Alternative Classroom and Teaching Strategies and Techniques That Support Boys with Attention Deficit Hyperactivity Disorder (ADHD): An Exploratory Study

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Disclaimer

This is to certify that all work contained in this thesis is my own unless otherwise cited. This thesis has not been previously submitted in whole or part requirements towards a degree at this or any other university.

Signed K Reid Date 6.12.09.

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ABSTRACT

Boys are diagnosed five times more frequently than girls with Attention Deficit (ADHD). Further, teachers are finding it hard to cope with boys with ADHD due to a lack of understanding about ADHD symptoms and boys' personalities. Frequently medication has become the first option in addressing these issues. This research study examined current practices used for boys with behaviour problems as well as trialling a number of alternative approaches such as music therapy, aromatherapy, yoga, building and construction, gardening and computer generated learning. During the implementation phase, teachers were closely observed and then participated in an in-depth interview with the researcher.

Through this exploratory study the data has revealed behavioural improvements as a result of the varying strategies and has demonstrated that alternate strategies may be a better option than medication for these boys with behavioural problems, including ADHD.

TABLE OF CONTENTS

Disclaimer 2

Acknowledgements 3

ABSTRACT 4

TABLE OF CONTENTS 5

LIST OF TABLES 7

Chapter 1 ~ INTRODUCTION 8
The Problem Underlying the Study: 8
The Aims of the Study 9
Significance of the study 9
Research Questions 9
Overview of the study 10

Chapter 2 ~ LITERATURE REVIEW 11
Introduction 11
Children with ADHD in the classroom 12
Teachers misdiagnosing boys with ADHD 15
Medication 16
Gender and Learning 19
Mixed Gender Education 21
Developing a classroom environment for boys with ADHD 22
Use of reinforcement 24
Resolving conflict 25
Using physical activity to calm boys with ADHD 26
Stress reduction 27
Aromatherapy 27
Music therapy 28
Meditation and Yoga techniques 29
Building and constructing activities 30
Boys and technology 31
Behaviour Management and the use of choice 32
A diet designed for children with ADHD 33
Conclusion 35

Chapter 3 ~ RESEARCH DESIGN AND METHOD 37
Overview of the Research Design 37
Setting of the Study 37
Recruitment of Participants 38
Research Method 39
Phase one – the implementation and feedback 39
Phase Two- Observations: 40
Phase Three - Semi-structured interview: 41

CHAPTER 4 ~ RESULTS 42

Phase 1. Implementation and Booklet Feedback 42
Participants in the Study 42
Feedback on building and constructing (1st Strategy) 43
Feedback on behaviour management (2nd Strategy) 44
Feedback on gardening (3rd Strategy) 46
Feedback on Indoor and Outdoor body experiences (4th Strategy) 47
Feedback on computer enhanced learning (5th Strategy) 49
Summary and Evaluation of Strategies 50
Phase 2.-The Observations 51
Phase 3.-The Questionnaire Interview 60
Issue one- Managing boys' behaviour 60
Issue two- Exploring differences between girls and boys 61
Issue three- Catering for ADHD symptoms 62
Issue four- Difficulties in managing boys with ADHD 62

CHAPTER 5 ~ DISCUSSION 64

CHAPTER 6 ~ CONCLUSION 68

REFERENCES 71

APPENDIX A – THE BOOKLET TEACHERS RECEIVED 78

APPENDIX B – INTERVIEW QUESTIONS 86

LIST OF TABLES

Table 4.1 Teachers' findings for the building and construction strategy 44

Table 4.2 Teachers' findings for the behaviour management strategy. 45

Table 4.3 Teachers' findings for the gardening strategy 47

Table 4.4 Teachers' findings for the indoor and outdoor body experiences strategies.....48

Table 4.5 Teachers' findings for the computer generated learning strategy.....49

Table 4.6 Teachers' findings for the separated learning strategy.....50

Table 4.7 Participant 1 – Observations 53

Table 4.8 Participant 2 – Observations.....55

Table 4.9 Participant 3 – Observations.....56

Table 4.10 Participant 4 – Observations.....57

Table 4.11 Participant 5 – Observations.....59

Chapter 1 ~ INTRODUCTION

Trying to teach a restless, inattentive child is never easy; however, a better understanding of ADHD will make the teaching and learning experience less overwhelming and unfamiliar for teachers.

ADHD is one of the most common behavioural disorders among children. Currently it has been estimated that boys are diagnosed with ADHD five times more frequently than girls. Teachers need to be held accountable for their professional performance; however, many teachers do not have the thorough knowledge about boys with ADHD that is needed.

The Problem Underlying the Study:

Efron (2008, p. 1) defines Attention Deficit Hyperactive Disorder (ADHD) as the display of inattentive, hyperactive or impulsive behaviours that are more frequent and severe than those typically observed in other children of the same age. Teachers must demonstrate knowledge and understanding of the symptoms of ADHD in order for them to achieve positive educational outcomes. While teachers need to be held accountable for their professional performance, many do not have the thorough knowledge about boys with ADHD that is needed (Cooney, 2008, p. 170). This study explores ways in which teachers can manage symptoms of ADHD, using a number of different strategies which would appeal to boys and specifically address their ADHD symptoms.

The Aims of the Study

The aim of this study was to investigate current teaching practices and techniques, as well as strategies used to influence classroom dynamics that are being used in primary school classrooms with boys with behavioural problems, including ADHD. A number of additional alternative strategies were also trialled that have been described in the literature as useful for boys and helpful in the management of their behaviour problems. The aim was for the teachers involved in the project to implement and critically analyse these additional strategies regarding their effectiveness in supporting the boys with behavioural difficulties. In addition, the teachers were able to make comparisons with their current practices.

Significance of the study

This study has the capacity to raise awareness amongst the participants and other readers, of the issue of misdiagnosis for boys with challenging behaviours.

Further, it demonstrates the successful implementation of a number of alternate strategies for managing boys with behaviour problems, including ADHD. The frequent and ever-increasing use of medication to manage these behavioural issues is noted, and alternatives are presented.

Research Questions

1. What particular teaching strategies, techniques or programs have teachers implemented in their classrooms that were specifically aimed at boys to manage their behaviour, including ADHD?
2. Which strategies or techniques do these teachers believe to be the most effective for boys with behaviour problems, including ADHD?

3. What strategies do teachers use to create a supportive classroom atmosphere for boys with behaviour problems including ADHD?
4. Which of the strategies that teachers use to create a supportive classroom atmosphere for boys with behaviour problems including ADHD, do they feel are the most effective?

5a. Do the teachers believe there would be benefits for boys with behaviour problems (including ADHD) in a single-sex classroom?

5b. If the answer to question 'a' is in the affirmative, how do they believe the teaching strategies and dynamics would change from their existing co-ed classroom?

Overview of the study

Chapter one, the introduction, outlines the problem underlying the study, the aims of the study, the significance of the study and the research questions. Chapter two, the literature review, includes information on managing ADHD in the classroom as well outlining alternative strategies for working with boys with problem behaviours (including ADHD) in the classroom. Chapter three, the research design and method, describes the overview of the research design, sets the scene, addresses the recruitment of participants and outlines the research method. In chapter four, the results - phase 1 - the implementation and booklet are described. In phase 2 - the observations are described followed by phase 3 - the semi-structured interviews. Chapter five contains the discussion where the results are compared, contrasted and linked to the literature. The conclusion is provided in Chapter six.

Chapter 2 ~ LITERATURE REVIEW

Introduction

Attention Deficit Hyperactivity Disorder (ADHD) has been variously described as: A neuro-developmental disorder characterized by impulsivity, distractibility, and hyperactivity that manifests in early childhood (Sadiq, 2007, p. 632); or: the display of inattentive, hyperactive or impulsive behaviour observed more frequently and severely than is typically observed in other children of the same age (Efron, Sciberras, & Hassell, 2008, p. 1); or, a combination of symptoms including difficulty keeping attention, losing things, apparently not listening, not paying attention to details, seemingly disorganized, having trouble with tasks that require planning ahead, forgetting things and being easily distracted (Kelly, 2009, p. 1).

The child with ADHD who is hyperactive/impulsive will, according to Kelly (2009, p. 1) have at least six of the following symptoms: fidgety, runs or climbs inappropriately, interrupts people, can't stay in their seat, talks too much, is always on the go and has trouble waiting his or her turn.

Baskin (2003, p. 1) identifies children with ADHD as having difficulty regulating the amount of attention needed in different situations. The child may have all of these problems and have a normal or in some cases a high IQ, yet still fail at school (Duff, 2005, p. 1).

ADHD has been described by numerous specialists and associations as a Behaviour Disorder affecting both life style and learning ability. We know it exists, but don't always want to acknowledge it and we really don't fully understand it.

Everad (2004, p.5) has revealed that ADHD is one of the most common behavioural disorders among children. Currently it is estimated that boys are diagnosed with ADHD five times more frequently than girls (Shulman, 2009, para 1) and this is because boys display a higher activity level (National Centre of Educational Statistics, 2008, p. 1). Other reasons include genetic findings. According to Cilag (2008, p.1) boys have more differentiating genes which means it is easier for many learning disabilities and conditions to affect them. Messages relating to emotion, behaviour, thinking and attention are generated by two specific neurotransmitters, noradrenalin and dopamine (Cilag, 2008). Coghlan (2009) found that ADHD is characterized by a shortage of dopamine and that using MRI scans showed that boys with ADHD had less activity than usual in the frontal lobe, the basal ganglia and the cerebellum, all areas of the brain known to be crucial for time perception.

Additionally, research shows that ADHD is more common in children who have close relatives with the disorder and that there is also an ADHD link with smoking and other substance abuse during pregnancy (Kelly 2009, p. 1).

Children with ADHD in the classroom

Teachers need to accept that the child with ADHD will have challenging behaviours, which for most of the time the child cannot control. Thompson (2000, p. 202) recommends that boys with ADHD need four things: understanding, structure, clear guidelines in the classroom and support. West (2001, p. 6) also agrees that structure is the most important strategy in order for students to understand expectations and limitations. Boys will usually respond best in structured and predictable environments with clearly defined rules and regulations (Houghton 2004, p. 18).

Some schools have responded to these findings and have altered their teaching styles and classroom structures, for example, breaking lessons into sections and incorporating breaks for the boys (National Centre for Education Statistics, 2008, p. 1).

Houghton (2004, p. 18) recommends the teacher should include a combination of educational structure and support in managing ADHD behaviour. Additionally Myers (2009, p. 2) believes that if a child has difficulty following a plan, the teacher should assist in setting long-range goals and breaking the goals into realistic parts. If a child with ADHD has poor time management (sitting and starting) use of a time limit, a timer, use of lists, calendars, charts, pictures and finished products in the classroom will assist (Myers, 2009a, p. 2).

While helping the child avoid boredom, Myers (2009a) believes that the teacher should also help the child avoid stressful situations. These situations can be averted by having a time-out location, which should be a place to calm down rather than as a punishment (Myers, 2009a, p. 1).

