know. And this was before we even started. They just took the stuff out, got things set up and started working away at this, you know. And it was great. I mean having enough for them to do. You know we would go through the drills four or five times and then it was ‘give us another one, sir. Let’s try another one. What is the next one, what is the next one? Can we do the one with the hands?’”

Over the course of the interview, James described the impact of Movement Matters in the students’ social skills development. This was primarily in terms of students supporting each other during the sessions. Additionally, in his implementation of the programme, James encouraged his Movement Matters students to explain the programme to other students receiving behavioural support. Speaking specifically about two students, he commented on their progress in this way:

“And the support...how they helped each other. That was the thing...how they helped each other. You know instead of what they would usually be doing, swearing at each other...no, they would go ‘your foot has to go here and then there’...that support, that help was just...Not the usual ...usually I would have to calm them, you know, ‘what is the appropriate thing to do here?’ But they take the initiative when they know what is happening and give that support, give that help. That you know is the big plus. And like I was saying, some of the kids that I would have in here (nb. James is referring to other students with whom he works in the behaviour support classroom), they would be the older versions of these lads (nb. Movement Matters students) and they are going out into the community and how you interact with them. And they would be here explaining it in a very calm, manner...communicating properly, not trying to impress this lad, oh this is just...no, engaging in the way you would around the yard...no, they just wouldn’t. Not throwing shapes. But trying to get them involved, engaged in it, explaining it to the others. That was really the big plus, because they are lads that don’t do that.

You know they have a certain way of working in the world...I mean they are nice lads, don’t get me wrong...and you give them the little cues and they will...they want to act appropriately. But because of things that have happened, their families, their circumstances...they have learned ways of behaving and it’s safer to act in certain way for them because it doesn’t lead to them getting hurt or doesn’t lead to them putting their faith in someone and having it taken away again. No but here it is different, different, different.”
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