Children with ADHD might be helped by the following suggestions: pause and create suspense by looking around before asking questions, ask a simple question to a child whose attention is wandering, develop a private running joke between yourself and the child that can be invoked to re-involve you with the child, stand close to an inattentive child, walk around the classroom as the lesson is progressing and tap the place in the child's book that is currently being read or discussed, structure in some guided daydreaming time and use a soft voice when giving direction (Myers, 2009, p. 1)

Some children with ADHD have difficulty staying on track with tasks. Myers (2009, p. 1) recommends trying to provide as much positive attention and recognition as possible, play attention and listening games, remove un-needed stimulation in the classroom, establish a cue between teacher and child and get into a habit of pausing 10 to 16 seconds before answering. A team effort with parents, teachers and doctors working together, is the best way to help a child with ADHD in the classroom (Kelly, 2009, p. 2). According to Burnside Family Work program (2000, p. 6) children with ADHD can be very creative and spontaneous, have lots of energy, possess a range of interests, be very affectionate and can also be an asset if understood properly in the classroom.

For the child with ADHD, success at school varies greatly from year to year. Green (1994, p. 72) believes that the choice of teacher is important in making each year successful; children with ADHD need a teacher who is organised, insightful, predictable and encouraging. While Bailey (2009, p. 173) recommends that boys with ADHD should be taught by a teacher who understands their learning styles in an inclusive classroom and provides the same curriculum as for other students.

Boys with ADHD need to know they are appreciated and accepted in the classroom but at the same time Green (1994, p. 73) believes that teachers must be firmly in charge, meaning rules and routines are clearly understood by students and teacher authority is respected. Children with ADHD might appear rowdy and un-disciplined or even bored reflecting a glazed look on their face while their teacher's words drift over their heads, but they are actually trying to cope with a faulty perception of time (Coghlan, 2009, p. 1). Additionally Coghlan (2009, p. 1) believes that some children with ADHD find even short stretches of time unbearable. Green (1994, p. 74)

recommends plenty of active participation in order to make learning worthwhile for children with ADHD.

Children with ADHD have characteristics that will affect the classroom environment; Gurian (2002) believes that teachers who deal better with a disorderly or noisy atmosphere tend to connect better with the boys in their classroom. Physical changes to the classroom can be made such as the use of more visual aids and an increased use of videos, movies and other multimedia (Gurian, 2002).

However research is revealing that schools have insufficient resources to support children with ADHD and teachers have inadequate understanding and training in the area of ADHD (Efron, 2008, p. 1). Therefore schools are frequently not meeting the needs of boys with ADHD, as teachers do not have adequate knowledge, understanding or strategies for dealing with these students (Cooney, 2008, p. 171). A recent Australian study conducted by Efron (2008, p. 189) revealed that teachers have provided inaccurate and inappropriate advice to parents of children with ADHD.

Teachers misdiagnosing boys with ADHD

One reason for teachers' misdiagnosing ADHD may be that teachers do not have the thorough knowledge about boys with ADHD that is needed (Cooney, 2008, p. 170; Irvine 2004, p.185). Haber (2003, p. 1) recommends that teachers be aware of conditions that can cause ADHD-like symptoms. These symptoms may include: hearing impairment, learning difficulties, gifted children who might be bored at school, Tourette syndrome, Autism, seizures and sleep deprivation.

It is surprising to find that an emerging number of boys are being referred to health professionals for assessment of disruptive behaviour by their teachers. Rowe (2006, p. 1) and Sciutto, Nolfi & Bluhm (2004, p. 247) have found that teachers are more likely to refer boys than girls to health professionals for ADHD diagnosing. It has been estimated that nearly two thirds of those diagnosed with ADHD have probably been mistakenly diagnosed due to the initial misunderstandings of teachers (Gurian 2002, p. 37; Quinn, 2004, p. 1).

Misdiagnosing is a major problem (Gurian, 2002; Haber, 2003); nevertheless, research is continuing to find that ADHD is very much a real condition (Irvine, 2004).

Haber (2003, p. 1) recommends that observation of children and assessing their behaviours regularly and carefully may avoid misdiagnosing children, and in particular, boys with ADHD.

Medication

"Boys are diagnosed with attention problems at far higher rates than girls and put on medication in record numbers" (Tyre, 2008, p. 69). For over half a century stimulant medications, such as Ritalin, Concerta, Adderall XR or Dexedrine have been the most effective treatments in treating children with ADHD (Kane, 2009, p. 1).

According to Nahman (2008, p. 1) all amphetamines (amphetamine, dexamphetamine and methylphenidate) have essentially the same chemical properties. Ritalin was the first ADHD product to use the chemical methylphenidate as its active ingredient. Concerta is an extended release product and is one of many ADHD drugs that contain methylphenidate as its active ingredient. Concerta

differentiates itself from other methylphenidate pills by a special time release technology. Adderall and Adderall XR are pills that contain amphetamine and dexamphetamine (Nahman, 2008, p. 1).

According to Shulman (2009, p. 5) approximately 90 percent of the boys diagnosed with ADHD are treated with Ritalin. Ritalin helps children focus attention, shut out distractions and allows impulsive children to think before they act (Viadero, 2001, p. 10). Ritalin is the drug that many boys with ADHD are prescribed in order to calm ADHD symptoms. According to Viadero (2001, p. 10) Ritalin can help even the most hyperactive children calm down by reducing restlessness and fidgeting. It can also help children control their emotions more effectively, improve school work, assist relationships with family and friends and also increase a child's self-esteem.

All ADHD medications such as Concerta, Ritalin and Adderall have a stimulant effect on the nervous system that increases the amount of certain chemicals in the body that people with ADHD are lacking (Nahman, 1999-2009, p. 1).

"Medication allows many children with ADHD to spend a near-normal day at school" (Duff, 2005, p. 7). This normal day at school involves the combination of behavioural and educational strategies and in addition, Ritalin, which results in successful management of ADHD symptoms (Efron 2008, p.188).

Pritchard (1996) reports that Adderall XR is a widely used drug for ADHD, moreover, Adderall was removed from the market in Canada in 2005 after 20 sudden deaths and 12 strokes were linked to the drug. Kane (2009) found that the adverse reactions were not associated with overdose, misuse or abuse of Adderall XR. Amphetamines contain a warning, and may cause sudden death and serious cardiovascular adverse events (Multum, 2009, p. 1).

Additionally Concerta has been linked to 186 deaths between the years 1990 and 2000 globally (Kane, 2009). Concerta and Ritalin are both amphetamines, which have many properties similar to the drug cocaine (Colson, 2008, p. 199). Amphetamines release adrenaline and stress hormones, increase heart rate and blood pressure and redirect blood flow into the muscles and away from the gut. The feelings that are created by these amphetamines are a similar feeling to that felt by a cocaine addict (Pritchard, 1996). Amphetamine, as with cocaine, can induce symptoms similar to those seen in obsessive disorders, panic disorders and phobic disorders (Multum, 2009, p. 1).

Kern (2009) has found that children prescribed Concerta or Ritalin will develop a dependency for the drug, building an increased tolerance for it and requiring a continually higher dose. According to Multum (2009) the tablets that are prescribed for ADHD are occasionally used by speed users for their stimulant properties. Kern (2009, p. 1) believes that when children are taken off Concerta or Ritalin, they will also have withdrawal symptoms similar to those felt by Speed addicts such as sleep problems, mood swings, paranoia, depression and anxiety.

Other possible side effects of this medication may include: nervousness, seizures, muscle cramps, tics, Tourette syndrome, changes in blood pressure and heart rate, extreme tiredness and minor retardation of growth during prolonged use of Ritalin (Cohen, 2003, p. 1). However rare, MIMS (2009, p. 1) outlines adverse reactions that may include; immune system disorders, eye disorders and suicide or suicide ideation.

Most startling is the research found by Colson (2008, p. 200) which reveals that while Ritalin was previously thought to have only short-term effects , it actually has

been found to make changes to the brain structure and function that remain long after the effects have disappeared. Additionally Dextroamphetamine is a chemical that makes up 72% of the drug Adderall; this chemical has been found to cause withdrawal effects such as fatigue, agitation and psychosis (Pritchard, 1996).

Ritalin, Concerta and Adderall XR are the first recommendation of many teachers in a hasty approach to manage the behaviour of boys with ADHD. However, Edelman (2009, p.1) believes that drugs should be the last choice for problem solving, rather than the first.

Alternative strategies should perhaps be considered before recommending medication. Strategies that are known to help children perform better in school include teaching styles to accommodate children's personalities, including those of boys, their behavioural characteristics and learning styles (Duff, 2005, p. 7).

According to Edelman (2009, p. 1) an understanding of the gender differences in girls and boys can help in developing alternative approaches to dealing with boys with ADHD.

Gender and Learning

The most recent 'crisis' to be described in education by some researchers, including Henderson (2007, p. 1), is the identification of a widespread decline in the academic performance of boys. Research has found that boys crave movement and tend to move around more than girls (Anonymous, 2005, p.5). Similarly Gaub and Miranda (1997, p. 1) found that girls with ADHD displayed greater intellectual impairment and lower levels of hyperactivity than boys with ADHD.

When considering gender and learning, many educators believe that single sex education is valuable for obtaining good educational outcomes as well as improving classroom behaviour. Kommer (2006, p. 6) found that boys and girls do learn differently, therefore different strategies and teaching techniques need to be adapted to accommodate these gender differences. Single sex classrooms promote beneficial positive behaviour change and improvement in academic achievement in boys (Hoffman, 2008, p. 4).

Rosenblatt (2006, p. 1) believes that students with different genders need to be taught differently because males' and females' brains are different. "Measurable differences are apparent from just a few months after birth, when social influence is still small" (Sabbatini, 1997, p. 1). Males' and females' brains have been found to differ in processing language, information, emotions and cognition (Sabbatini, 1997, p. 1). Some of the most obvious differences appear in the way males and females estimate time, judge speed of things and visualize objects in three dimensions. Females have been found to be better at recognising emotional overtones, artistic expressiveness, verbal language and emotional expressiveness than males (Sabbatini, 1997, p. 1). Therefore better learning outcomes will be obtained if teaching techniques and strategies are matched to the individual and gender specific needs of boys and girls.

Boys do in fact display more externalising behaviours, including ADHD symptoms, than do girls. These symptoms are usually obvious to the classroom teacher and for that reason identification may therefore make development of the classroom simpler (Abikoff et al., 2002, p. 2).

Hoffman (2008, p. 4) researched the effectiveness of single-sex classrooms. The study revealed that girls reported that they preferred single sex learning academically as there were fewer disruptions and they could concentrate on their work better. Boys' responses however, varied. Although some boys felt that they received more encouragement and appreciation for their work, others reported enjoying single sex classes for reasons unrelated to learning. "*They like being able to talk about sport and sexist topics*" (Hoffman, 2008, p. 2). It is not clear whether these differences are based on actually observable behaviours or if they are actually based on gender specific biases and expectations (Abikoff et al., 2002, p. 2).

Hoffman's (2008, p. 2) research findings revealed that single-sex instruction classes did promote behaviour changes for boys. However, gender stereotyping in schools was found to be a major concern. "*Teachers should not think of things as being gender typical or not gender typical"* (Gurian, 2002, p. 2).

Mixed Gender Education

Stereotypical behaviours such as: males' aggressiveness, strength, and competitiveness can be eliminated by avoiding single sex classrooms, according to Imms (2000, p. 1) who found that the presence of females' compliance, nurturance, and co-cooperativeness helped mediate boys' impulsive behaviour.

Sax (2006, p. 7) believes that there are no differences in what girls and boys learn but there are big differences in the way they are taught. Research has found that the issue is not only about changing the way boys react and learn but also changing the

way teachers use teaching strategies and create appropriate classroom dynamics, but this does not mean separating students (Gurian, 2002, pp. 2-3).

Du Paul (2006, p. 1) investigated gender differences in academic, social, emotional and behavioural functioning and initially thought there might be important differences between boys and girls. However results revealed relatively few gender differences.

Edelman (2009, p. 1) believes that teachers need to simply develop effective teaching strategies for the boys with ADHD symptoms in regular classrooms.

Developing a classroom environment for boys with ADHD

Promoting engagement through interesting activities relevant to the boys with ADHD is suggested by Budden (2009, p. 6) to improve concentration and engage them in learning. Budden (2009. p. 3) recommends using a warm and demanding approach for these boys and that by using this technique, structure will be developed in the classroom. However Childs (2008, p. 2) believes that the "firm but kind" approach only works effectively with boys with ADHD when the firm side of the approach is upheld and constant.

Behavioural techniques have also proved to be very effective in treating ADD/ADHD (Irvine, 2004, p. 185). According to Green (2001, pp. 114) strategies such as sensible seating can have beneficial effects on children with ADHD. He found that boys with ADHD benefit from being seated front and centre, surrounded with good role models, away from windows and doors and at their own individual desk instead of a table. Teachers should use trial-and-error to find the least distracting location in the classroom for boys with ADHD (Andries, 2006, p. 1).

Teachers are often the first to recognise and recommend assessment for children in their class, and therefore it is the responsibility of the teacher to implement classroom strategies and techniques that support the student with ADHD (Vereb 2004, p. 2). However, according to Cunningham (2002, p. 2) an understanding of the severity of the behaviour problem and the extent of ADHD that has been diagnosed is important in designing programs that effectively target boys at risk of school failure.

Using immediate feedback on behaviour, time out strategies and small group instruction lessons have obtained meaningful improvement in the behaviour of children with ADHD (Fabiano 2003, pp. 2-3). Classroom strategies should also include: the use of visuals to support instructions where possible, teaching the boys how to break their work into sections, monitoring their work frequently and colour coding timetables and books (Houghton, 2004, pp. 16-18). These suggested activities have been found to benefit children, especially boys with ADHD, academically, socially and behaviourally.

When applying activities it is important to consider the rewards that will be used. Children with ADHD often feel frustrated by things they find difficult. According to Houghton (2004, pp. 16-18) simple effective steps that will benefit boys with ADHD in the classroom include: making sure the child with ADHD is looking at you before you start talking, giving short clear instructions, minimizing situations that make the child stressed, having consistent classroom routines, establishing simple rules, praising the child for appropriate behaviour and finally responding quickly to behaviour.

Use of reinforcement

Fabiano (2003, p. 3) trialled a teaching strategy with a boy with ADHD where a daily behaviour sheet was recorded, showing the boy's behaviour and classroom-rule achievements. According to Fabiano (2003, p. 3) the teacher reported that although a reward of baseball cards was offered for achievement on the behaviour sheet this did not motivate the student with ADHD. In relation to these results, it may be that this young boy was not interested in baseball cards. Basaglia (2002, p. 1) recommends that when applying activities it is important to consider the reward that will be used. For reinforcement to be beneficial it must be perceived by the student as good and desirable (Edwards, & Watts, 2004, p. 51). Additionally, Houghton (2004, p. 18) also agrees that boys' behaviour can be controlled through reinforcements, and again, these reinforcements must be appealing to the boys and relate to their interests.

Another useful strategy for boys with behaviour problems is teaching them how to self monitor their behaviour. West (2001, p. 2) believes that boys can be taught to use simple strategies such as looking for instructions on the board, raising their hand, waiting and seeing if they remember or quietly asking another child to help them monitor their behaviour.

King and Gartrell (2008, p. 15) also believe that using conflict mediation allows teachers to resolve a problem through a focused discussion where students learn life skills including how to resolve disputes using words, so that the classroom becomes a more peaceful place. Rabiner (2008, p. 1) has found that boys with ADHD tend to base their behavioural choices on what has been most recently successful. Rabiner

(2009, p. 1) believes that students, especially boys with ADHD, realise their behaviour is successful when they have been rewarded for it.

Resolving conflict

Boys, especially those with ADHD, are more impulsive, therefore are more likely to act out their emotions in order to resolve conflict (King & Gartrell, 2008, p.16). Children, in particular boys with ADHD, will show symptoms of inattention, hyperactivity and impulsivity making it harder for them to solve conflict problems in an acceptable way (Loe, 2007, p. 1).

Paige (2004, p. 15) recommends that small problem solving discussion groups and peer mediation can positively impact the behaviour of students with ADHD. Paige (2004, p. 15) suggests that children should be trained in order to manage disputes involving classmates in order to peer mediate.

King and Gartrell (2008, p. 15) have developed a five step problem solving solution that allows students to negotiate a solution and overcome conflict. These steps are used in conjunction with teacher and student and are as follows:

1. Cool down all students involved (including yourself)
2. Reach an agreement about what the problem is
3. Brain storm possible solutions
4. Try the most agreeable solution
5. Monitor and follow up.

Using physical activity to calm boys with ADHD

Given that fidgeting is one of the symptoms of ADHD, children with ADHD need to move around as exercise may reduce this overactivity (Loe, 2007, p. 9). Physical activity is important to children with ADHD because they crave movement and need time to use their excess hyperactivity. Loe (2007, p. 9) believes that physical activity is helpful for children with ADHD as it has been shown to reduce disruptive behaviour inside the classroom. Similarly, King and Gartrell (2008, p. 2) consider the outdoors as a vital teaching tool for boys' behaviour development. Furthermore Gurian (2002, p.47) found that movement for boys seemed to help boys not only in the stimulation of their brains but also in the management of their behaviour. Incorporating exercise activities into the daily classroom schedule is believed to be an appropriate way of enabling boys with ADHD to control their movements (Mulrine, 2005, p. 1).

Frequent movement activities are considered to increase the likelihood of the child with ADHD experiencing school success (Mulrine, 2005, p. 2). West (2001, p. 3) also believes that boys will sometimes need more active learning. This may include learning by means of debates, role plays and investigations.

Martin (2003, p. 256) found that in order for schools to become more "boy friendly", they need to start relating learning to the boys' own life experiences and recommends offering opportunities for boys to apply what they have learned physically. In order to modify the classroom, King and Gartrell (2008, p. 2) recommend creating indoor and outdoor body experiences, experiments, building and constructing activities and dramatic play. These activities help boys with their concentration and attention.

By incorporating movement activities into the classroom boys begin to manage their excessive, impulsive behaviour. However, Mulrine (2005, p. 2) has also found that boys, especially those with a behaviour problem including ADHD, find regulating their attention difficult and as a result may need teachers to adopt a different pedagogic style including more physical activity.

Stress reduction

Physical fitness and movement have been found to improve concentration and motivate learning. Additionally some research has identified that other strategies, including the use of aromatherapy, music therapy and yoga increase concentration and relaxation.

Aromatherapy

Smells can influence our moods and levels of anxiety and aromatherapy suggests that mental alertness, calmness and relaxation can be achieved (Jensen, 2000, p. 66). Essential oils are a branch of herbal medicine. According to Berne (2002, p. 119) essential oils are effective because they easily penetrate through the skin and are effective in treating the adrenal glands. They also help detoxify and they have a positive effect on the immune system and emotions. Berne (2002, p. 119) has studied the effects of aromatherapy on brain waves, with results showing that oils such as orange, jasmine, and rose enhance calmness and tranquillity in the brain. Furthermore some essential oils such as lavender and rosemary have neuro-stimulating properties that help people relax (Sadiq, 2007, p. 6). Children with ADHD

do not always understand why they are acting out certain behaviours and so Jefferies (2003, p. 64) recommends an important lifestyle change such as the use of aromatherapy to help create a calm, positive environment. One of the most effective essential oils is Vetiver, which is known for its grounding effects and helps to relax a scattered mind of a child with ADHD (Jefferies, 2003, p. 64). Cochrane (2001, p. 4) also believes that essential oils can calm over-excited children because they contain chemicals which are mildly sedative.

Music therapy

Children with an emotional disturbance and/or behaviour disorder are believed to benefit from the stress reduction technique of music therapy (McIntyre, 2007, p. 3). Additionally Weston (2008, p. 1) believes that aromatherapy and soft music should be used in schools to help with behavioural problems. By simply playing music in the background on low volume students find it easier to relax and improve their learning. Jensen (2000, p. 68) also believes that appropriate music can help create a positive learning environment that may improve the behaviour of students (Jensen, 2000, p. 60).

Research by Madewell (2009, p. 1) found that by playing music, such as classical, students with ADHD become attentive and relaxed. Paige (2004, p. 18) also recommends that playing different types of music can encourage appropriate behaviour in boys with ADHD.

Meditation and Yoga techniques

Stress is a symptom of many children with ADHD; stress can have a negative impact upon health, development and wellbeing of children. Thomas (2002, p. 2) recommends that relaxation exercises such as Thai Chi can help in managing appropriate behaviour. According to Myers (2009, p. 1) combining simple relaxation techniques such as deep breathing with positive visual imagery helps boys with ADHD improve or learn new skills. Tomasko (2006) found that yoga helps reduce symptoms such as restlessness associated with ADHD by increasing concentration and relaxation and that yoga especially benefits boys with ADHD by allowing boys to hold their attention in the classroom. Regular practice of yoga benefits focus, improves self-esteem and academic performance of children with ADHD; yoga effectively stabilises emotions and reduces disruptive behaviour in boys with ADHD (Tomasko, 2006, p. 1).

Yoga is a mind, body and spirit practice, including physical exercises, breathing techniques, relaxation, meditation and mindfulness. Cheesbrough (2006) believes that regular yoga practice can improve children's behaviour and school work. "Hyperactive and disruptive children will grow calmer, particularly through the practice of breathing techniques" (Cheesbrough, 2006, p. 29).

Interestingly, Sadiq (2007, p. 7) has found that yoga not only benefits children with ADHD, it also helps asthma sufferers, reduces stress (symptoms commonly associated with ADHD), and assists in managing pain and depression.

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Building and constructing activities

Using body activities and hands-on lessons, boys with ADHD can learn to control their impulsivity and begin to concentrate more (King & Gartrell, 2008, p. 9). King and Gartrell (2008) suggest the use of: block building, wood working and in addition having materials for students to experiment with. Building activities such as; Duplos and Lego's may be used to calm impulsive behaviour. 'These changes were enjoyed both by the girls and the boys in the classroom but in particular worked best in calming impulsive behaviour in boys with ADHD' (King & Gartrell, 2008).

According to Wilson (2006, p. 1) classroom activities should be varied regularly because children with ADHD have a short attention span; hands-on and building and creating activities motivate children with ADHD, especially the boys. Further, using game-like activities to increase motivation tends to overcome some of the symptoms of ADHD (Hallowell, 2008, p. 5). Game-like activities can motivate learning such as developing different play themes, in which students can build models and use them to learn facts. Lessons may also be planned around topics such as: camping, gardening and restaurant themes (King & Gartrell, 2008, p. 9).

Watkins (2008, p. 625) recommends having boys with ADHD working on tasks in a collaborative learning group with a partner who has been previously trained on the task, as this improves boys' planning strategies and efficiency in activities. Including more interesting tasks and changing the sequence of the work will also help in increasing positive behaviour in the classroom, especially among the boys with ADHD (McGuinness, 2008, p. 28).

Building and constructing activities such as gardening have been shown to benefit boys with ADHD. According to Byrne (2009, p. 1) gardening improves symptoms of

ADHD by promoting team work; boys work together in planning and developing the garden bed and boys develop care, respect and responsibility which motivates their learning in the classroom.

Mitchell (2008, p. 2) found that ADHD hampers the processing of long-duration information, while leaving the short-duration system largely intact. Mitchell (2008) believes that school activities are strengthening the wrong memory system. Teachers should be developing programs to help boys with ADHD deal with the long-duration tasks. Building and constructing are activities that help in developing the long-duration system.

Tasks such as building puzzles, activities that require building, memory and concentration would be useful tasks in this context (Mitchell, 2008, p. 3). These activities not only develop memory but they also assist in supporting and developing concentration in boys with ADHD. Gutshall (2000, p. 1) recommends that project-based classrooms are beneficial for boys with ADHD because they allow students to choose from a variety of activities such as: oral presentation, art projects and creative drama.

Boys and technology

In making lessons as 'real' as possible Browne (2001) recommends that teachers should link both communication and technology skills. This is extremely important, given the changing nature of high school curriculum and employment (Browne 2001, p. 10).

Using audiovisual materials such as presenting lessons on overhead projectors, white boards or power point presentations allows students to work on the problem at their desks while the teacher uses the screen to help motivate learning (Paige, 2004, p. 5). Boys with behaviour problems including ADHD will commonly favour computer related learning as it makes instruction more visual, allows them to participate actively and increases academic opportunities (West, 2001, p. 11). "Technology is a great vehicle for boys with ADHD in learning at school" (Browne, 2001, p. 40).

Information Technology benefits boys in terms of learning outcomes, motivation and self-esteem and that the use of computers allows self-paced learning to take place which is beneficial for boys (Martin, 2002, p. 70). "The integration of ICT has the potential to assist students experiencing difficulty academically" (Martin, 2002, p. 71). Boys with ADHD will be assisted academically when teachers apply "boy orientation topics for programs of work such as: technology and enterprise challenges. This may include designing tasks such as; designing badges (Browne, 2001, p. 50).

Behaviour Management and the use of choice

Giving boys choices in their classroom activities is important according to Loe (2007). Choice making, peer tutoring and computer aided instruction are strategies that will support boys' appropriate behaviour (Loe 2007, p.8). Additionally William Gasser's Choice Theory is an appropriate behaviour management approach as it allows students to stop and evaluate their behaviour. The theory outlines that five points should be implemented, including: developing goals, establishing classroom rules, allowing students to make classroom and learning suggestions, achieving

commitment from students and implementing consequences (Edwards & Watts, 2004, p. 134).

Wilson (2006, p. 1) also agrees with Gasser's theory and recommends giving boys with ADHD more than one choice in activities. There is no easy solution for the management of ADHD but asking a child with ADHD what will help them, increases teachers' understanding of how they like to learn (Hallowell, 2008, p. 2). "It is amazing how often their opinions are ignored or not asked" (Hallowell, 2008, p. 2).

Teachers need to make time to listen to the opinions of boys with ADHD and also need to recognize when it is appropriate to give these students choice about work (Cowan, 2008, p. 18). Cowan (2008) believes that boys with ADHD can become overwhelmed with the work load of school, therefore these boys may benefit from the choice of several different activities to ease this pressure.

Boys with ADHD also need to have activities that relate to their real life. They need to see the relevance for the activities. Cowan (2008, p. 11) recommends that making a copy of the daily time table, visible enough for the entire class to view, and also providing students with an outline of the lesson taught, will benefit learning for boys with ADHD.

A diet designed for children with ADHD

Children eat a completely different diet to their grandparents, including an increase of processed carbohydrates, sugars and trans-fatty acids that may have resulted in an epidemic of behavioural and learning disorders in children (Embersits, 2007, p. 10)

According to Cormier (2007, p. 2) dietary interventions have become generally common in primary care settings with many parents inquiring about options for their child with ADHD. "Children with ADD and ADHD are lacking key nutrients and when these nutrients are not present in the body, cognitive function and behaviour is adversely affected" (Embersits, 2007, p. 12).

Children with ADHD have one or more nutritional imbalances (Colson, 2008). According to Colson (2008, p. 193) hyperactive children eat more sugar than other children and their bodies are less able to handle the intake of sugar and maintain a balanced blood sugar level. Colson (2008, p. 196) also has found that 89% of children with ADHD react to food colourings, 72% to flavourings, 60% to MSG, 45% to all synthetic additives, 50% to cow's milk, 60% to chocolate and 40% to oranges. Overall children with ADHD are seven times more likely to have food allergies than other children. Embersits (2007, p. 10) has also found that 60% of ADHD disorders are diet and gut dysfunction related.

According to Embersits (2007, p. 10) Dietary change is a significant approach in improving ADHD symptoms. Foods such as wheat protein and casein, a milk protein, have been found undigested in those with ADHD. These foods act like opiates on the brain, and eliminating them from the diet has helped many children lead a more normal life.

The right nutrients have been found to improve concentration, co-ordination and balance. Dosani (2008) has found promising results in using omega-3 fatty acids for improvement in behaviour for children with ADHD. Omega-3 fatty acids have been proven to alleviate symptoms of some children with ADHD (Dosani, 2008, p. 81). Sadiq (2007, p. 4) found that there is a link between the gastrointestinal system (GI)

and behaviour. A study that examined children with ADHD whose diet was changed from 'junk foods' to a more nutrient-dense diet, revealed improvement in school performance and behaviour (Sadiq, 2007, p. 4).

Zinc and Magnesium are the most common nutrient deficiencies in people with ADHD. Children with ADHD are recommended to eat foods that contain magnesium, including; tuna, halibut, dried figs, bananas and artichokes, buckwheat flour, prune juice, almonds, baked beans and black beans, pumpkin seeds, canned and cooked spinach and tomato paste (Chase, 2009, p. 1).

Additionally children are also recommended to eat foods containing high amounts of zinc. These foods are; organic beef, beef liver, lima beans, chickpeas, cashews & raw pecans, organic egg and ginger root (Chase, 2009, p. 1).

Interestingly Colson (2008) has found that low levels of magnesium, can cause symptoms including; fidgeting and restlessness. In a study conducted by Colson (2008, p. 198) results revealed that supplements of magnesium over six months significantly reduced ADHD symptoms such as hyperactivity, but behaviour in the group that received no magnesium became worse. Berne (2002, p. 53) also found that low levels of zinc have been linked to hyperactivity in children. Zinc is essential in people's bodies as it helps relax the nervous system.

Conclusion

Before ADHD was understood, children displaying such impulsive behaviours were often labelled as naughty. As we have gained improved knowledge of ADHD, the issue has become more meaningful than just children 'acting badly'.

Disorders such as ADHD have no known cure and parents often feel incapable and helpless in managing associated behaviours. Parents and teachers need to realise that successful treatment and management involves educational, behavioural and parental/teacher interventions and also consideration of possible treatment and discussion about nutritional status (Cormier, 2007, p. 7). Successful management of children with ADHD needs to include academic instruction, behavioural interventions and classroom accommodations (Paige, 2004, p. 3).

Chapter 3 ~ RESEARCH DESIGN AND METHOD

This chapter addresses the selection, purpose and description of the research design, the sources and process used in the collection of the data, as well as the treatment and analysis of the data. Ethics approval for the research project was obtained from both the Human Resource Ethics Committee of Avondale College and from the State Education Research Approval Process (SERAP) no 2008261.

Overview of the Research Design

A three-phased, qualitative mixed methods, research design was used, that included a booklet for participants to explore a number of strategies during the implementation phase, observation of the participants by the researcher followed by an in-depth interview.

Participating teachers were given a booklet and each strategy in the booklet was explained in detail, giving teachers enough information to apply the strategy effectively. The booklet also included a feedback form which allowed the teachers to make comments after the strategy was trialled. A time of two weeks was suggested for trialling each strategy, However some teachers chose to trial the strategies together, alternating daily.

Setting of the Study

The study was conducted in a country town on the Mid North Coast area of New South Wales. The larger of the two public schools in the town was chosen. The

school provided for students from Kindergarten to Grade 6, and had Library, Physical Education, Reading Recovery and Behaviour Management specialist teachers. The school was a part of the New South Wales Department of Education Public school system, and as with all public schools, complied with all state educational legislation and policy.

Recruitment of Participants

At a staff meeting in March 2009, the majority of the teachers at the school were present when the research proposal was presented. Teachers who taught either stage 2 or stage 3 were invited to take a booklet that consisted of the strategies and techniques that would need to be implemented in the classroom over a five month period. In addition, they were invited to identify themselves on the form and indicate the strategies they would like to trial and write feedback on. Following the staff meeting, a package was left in the staff room consisting of: a letter of explanation, a booklet of strategies (which contained a detailed description on each strategy followed by a set of questions for the teacher to supply feedback) and the interview questions for the written questionnaire.

Research Method

Phase one – the implementation and feedback

In this triple-phased study, the first phase consisted of the implementation of specific teaching and management strategies over several months by the teachers who had agreed to participate.

The six strategies trialled were:

1. Indoor and outdoor experiences: (1) music therapy (2) aromatherapy (3) yoga
2. Building and constructing
3. Behaviour management
4. Segregated learning
5. Computer generated learning
6. Gardening

The participating teachers were also asked to answer a series of questions and list additional solutions for teaching and calming boys with ADHD, in their booklets.

An important component of this phase was the booklet that allowed the teachers to comment critically on the strategies that were developed specifically to manage boys with ADHD. They could also add additional coping strategies which they had found helpful and general comments about boys with ADHD as well as solutions from their experiences. The opportunity for the teachers to nominate additional behaviour management strategies and calming techniques beyond those supplied was provided. Amongst the classes involved there were a number of important variables such as number of boys who had been diagnosed with ADHD or who had displayed

symptoms of ADHD in the participants' classrooms, the different behaviours that were displayed by the boys and the age of the boys with ADHD.

Phase Two- Observations:

The researcher undertook a practicum placement in the school for six weeks in order to work more closely with the teachers and personally trial the suggested strategies in a classroom containing six boys with ADHD. The advantage of teaching in the school for six weeks allowed close observations to be made on the teachers; therefore freedom in the approach to expand the research and discuss with teachers their findings was able to occur.

Phase two consisted of observations of the teachers by the researcher, which began by observing their teaching styles, rewards and punishments used and behaviour management techniques for dealing with behaviour problems, including ADHD. Notes were taken about specific areas including:

- Voice level and tone
- Behaviour management strategies
- Relationships
- Teaching techniques
- Coping strategies for behaviour 'outbursts'
- Specific management strategies for students with ADHD, especially boys

Phase Three - Semi-structured interview:

The third phase involved a semi-structured interview which was used to gather data to describe the degree of understanding the teachers had about boys with ADHD, the effective or ineffective strategies they had used in managing ADHD symptoms and their observations on the differences between girls and boys. Information was also gathered about which management strategies were perceived by the teachers to be most effective in providing the greatest results in improving boys' behaviour and concentration.

The semi-structured interview approach in this study was chosen because it had the capacity to provide detailed data on the perspectives of ADHD symptoms, the understanding teachers had about boys with ADHD and the gender differences that could affect the management of their behaviour.

The use of interviews with the participants allowed an in-depth discussion on their experiences, thus revealing important aspects and issues in managing boys with ADHD.

Further, the interview allowed teachers to indicate their perspectives on the results they experienced in managing boys with ADHD using the booklet strategies, which reinforced the findings of the first phase.

The data was analysed by collating the results from the three investigative procedures: booklet feedback, observations and interviews. This data was then summarised to find the value of the different strategies through: implementation, feedback, observation and interview, from the teachers' perspectives.

CHAPTER 4 ~ RESULTS

Phase 1. Implementation and Booklet Feedback

This chapter provides information on the results of the behaviour management strategies and calming techniques that were outlined in the booklet. It compares and contrasts feedback results of the various strategies in order to understand teachers' perspectives on managing boys with ADHD and some specific strategies that have shown beneficial results over time.

All five of the teachers (100%) returned their booklets and also nominated to be interviewed to provide further information through a one-to-one discussion of approximately 10 minutes or longer.

Participants in the Study

Participants (n=5) were teachers belonging to a public school. Three of these participants were female (60%) and 2 (40%) were male.

Four of the participants (80%) trialled indoor and outdoor body experiences including strategies such as music therapy, aromatherapy and yoga techniques. Four of the participants (80%) trialled building and constructing activities, three of the participants (60%) trialled the behaviour booklet, one of the participants (20%) trialled separating learning, and the same participant (20%) trialled computer generated learning and two of the five participants (40%) trialled gardening. The participants that trialled these wrote their own feedback form reflecting the strategies' effectiveness.

Feedback on building and constructing (1st Strategy)

Three out of a total of five teachers' trialled this strategy. All three of the teachers reported successful results in boys' attention and behaviour during *building and construction* lessons.

P1 (male) used *building and construction* activities in his lessons "*where possible".* However, "*groups need to be small for the benefits to show and be well supervised".* P1 (male) found that "cogs and wheels" were beneficial *building and constructing* activities that assist in managing the boys' behaviour.

P2 (male) found that *building and construction* methods assist perceptual learners and was a good way to "*link student prior knowledge to curriculum*". P2 (male) stated that: "*Boys are definitely more engaged when using hands on activities*". Additionally P2 believes that: "*it is possible to build-in social skills*" when using *building and constructing* activities. P2 used building and constructing activities in Mathematics through measurement, number and space, and in Science through making toys and bridge challenges. P2 concluded with "*Boys could not wait to continue working on activities".*

P5 (Female) found that *building and constructing* activities developed concentration and calmness in boys with ADHD. P5 (Female) stated, "*Boys enjoyed building and construction activities, they learnt by doing".* P5 (Female) also believed that boys appeared to be less hyperactive and fewer ADHD symptoms were apparent when boys were building. P5 (Female) used Lego and building blocks in Science and Mathematics lessons.

Table 4.1 below, displays the teachers' findings regarding the building and construction strategy, and the weighting that each teacher gave to its value.

Table 4.1 Teachers' findings for the building and construction strategy.

Strategy explored	P1	P2	P3	P4	P5
Building & constructing	5	6	0	2	6
Indoor & Outdoor body experiences	0	7	5	8	8
Behaviour management booklet	1	5	0	0	5
Separating learning	0	0	0	0	1
Computer generated learning	2	0	0	0	2
Gardening	4	0	0	0	5

P1 to P5 are the five Participants
Participants were given a number according to how many times a participant mentioned the benefits of using a strategy.

Feedback on behaviour management (2nd Strategy)

Three out of five teachers tested the behaviour booklet over a 2 week period. All of the three teachers agreed that the choice theory is beneficial for boys, especially those with a behaviour problem; however structure needs to be maintained and consistent.

Students were told about their booklet and it was their choice to follow the four outcomes. Teachers held the book at their desks, but students were involved in the discussion of their achievements. If students did not choose the appropriate behaviour they did not receive the reward that was made clear to them at the commencement of the booklet.

P1 (male) tested and trialled the behaviour management booklet over a duration of time. P1 stated that:

> *Class discipline is based on a choice, pupils chose their type of behaviour and need to realise that by choosing poor behaviour they have chosen the*

consequence of that behaviour, i.e. they weren't forced to misbehave they chose that path and chose to have the consequence.

P2 (male) found that some students enjoyed working towards a reward, but some of the boys "*saw the task of achieving the reward impossible*". P2 (male) found that for the booklet to work successfully he needed to "*focus on students' completion rather than quality*". P2 (male) noticed a change in behaviour over the two weeks, P2 (male) believes this change was created because choice led to "*neg ation*". Finally P2 (male) stated that "*It suited boys who were award orientated".*

P5 (Female) found that boys chose the correct behaviour because they were in control of their behaviour. P5 (Female) stated: "*Boys with ADHD need to have choice and need to feel in control, the teacher needs to give the child structure in order for this to work successfully, without structure the boy becomes the leader".* P5 also found that by setting a reward or a privilege for the boy that was personalised or seen as desirable the boy worked harder at achieving and focusing. The teachers' perspectives on the behaviour management strategy are displayed in table 4.2, below.

Table 4.2 Teachers' findings for the behaviour management strategy.

Strategy explored	P1	P2	P3	P4	P5
Building & constructing	5	6	0	2	6
Indoor & Outdoor body experiences	0	7	5	8	8
Behaviour management	1	5	0	0	5
Separating learning	0	0	0	0	1
Computer generated learning	2	0	0	0	2
Gardening	4	0	0	0	5

P1 to P5 are the five Participants
Participants were given a number according to how many times a participant mentioned the benefits of using a strategy.

Feedback on gardening (3rd Strategy)

Two teachers out of the five explored the gardening strategy. These two teachers found such pleasing results that they discussed the results with other teachers and suggested they implement their own garden.

P1(male) found that the boys with ADHD built a good sense of ownership with the gardens and it then could be used as a reward for stimulating learning and focusing students in the classroom. P1 (male) explained that as the boys began to enjoy and find satisfaction in the gardening he was able to set them special research and homework tasks. P1 (male) reported that the boys had set up a selling plan; they had developed prices for the vegetables and ruled up a bank book to record their credits and debits with the garden. P2 (male) also reported that he integrated the garden into Math measurement lessons; he found the best results from the boys while they were using the garden in the Mathematics lessons.

P5 (Female) found the garden to be a success, reporting: "*Boys were calmed when they were gardening; it was a great strategy to use as a cool off technique*". Additionally P5 (Female) also found that the garden was able to be integrated into the curriculum, *"the boys produced the best results they have in Mathematics when using the gardening debit and credit book, they didn't even realise they were doing Math".*

Table 4.3 Teachers' findings for the gardening strategy

Strategy explored	P1	P2	P3	P4	P5
Building & constructing	5	6	0	2	6
Indoor & Outdoor body experiences	0	7	5	8	8
Behaviour management booklet	1	5	0	0	5
Separating learning	0	0	0	0	1
Computer generated learning	2	0	0	0	2
Gardening	4	0	0	0	5

P1 to P5 are the five Participants
Participants were given a number according to how many times a participant mentioned the benefits of using a strategy.

Feedback on Indoor and Outdoor body experiences (4th Strategy)

P2 (male) explored outdoor movement and music therapy. P5 (Female) found pleasing results in using aroma therapy, music therapy and yoga techniques to increase concentration and calmness in boys with ADHD.

P2 (male) affirmed that "*boys enjoyed the movement and looked forward to moving again, seemed to calm boys when they came back inside*". P2 (male) additionally found that "*Music was very settling for students while they were doing work*". P2 (male) reported that these techniques would work better when they become more part of the classroom routine.

P5 (Female) explored aromatherapy, music therapy and yoga over a six week period she reported

> *"Classical music calmed children after outdoor activities; outdoor activities are a great way of using excessive energy but sometimes it can be hard to calm them down and get back into work, the classical music made it easy to transition from the outdoors to the indoors".*

P5 (Female) reported that "*daily integration of classical music after a physical activity and during Mathematics or English stimulates concentration and eliminates much*

disruptive behaviour". P5 (Female) used aromatherapy regularly in the classroom. She found 'orange' to be the most successful in calming but still motivating boys with ADHD. P5 (Female) stated that:

> *"While the oil was burning I noticed a change in the boys physical bodies, they seemed to unwind and calm down, It was like the oil had reached their senses and helped in eliminating many messages and disruptions around them".*

Additionally P5 (Female) reported beneficial effects in using yoga daily,

> *"Once yoga becomes a regular part of the day the benefits will show. Yoga allowed boys to use their bodies to expel excessive hyperactivity and at the same time loosen muscles and calm down".*

P5 (Female) found that yoga was beneficial in the morning and put the boys in a "*right frame of mind"* straight away, however P5 (Female) believes that these strategies were only effective if they were added to the day in a structured way, "*write the daily events on the board*"

Table 4.4 Teachers' findings for the indoor and outdoor body experiences strategies

Strategy explored	P1	P2	P3	P4	P5
Building & constructing	5	6	0	2	6
Indoor & Outdoor body experiences	0	7	5	8	8
Behaviour management booklet	1	5	0	0	5
Separating learning	0	0	0	0	1
Computer generated learning	2	0	0	0	2
Gardening	4	0	0	0	5

P1 to P5 are the five Participants

Participants were given a number according to how many times a participant mentioned the benefits of using a strategy.

Feedback on computer enhanced learning (5th Strategy)

Two out of the five teachers chose to write feedback on using computers to motivate learning in boys with ADHD.

P5 (Female) found that computer generated learning stimulated learning and interested the boys with ADHD. P5 (Female) said that "*boys learn best when you tap into their interests and get to know their learning styles, many boys are interested in computers*". Additionally P5 (Female) found that: "*using computer generated learning through interactive white boards, boys are able to integrate and learn by doing".*

Table 4.5 Teachers' findings for the computer generated learning strategy

Strategy explored	P1	P2	P3	P4	P5
Building & constructing	5	6	0	2	6
Indoor & Outdoor body experiences	0	7	5	8	8
Behaviour management booklet	1	5	0	0	5
Separating learning	0	0	0	0	1
Computer generated learning	2	0	0	0	2
Gardening	4	0	0	0	5

P1 to P5 are five Participants
Participants were given a number according to how many times a participant mentioned the benefits of using a strategy.

Feedback form on separating learning (6th Strategy)

One teacher out of five chose to trial separate gender learning. P5 said: "*It was noticed that it only worked a few days a week and not continually, boys need the girls in the class so that masculinity does not develop between the boys, developing more aggression".*

Table 4.6 Teachers' findings for the separated learning strategies

Strategy explored	P1	P2	P3	P4	P5
Building & constructing	5	6	0	2	6
Indoor & Outdoor body experiences	0	7	5	8	8
Behaviour management booklet	1	5	0	0	5
Separating learning	0	0	0	0	1
Computer generated learning	2	0	0	0	2
Gardening	4	0	0	0	5

P1 to P5 are five Participants
Participants were given a number according to how many times a participant mentioned the benefits of using a strategy.

Summary and Evaluation of Strategies

P4 (Female) commented on the strategies saying that: "*the challenge in teaching boys with ADHD lies in providing the right balance of activity and task competition*". Additionally P4 (Female) admitted that: "*unstructured environments can set off a sequence of inappropriate behaviours".*

P5 (Female) believes that "*the strategies can be successfully implemented by having a structured and organised daily routine*". Additionally P5 (Female) believes that:

> *"Strategies need to be used in conjunction with one another for the most effective outcomes, for example use outdoor activities to release excessive energy and have calming classical music playing to calm and stimulate learning after fast paced activities".*

P5 (Female) also found that *"rewards need to be seen as desirable and interesting to the boys, therefore, get to know the children".*

Phase 2.-The Observations

The aim of this section was to explore the teaching strategies of the participants and observe techniques they were using in managing boys with ADHD, over a six week period. Through this phase teachers were able to share with the researcher specific strategies and allowed the researcher to gain an understanding of how well specific techniques and teaching styles were working in controlling behaviour problems. The researcher specifically considered the following points while making written comments through the observation.

- Voice level and tone
- Behaviour management strategies
- Relationships
- Teaching techniques
- Coping strategies for behaviour 'outbursts'

Observation one – Participant one

The researcher found while observing participant one (P1) (male) that an inclusion of daily physical activity helped in eliminating behaviour problems of boys with ADHD and allowed these boys to gain concentration again after a long period of time. P1 used a specific running strategy that the boys seemed to enjoy; it was used after English and before Mathematics. The researcher also observed that P1 used a vegetable garden for the boys with ADHD. The vegetable garden was used as a motivational tool, reward strategy and a learning experience. Through observation the researcher found that the vegetable garden helped in eliminating behaviour

problems through the boys working towards being rewarded and given time in their garden. The researcher found this strategy was effective because P1 got to know the boys, their interests and their learning styles. The vegetable garden was also used as a learning experience. The boys learnt Mathematic skills in building the garden, tracking costs and spending in a debit and credit book and English skills in researching vegetables and the conditions they need. The vegetable garden also revealed a segregation of learning. Boys were enjoying themselves and less inappropriate behaviour was displayed in the gardening activities. However, it was noticed that boys settled quicker with the girls in the classroom when they came back in.

P1 used choice theory effectively in managing boys with ADHD. Using a firm but kind approach P1 was able to apply the strategy to alter the behaviour of the boys by putting the responsibility back on to them. Through observation the researcher found that boys with ADHD sometimes do not know how to change their behaviour. This strategy gave the boys a choice and it worked effectively.

Through observation the researcher found that daily music was used in calming hyperactive children. The success of this strategy was made possible by P1 making the music seem desirable and enjoyable to the boys. The music used was catchy and repetitive. It was played softly and rock music was never used.

Over a six week period of observation on P1 the researcher found that symptoms of ADHD, including hyperactivity, aggression and a lack of concentration were improved and minimised due to (a) rewards being seen as desirable or good; (b) giving them an opportunity to build team work and develop compassion through looking after something (gardening); (c) understanding the way they learn and using

this to teach and motivate them. In this case it was outside building or in the garden; (d) having regular stimulating breaks such as running around the school to gain concentration and use excessive hyperactivity and (e) using motivational and calming tools such as music therapy to relax hyperactive and impulsive boys.

However the researcher found that boys with ADHD in the classroom tended to display impulsive symptoms due to a lack of routine and structure in the classroom. The researcher observed that boys with ADHD were more likely to interrupt, get up and walk around or start misbehaving as a result of an alteration to the day, a loud busy lesson or a messy and cluttered classroom.

Table 4.7 Participant 1 - Observations

Observed strategy	P1	P2	P3	P4	P5
Building & constructing	3	4	2	3	4
Indoor & outdoor body experiences	8	7	7	8	9
Behaviour management booklet	7	6	5	8	8
Separating learning	4	4	2	2	4
Computer generated learning	8	9	8	8	9
Gardening	9	8	0	0	9

P1 to P5 are the five Participants
Participants were observed over six weeks.
Participants were given a scale of 1-10 on the effectiveness of the strategy.
The effectiveness was found by the alteration of boys with ADHD, symptoms changing positively.

Observation two – Participant two

Participant 2 (P2) (male) was observed over a six week period. P2 made it obvious that boys need to be rewarded instantly through the use of positive verbal rewards. The researcher observed P2 working with a segregated group of boys over six weeks for an average of two days a week. The researcher found that the boys displayed more inappropriate behaviour than normal while segregated. For the first week, P2 applied negative consequences, including time out at recess or lunch and/or no reward which was no computer free time within the group, and this

resulted in more pleasing behaviour for the following five weeks. A concept of male superiority did occur within the group, having the *'tough group of boys'* and the others; however this was overcome by the presence of the girls for the other days during the week.

The researcher found that segregation only works for a short time, two to three days at the most a week. Consistent routine and structure need to be applied within a segregated group and additional rewards and punishments need to be included. The researcher also observed an experienced male teacher who had respect from students and could follow through with punishments conducting this experiment. The segregation also worked effectively because the boys were learning about something that interested them. The unit was space and the days were made up of visual learning through stimulating audio-visuals such as space DVDs, which interest the age group. One day a documentary was shown, another day 'space chimps' an educational cartoon was shown. Less inappropriate behaviour occurred on the day the boys watched the cartoon DVD.

Additionally the lessons incorporated designing and doing activities such as building rockets and measuring distance to find average distance travelled by rockets. It was observed that segregation of learning takes time in developing a structured routine with consistent rules.

P2 was additionally observed using the choice theory. The researcher found it worked effectively because expectations were clearly identified in the classroom and choices were clear and explicit. P2 used the boy's name when offering him a choice in changing his behaviour and also stayed calm, not raising his voice.

Through observation of P2 the researcher found that P2 needed to use rewards that were seen as desirable, similarly to the rewards that P1 used where the boys were able to find enjoyment in schooling and significance in learning and acting appropriately. The results from this observation are displayed in table 4.8.

Table 4.8 Participant 2 - Observations

Observed strategy(s)	P1	P2	P3	P4	P5
Building & constructing	3	4	2	3	4
Indoor & outdoor body experiences	8	7	7	8	9
Behaviour management booklet	7	6	5	8	8
Separating learning	4	4	2	2	4
Computer generated learning	8	9	8	8	9
Gardening	9	8	0	0	9

P1 to P5 are the five Participants
Participants were observed over six weeks.
Participants were given a scale of 1-10 on the effectiveness of the strategy.
The effectiveness was found by the alteration of boys with ADHD, symptoms changing positively.

Observation three – Participant three

The researcher found while observing participant three (P3) (female) that positive re-enforcement is very important for not just girls but it can also help in motivating boys, especially those with ADHD. P3 used a reward sticker chart that worked on the strategy of; ten stickers gained a silver reward, twenty stickers gained a gold reward and thirty stickers gained a principal's certificate. Through observation it was apparent that the boys were achieving because they were working towards a goal. Through observation boys responded well to these rewards; however, P1 and P2 found more pleasing results in the behaviour management booklet/choice theory as the first found out what interested the boys and developed a reward from these interests. As observed by P1 boys need to find the reward desirable and as observed by P2 boys need to be rewarded instantly.

The researcher found a difference when observing P3 and the behaviour that was occurring. The participant was using a constantly louder voice than that of P1 or P2 and when an inappropriate behaviour occurred P3 raised her voice louder and did not stay as calm and in control as P1 or P2.

From the P3 observation the researcher found that a desirable reward needs to be used and this can only be achieved by getting to know the students, what the boys like and what they are interested in. P3 used a loud voice and also yelled when inappropriate behaviour occurred, which did not help the situation. Instead it seemed to irritate the boys and made them less responsive to the choices offered.

Table 4.9 Participant 3 - Observations

Observed strategy(s)	P1	P2	P3	P4	P5
Building & constructing	3	4	2	3	4
Indoor & outdoor body experiences	8	7	7	8	9
Behaviour management booklet	7	6	5	8	8
Separating learning	4	4	2	2	4
Computer generated learning	8	9	8	8	9
Gardening	9	8	0	0	9

P1 to P5 are the five Participants
Participants were observed over six weeks.
Participants were given a scale of 1-10 on the effectiveness of the strategy.
The effectiveness was found by the alteration of boys with ADHD, symptoms changing positively.

Observation four – Participant four

Participant four (P4) (female) used a softer voice than P3, and the researcher found this to be beneficial in managing and controlling classroom behaviour. The researcher found that the boys seemed to listen to P3 and her softer voice quietened the classroom. Through observation the researcher found that P4 used physical activity daily to stimulate learning and gain concentration. P4 used body movement activities such as walking and running skills and a variety of in class movement skills to stimulate concentration and break lessons up. P4 used a lot of praise for small

accomplishments; and the researcher found that this was a very powerful strategy for encouraging on task behaviour. Similarly to P1, P4 used the boy's name when using the choice theory.

P4 concluded that: *"the choice theory shows beneficial results in managing boys with ADHD. Also, having a structured seating plan and daily time table benefits boys. A less cluttered classroom and a quieter environment (voice can play a big role in this) and also using regular physical activities to break the day and allow boys with ADHD to use some of their excessive amounts of hyperactivity, constructively benefits boys with ADHD."*

However, the researcher found that it is not beneficial to take a child's behaviour personally; the researcher observed P4 taking symptoms of ADHD as a personal attack. As observed in P2 it is important to stay in control and calm in overcoming inappropriate behaviour problems. The results of observation 4 are displayed in table 4.10.

Table 4.10 Participant 4 - Observations

Observed strategy(s)	P1	P2	P3	P4	P5
Building & constructing	3	4	2	3	4
Indoor & outdoor body experiences	8	7	7	8	9
Behaviour management booklet	7	6	5	8	8
Separating learning	4	4	2	2	4
Computer generated learning	8	9	8	8	9
Gardening	9	8	0	0	9

P1 to P5 are the five Participants
Participants were observed over six weeks.
Participants were given a scale of 1-10 on the effectiveness of the strategy.
The effectiveness was found by the alteration of boys with ADHD, symptoms changing positively.

Observation five- Participant five

Participant five (P5) (female) trialled all the strategies. P5 broke up the daily learning by incorporating physical fitness. The boys with ADHD were noticed to be less disruptive and stayed on task for longer as a result of using physical activity,

including running activities. Interestingly P5 incorporated the music therapy strategy after physical fitness. This resulted in students calming down more quickly and becoming focused and staying on task. P5 used the aromatherapy daily; this resulted in better results than those of other participants. It was noticed that when aromatherapy was integrated daily into the timetable it worked much better. Observations on boys' behaviour included their being more relaxed and focused due to the essential oil orange.

P5 told the boys they were going to do 'strength and balance' activities, which seemed to result in better participation, than with other participants who used the term 'yoga'. P5 demonstrated that yoga was an effective strategy to use in the classroom as an alternative calming strategy rather than medication.

P5 trialled building and constructing through building the vegetable garden and various other hands-on tasks. It was noticed that the boys were able to release their aggression through these building and construction activities and were also able to focus on one particular strategy.

The behaviour management booklet was a successful strategy used by P5. It was observed that P5 took the time, however, to find the boys' interests and build a reward from this. Through observing P5 it has been established that a reward must be seen as desirable to alter inappropriate behaviour.

Additionally P5 used computer generated learning effectively. This was a result of her understanding of interactive white boards and computer knowledge. P5 used interactive white boards to stimulate and interest learning. Boys in these lessons were interested and less disruptive than in normal lessons.

Finally P5 did trial separating learning, and did find the most pleasing results. It was noticed that it only worked a few days a week and not continually. Boys seem to need the girls in the class so that the development of 'masculine' aggression is reduced. P5 used the segregation strategy on average twice a week for two lessons a day, setting up lessons that would interest the boys with ADHD such as: gardening Mathematics where the boys found areas and perimeters of garden beds.

Table 4.11 Participant 5 - Observations

Observed strategy(s)	P1	P2	P3	P4	P5
Building & constructing	3	4	2	3	4
Indoor & outdoor body experiences	8	7	7	8	9
Behaviour management booklet	7	6	5	8	8
Separating learning	4	4	2	2	4
Computer generated learning	8	9	8	8	9
Gardening	9	8	0	0	9

P1 to P5 are the five Participants
Participants were observed over six weeks.
Participants were given a scale of 1-10 on the effectiveness of the strategy.
The effectiveness was found by the alteration of boys with ADHD, symptoms changing positively.

Summary

The results from the observations provide strategies for dealing with boys with ADHD. Observations have revealed that an understanding of boys and their symptoms makes designing specific lessons and rewards a beneficial strategy. After observing five participants over six weeks it was obvious that boys need six things;

1. Structure & Routine
2. Choice in their behaviour (choice theory)
3. Desirable rewards that relate to learning or are instant
4. They are able to see the significance of their learning
5. Breaking up of learning through movement
6. Relaxation techniques that calm them such as music playing softly

The next chapter goes on to expand and detail these results at a deeper level through the comments made by the teachers during the interviews.

Phase 3.-The Questionnaire Interview

This section provides information on the results of the interview, administered during phase three of the study. It compares and contrasts similar opinions, views and findings on managing boys with ADHD. The aim of this study was to explore teachers' perceptions, knowledge and understanding of how they manage boys with ADHD. In addition, teachers were able to share with the researcher their results on applying behaviour management techniques as outlined in phase one. Before the commencement of the interviews the questionnaires were viewed and used to probe more deeply on particular issues, especially what teachers find most difficult about boys with ADHD. The teachers were assured of confidentiality, the opportunity to withdraw from the interview if they desired, and the support and empathy of the interviewer.

Issue one- Managing boys' behaviour

Interviewees were asked: 'Can you share with me, ways you have found successful in managing boys' behaviour?'

P1. *You need to build up a rapport with boys, especially those with behaviour problems.*

P4. *A structured environment is important for boys with behaviour problems, especially ADHD. Boys need to know the schedule for the day and have a sense of predictability when they walk in the classroom.*

P2 Staying calm and in control when managing symptoms of ADHD.

It is within these three responses that it is evident that, in managing boys with a behaviour problem, you need these three things:

1. A good relationship built on trust and understanding
2. Structure and routine in the daily environment
3. Remaining calm, cool and in control. Symptoms of ADHD are not a personal attack at the teacher, they are unintentional

Issue two- Exploring differences between girls and boys

Interviewees were asked: 'Do you manage boys any differently from the way you manage girls?'

P 1. Never use facial expressions to stop bad behaviour of boys, as boys do not pick up on facial expressions or overtone warnings as well as girls do.

P 2. You need to be more specific with boys about tasks and activities and give the boys responsibility for their own behaviour management by offering them a choice for changing the inappropriate behaviour.

With these two responses it is easy to see that when teaching boys you need to consider these three things;

1. Be direct with instructions and concepts
2. Be specific in outlining learning tasks
3. Give boys' choice and develop direct and specific behaviour management strategies, making rewards and consequences known.

Issue three- Catering for ADHD symptoms

Interviewees were asked: 'Do you have any particular strategies that you use with boys who tend to be hyperactive, or have ADHD?'

P 2. A seating plan needs to be developed where boys are seated close to the front of the room and on the same side as the teachers' desk.

P 4. Seat the boys in a structured particular way; boys should know the classroom routine and their spot in that room.

P 4. Lots of praise for small accomplishments is a powerful predictor for encouraging on task behaviours.

P 5. Using trial and error is important in managing boys with ADHD. I have found that symptoms vary according to different children. However, yoga daily and integrating music and aromatherapy helps calm, reduce hyperactivity and motivate learning.

These responses reveal that structure is important and integration of new strategies needs to be done in a structured and organised way. These responses also reveal that calming an ADHD child is important; however, you still need to motivate them.

Issue four- Difficulties in managing boys with ADHD

Interviewees were asked: 'What do you find the most difficult aspect of managing these types of boys (with ADHD)?'

P 1. It is hard never knowing when they may go off, for often trivial reasons.

P 2. Most of the time teachers don't understand ADHD symptoms and therefore find it hard in catering for these students.

P 3. Developing effective behaviour management strategies is hard.

The three responses reveal that teachers often do not understand symptoms of ADHD and what can make the boys with ADHD 'go off'.

This research study has found that teachers need to;

- Get to know their students and understand their interests, dislikes and likes.
- Build a supportive relationship, built on trust
- Develop rules that the boys understand and can follow, and have rewards that the boys find interesting and good.

The research has also revealed that teachers need to use a number of strategies. These strategies need to be applied to the timetable and become routine. Teachers need to use a number of strategies in conjunction with one another such as physical fitness energy activities followed by calming, motivational classical music. Additionally having an understanding of the symptoms of ADHD will make teaching the child easier. For example, gardening can be developed for those who are aggressive and impulsive. The garden helps them calm down and care for something, thus developing a sense of worth.

CHAPTER 5 ~ DISCUSSION

This study has revealed that boys with ADHD need teachers who can implement strategies that cater for their ADHD symptoms, such as hyperactivity and aggression. Loe (2007, p.9) believes that physical activity is helpful for children with ADHD as it has been shown to reduce disruptive behaviour inside the classroom. This research study similarly found that physical activity, including yoga, can reduce hyperactivity and calm boys with ADHD in the classroom.

This study, however, established that for physical activity to be effective, boys need to calm down afterwards, and music was found to be an effective strategy after fast paced activities. Jensen (2000, p.68) and Madewell (2009, p.1) found that by listening to classical music, students with ADHD become attentive and relaxed.

Interestingly, participants that trialled gardening with the boys with ADHD reported that it relaxed the boys and gave them a sense of ownership that helped inside the classroom as well. King and Gartrell (2008, p.9) found similar results. Participant 2 stated; "*Boys are definitely more engaged when using hands on activities.*" Observations in this study revealed that when the boys with ADHD were using their hands and building they began to look more relaxed and comfortable in their learning environment.

West (2001) found that boys with behaviour problems, including ADHD, will commonly favour computer related learning as it makes instruction more visual, allows them to participate actively and increase academic opportunities. However, this research did not reveal an overall success rate in using computers. The one participant who did explore computers reported that, "*Computers allow boys to concentrate on one main medium while they work. This is possible because they are*

interested and engaged which blocks out external noises and other factors that usually trigger hyperactivity and loss of concentration"(P5). This participant was the youngest of all participants, and was familiar with computers, smart boards and websites. The other participants were in the 40-50 age groups; which may have been a factor in the lack of participation and trial of computer generated learning.

Both the teachers' feedback and the researcher's observations confirmed that the boys responded positively to opportunities for choice. William Gasser's Choice theory, therefore, may be the practical solution teachers need in managing boys with ADHD and their behavioural symptoms. Edwards and Watts (2004) believe that choice theory is an essential behaviour management strategy. The theory is simple enough to implement in any classroom. Additionally, it outlines five points that should be implemented, including: developing goals, establishing classroom rules, allowing students to make classroom and learning suggestions, achieving commitment from students and implementing consequences.

Research literature on aromatherapy has begun to focus on integrating essential oils daily in the classroom. Results of the present study were startling, finding that boys became calmer, less talkative and more focused when the essential oils were burnt. Jensen's (2000) findings revealed that smells can influence our moods and levels of anxiety and aromatherapy suggests that mental alertness and relaxation can be achieved. Through exploration, trial and observation, it was found that burning the essential oil of orange at the front or at the back of the room was the most successful. Results showed that boys were less interruptive and tended to focus on the work for longer periods of time. Participants reported that they favoured the essential oil orange *"as it was not over powering and less noticeable by the children"*

(P5). Sadiq (2007) believes that orange is a good essential oil as it enhances calmness and tranquillity in the brain.

The research aim was to explore a number of alternative methods suggested by researchers in different literature to be beneficial to boys with ADHD. However, the study found that one strategy alone was barely enough to cater for boys with ADHD. Strategies needed to be used in conjunction with one another, altered/changed and integrated into the timetable in order to give the classroom structure and routine.

The study has revealed that alternative strategies are important in the classroom. Research has revealed that these strategies do produce pleasing results not only for the student by also for the teacher.

It was observed that daily fitness was used in the morning, and after the physical activities, classical music was played in order to calm the children and relax them after a fast paced game or stretches.

Music was found to relax but also stimulate the students. Classical music was found to be the most effective type of music. Gardening became a reward strategy for the boys with ADHD, by integrating the choice theory into it; boys were given a daily choice to work productively, following the classroom rules in order to be involved in the gardening. The boys became immersed in gardening, developing team work skills, Mathematics and English skills and a sense of pride and ownership.

In the afternoon as the boys became restless after a long battle at school aromatherapy was used. Observation found that aromatherapy settled the boys but at the same time also stimulated them, giving them creativity in story writing and discussions.

Through this exploratory study another strategy was found accidentally through the gardening activity. When a particular boy became restless and inattentive or could not control his behaviour, a participant asked the boy to go and move the wood ready for the vegetable garden. When the boy picked up the wood he released a deep breath and the aggression seemed to be released through this physical activity. This strategy was mentioned to other participants and it was explored by others. Boys were asked to '*move a tub of books'*, or '*pick up the learning books and move them to the back of the room'*. Participants reported: '*When the boy had returned from moving a relatively heavy, but safe object, symptoms were no longer there'* (P5).

CHAPTER 6 ~ CONCLUSION

This project was an exploratory study into alternative strategies for managing boys with ADHD. The literature review revealed that boys are likely to be misunderstood by their teachers who are often feeling frustrated by symptoms of ADHD they do not understand and cannot control. In a hasty approach to deal with and manage these boys they are referred to be medicated. This study aimed to explore a number of strategies listed below. These strategies were designed to support ADHD symptoms by calming, using up excess hyperactivity, allowing them to focus on one particular topic at a time, stimulating interest, motivating learning and concentration, eliminating aggression and developing an understanding about the boys' interests, thus making learning significant and worthwhile for them and at the same time benefiting the classroom teacher.

1. Indoor and outdoor experiences: (1) music therapy (2) aromatherapy (3) yoga
2. Building and constructing
3. Behaviour management
4. Segregated learning
5. Computer generated learning
6. Gardening

As participant two said, '*The strategies will be very effective for boys with ADHD as they become more part of routine'*. The exploratory study revealed that the strategies need to be implemented in a routine and structured way, the strategies discussed, daily events written on the board and the boys asked if they like doing them.

The major finding was that boys with ADHD need to be understood. Teachers need to get to know them, find their interests and understand their symptoms in order to implement a daily plan incorporating appropriate strategies. The behaviour management booklet (one of the strategies teachers trialled) revealed that it is vital for teachers to understand the boys with ADHD and find their interests in order to apply the choice theory effectively.

Teachers were involved in following a booklet that included six strategies; teachers had the choice to trial these strategies and write feedback forms on each. It was interesting to find the pleasing results teachers found in using each strategy and the data gained in observing teachers who were implementing them.

For example; building and construction would support Mathematic topics, making the topic seem enjoyable and allowing the boys to focus on a particular task at a time. Physical fitness would help use up excess energy and hyperactivity. Music therapy would be a great strategy to use after fast activities such as running and also to develop creativity. Classical music worked best. Aromatherapy is a good strategy to use in the afternoon to awaken senses and stimulate the brain. Yoga would be beneficial at the beginning of the day to calm and relax hyperactive boys. Integration of computers would interest the boys and allow them to be in control of their learning. Gardening is a great tool to use as a reward. In addition gardening is an effective strategy in developing team work; this is an important skill necessary for boys with ADHD as it allows them to feel comfortable and safe in their learning environments. Gardening was also observed to reduce aggression in the boys. Finally the choice theory should be a holistic approach, integrated throughout the entire day. The choice theory can be effectively integrated through the use of individual behaviour management booklets that focus on boys' achieving set outcomes daily for a

desirable reward. The vital thing teachers need to remember when implementing this strategy is that the reward must seem pleasing to the child; and in order for this to be achieved, the teacher must know the child and their interests.

This study revealed that gardening works well for many boys with ADHD and can be integrated as a reward and also into their learning. However, not all boys may enjoy gardening. The ideal approach is to use trial and error and alter strategies to fit the individual boy/s with ADHD. It is especially important to remember that while segregation of learning may allow boys to focus on topics they enjoy learning about, it is a process that takes time to develop. Teachers need to implement structure and routine to these lessons and rules need to be clearly defined and followed through.

In conclusion, this exploratory study found that alternative strategies can benefit boys with ADHD. It is the responsibility of the teacher to get to know their students and understand the symptoms of ADHD the boys have. Strategies can then be developed that support boys and also support the classroom teacher. These steps could make positive lifelong differences before a hasty approach to medicate, which could be a negative lifelong choice.

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APPENDIX A – THE BOOKLET TEACHERS RECEIVED

(This is a copy of the booklet teachers received, however the spaces allocated for writing responses have been compressed for the purpose of inclusion in this appendix)

Alternative Classroom and Teaching Strategies and Techniques That Support Boys with Attention Deficit Hyperactivity Disorder (ADHD): An Exploratory Study



The purpose of the study is to identify the key strategies and practices that support boys with behaviour problems including Attention Deficit Hyperactivity Disorder (ADHD).

The value of this project is in the identification of effective teaching strategies and means of developing appropriate classroom dynamics that will support boys with behavioural problems including ADHD

Strategy 1: Building and constructing

For two weeks observe the boy/s' behaviour when integrating building and constructing activities into your lessons.

Examples to use in your lesson may include:

- Experiments within the theme (unit)
- Hands on practical mathematical lessons such as demonstrations.

Number: Try implementing more resources for counting, subtracting and multiplying.

Measurement: Use food packets and scales to teach mass, try using water and jugs to teach volume. If possible allow students to build areas and then measure the area and perimeter of these.

Using the behaviour Modification Model by BF Skinner
Increase appropriate behaviour by introducing a reward. This reward is includes building and constructing activities. Introduce an individual activity as reinforcement: Working on a special project.

- This special project could link to the unit of work and then be presented at the end of the week

Decrease inappropriate behaviour by introducing negative consequence, such as decreasing or withdrawing the rewarding activity.

Feedback

Do you usually use building and constructing activities in your lessons? Why/why not?

Have you noticed any beneficial effect from using hands-on building activities for the boys with behaviour problems in your class?

What building and constructing activities have you used and found useful and beneficial for boys' behaviour? If any, please list.

Did you find any beneficial effects on boys' behaviour when using the behaviour modification model?

Strategy 2: The Booklet - The assertive approach and giving boys choices

For two weeks follow The Assertive Discipline Model by Lee & Marlene Canter.

There are six steps to follow in applying assertive discipline to correct inappropriate behaviour:

1. Create positive student-teacher relationships
2. Establish rules or expectations
3. Track misbehaviour
4. Use negative consequences to enforce limits
5. Implement a system of positive consequences
6. Establish a strong parent support.

Through this strategy you are also using The Choice theory by William Glasser. For the next two weeks allow students to evaluate their behaviour.

In order to follow the assertive discipline steps use the behaviour booklet included. This behaviour booklet will allow students to make choices about their own behaviour.
Explain the booklet to the student, explain the expectations and the reward for following these expectations.
Reward:

The reward is identified by asking the student to list their interests and hobbies. When you learn about their interests, set a task for them to complete. This is a "special" task and if four ticks (as per the sample page in the booklet) are achieved they will be allocated time at the end of the day to work on their "special" task. With this task it is best if you stress it is a privilege.

Booklet

(Note: give the booklet to the boys to write down their interests and hobbies, and from these develop a reward that seems desirable to them. Teacher keeps the booklet at their desk and in the afternoon goes through the table and ticks the achievements. These are discussed in the afternoon, if four ticks are achieved the reward is offered. This integrates the choice theory.)

My name is:

My interests are:

My hobbies are:

I like learning about:

Name:

Date:

(Photocopy page to make a booklet recording achievements)

Reward:

Did you listen today	Did you use your hand	Did you complete your work today	Did you overall work well today	Comment

Feedback

1. Was the booklet successful? Why/why not?
2. Do you feel that the book changed the behaviour of the student because they were working towards something and seeing their achievements?
3. Did you notice any changes in behaviour after giving the student choices for the past two weeks?
4. Do you believe the Assertive Discipline Model is a good way to teach boys with behaviour problems? Why/why not?

Strategy 3: Outdoor and Indoor body experiences

For the next two weeks utilize the outdoors as much as possible.

Outdoor:

Every morning go outdoors and stretch and mark the roll. (Relaxation)

Try and incorporate mathematical lessons outside where the boy/s is/are actively involved.

Use the outdoors as a reward for the boy/s. Appropriate behaviour results in students going out doors for silent work such as reading or writing.

Indoor:

Use the Aromas for the next two weeks in your classroom to observe any change in the boys' behaviour. Observe whether the boy/s' moods have altered.

Play relaxation music for the next two weeks in your classroom to observe any change in the boys' behaviour. Observe whether boys seem more relaxed when working.

Feedback

1. Did using the outdoors more, during the two weeks seem to motivate the boys into learning and better behaviour inside the classroom?
2. Do you feel the relaxation techniques had any calming effect on these boys?
3. Did using the outdoors as a reward stimulate appropriate behaviour?
4. Do you personally feel after your observations that aroma and music affect boys' behaviour? Why/why not?

Strategy 4: Separating the boys and girls

For the next two weeks separate in your class room the boys and the girls where ever possible. If possible also test seating the boys all together and the girls all together (in two different groups). When and if you use any group work during the two weeks try not to mix the boys with the girls.

* English especially you should try and segregate.

Aim to also implement more "boy" friendly lessons such as: having topics they want to talk about in English, brain storm with them first and allow the boys with the behaviour problems to express their interests in learning. These may include: topics about war, cars, soccer or football etc. Whatever it may be try if possible (and appropriate) to implement these topics during the next two weeks.

* An idea could be, having girls working on a worksheet and the boys working with you on practical tasks such as: speeches and poetry, then swap the groups over. Take particular notice if the boys' behaviour is altering in anyway.
For the next two weeks aim to implement a buddy system with the boys. Observe whether changes occur in the boy/s with behavioural problems.

A reward for the next two weeks is writing and reading with their buddy. Boys chose any books they want to read and any topic they want to write about. When appropriate behaviour is achieved the boy/s can work with their buddy reading their chosen stories or writing their stories. The boy/s with the behaviour problem can also be rewarded throughout the weeks by going to the library and choosing any book of their choice.

Feedback

1. Did you notice any changes in the boys with behaviour problems when they segregated into boy only learning groups?
2. Did you feel that this type of learning environment was beneficial, why/why not?
3. Did you notice any changes in behaviour through the buddy system? What were these changes if any?
4. By allowing the boys to choose any topic when reading and writing and English topics did you notice any change with their attitude and behaviour?
5. What do you personally feel about segregated lessons for boys with behaviour problems?

Strategy 5: Computer aided instruction

During the next two weeks observe the boy/s if possible while using computer generated instructions for lessons. Try to implement the use of computers as much as possible during the week. If this is impossible, observe the boy/s in computer lessons (library) and compare their attention, motivation and behaviour to the in-classroom behaviour.

At the beginning of the week ask the boy/s about their interests. Explain to the boy/s that they will be rewarded for doing the right thing during the week with an individual research task. The boy/s will be given 15-20 minutes to complete research on the computer and present it in a particular text type and print it before the two weeks have ended. The negative consequence for inappropriate behaviour is the student loses the privilege for that day.

Feedback

1. Did you notice any changes in behaviour when the boys with behaviour problems were listening to computer generated instructions (this maybe library lessons)? What were these obvious changes if any?
2. Did you notice any increased motivation than usual while using computers more frequently during the past two weeks?
3. What do you feel about the use of computers for boys with behaviour problems?
4. Do you feel that the privilege of using the computers as a reward was a beneficial reward for the boys with behaviour problems? Why/why not?
5. Do you feel that more use of technology in the classroom would improve the behaviour of boys with behaviour problems? Can you give me an example if you agree or your reasons if you do not agree?

Strategy 6: Gardening

For the next few weeks set clear expectations and goals that you want to be achieved in your classroom. Clearly outline to the boy/s that if appropriate behaviour is maintained daily they will be given the responsibility of gardening.

Make a copy of the classroom rules and discuss the rules with the boy/s, clearly outline that the gardening is a privilege and if appropriate behaviour is maintained they can care and look after the garden as a reward.

If appropriate behaviour is maintained then they will be able to go outdoors to their garden that afternoon.

Stress to these boys that they have been given a responsibility for caring for something and they will need to work hard at following the classroom rules in order to go outside.

Observe if the boy/s behaviour changes during the two weeks, and whether you think this is related to their garden; and particularly their sense of responsibility towards their garden.

Feedback

1. Did the boys with behaviour problems enjoy the gardening? Why do you think they did/didn't?
2. Do you feel that these boys' attitudes and behaviour at school improved because they had something to look after? Why/why not?
3. Comments about the gardening:

APPENDIX B – INTERVIEW QUESTIONS

1. Can you share with me, ways you have found successful in managing boys' behaviour?
2. Do you manage boys any differently from the way you manage girls?
3. Do you have any particular strategies that you use with boys who tend to be hyperactive, or have ADHD?

   Such as:

   a. Seat them in a particular place
   b. Have special calming activities?
   c. Use different book work?
   d. Use particular rewards?
   e. Use particular consequences?
   f. Single-sex activities or classrooms.
   g. Other?
4. What do you find the most difficult aspect of managing these types of boys (with ADHD)
   a. Can you tell me why?
5. Do you have anything else you would like to say about boys with ADHD?

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