

**“Reducing challenging behaviours**  
**in “at-risk” adolescents**  
**with Brain Gym®”©**

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**Inclusive Education Project submitted in partial fulfillment of the requirements for the Degree of Masters in Special Education Inclusive, Charles Sturt University, Bathurst, New South Wales, Australia.**

**December 2007**

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### **Abstract**

The purpose of this study is to test the hypothesis that: By training “at-risk” adolescent students demonstrating emotional disturbances and behavioural disorders, students and staff through workshops and staff in services about the positive effects physical exercises has on behaviour and learning, both groups will be motivated to participate in daily practice of a physical training program called Brain Gym® exercises as an intervention strategy. As a direct result, students’ self-esteem and well-being will improve social-psychological health, impacting on decreasing the frequency of challenging behaviours.

Brain Gym® is a series of specific movements that activate the brain and body for particular skills of behaviour management and learning i.e. focus, organisation and communication. The program improves the physical skills, rather than focusing on just the mental skills involved in behaviour and learning (Dennison, 2006).

Students for the study were ten Year 8-10 students at a special education tutorial centre in Western Sydney, in the state of New South Wales in Australia. The investigation employed surveys, exercise interventions, base-line data and professional development, linking case studies in an action research design.

Before the project, students each day were reluctantly participating in ten minutes of group exercises of their own choice. This ranged from stretching, mobilisation and some strength work. These exercises were generally completed very poorly and with little motivation. During the project Brain Gym® was implemented at the start of every school day and replaced the old program for the same duration of ten minutes. After one term (ten weeks) of practicing Brain Gym® eighty per cent of students participating in the program had demonstrated a significant reduction in the frequency of their challenging behaviours.

The limitations of this study design are such that inference about a causal pathway is speculative. The cross-sectional nature of observations limits the extent to which causality can be inferred. It is suggested that the regular practice of the movement program Brain Gym® can impact on social-psychological health to reduce challenging behaviours in adolescents.

Charles Sturt University

December, 2007

WE HEREBY RECOMMEND THAT THE THESIS PREPARED UNDER OUR SUPERVISION BY GILLIAN STUART ENTITLED REDUCING CHALLENGING BEHAVIOURS IN “AT- RISK” ADOLESCENTS WITH BRAIN GYM® BE ACCEPTED AS FULLFILLING IN PART REQUIREMENTS FOR THE DEGREE OF MASTERS IN SPECIAL EDUCATION INCLUSIVE EDUCATION.

Committee of Graduate Work

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Supervisor: Julie Lancaster

Department Head: Alan Bain

## **Acknowledgements**

The research and work by Robert Eyestone that inspired me to pursue this investigation

The invaluable assistance of John Morrison, Gordon Dickson, Jo Gardiner, and Julie Lendrum

My thanks go to the staff and students of the centre for their cooperation and support through the program.

My deepest gratitude goes to Vicki Brown, Megan Cartwright, Maratanna Hope, Helena Young, Deb Dickson, Chris Campbell, Angie Evans, Pam Perry, Trisha Abel, Janelle Ruddy, Jacquie Holyoak and Mary Stansfield who have supported me during the development of this project.

To my Mum and Dad who instilled in me heart felt courage to use my setbacks as stepping stones and the conviction to believe in something that needed to be noticed.

My loving family Bevan, Amy and Leif.

## Ethics Approval

# **“Reducing challenging behaviours in at-risk high school students with movement and the brain in mind”**

Is this research part of a subject related requirement?

Yes ( ☒ )

No ( ☐ )

If yes, state subject - name, code and number of credit points applicable:  
ESS 527 Inclusive Education Project- 8 Points

Principal Investigator(s)	School or Research Centre	Qualifications	Phone
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Julie Lancaster	Charles Sturt University		63384472

\* To be completed only if a Principal Investigator is a student

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<b>Proposed Dates of Collection</b>	From 28/9/07	To: 21.12.07

<b>1. RESEARCH PROPOSAL</b>		
<b>1.1 Research Question or purpose of project (briefly, and in lay terms)</b> <b>Will the Brain Gym ©program reduce the challenging behaviours in the students?</b> A physical exercise program called Brain Gym®, will be implemented twice a day for 10 minutes each time. The level of exercise will improve the students' mental and physical alertness, and they will be more willing and ready and able to learn. With increased feeling of wellbeing, they will be more likely to reduce their challenging behaviour.		
<b>1.2 Outline the research design and/or the nature of the project</b> The methodological approach to the study will be qualitative with selected case studies across Years 8-10. The instruments used will be survey, observations, workshop feedback, self-evaluations.		
<b>1.3 Outline the value and benefits of the project (eg. to the participants, your discipline, the community, etc)</b> The focus is for students to form peer acceptance through friendships, positive interactions and participation in classroom activities, giving skills for life of being able to give clear messages to express his/her needs and frustration in appropriate ways (Magg ,2001). This will enhance the positive results with the code of conduct throughout the school and students will reduce their challenging behaviours. The school community will then be able to focus on core business of teaching and learning.		
<b>1.3 Despite the value and benefits of the project, outline the burdens and/or risks (if any) of the project to your research participants and/or other people (eg. painful and unpleasant procedures, invasion of privacy, physical/psychological/mental stress, possible embarrassment, anxiety, discomfort, etc) and the details of how the Principal Investigator will respond to such risks (eg. will counselling be available for research participants?).</b> Some of the stakeholders may not want to disclose information and feel vulnerable, lots of support is provided by the school counsellor. Some of the disadvantages are the social desirability, which could influence lying. Over the time problems will occur with the students due to medication, attendance and family crises. Teachers and parents are required to make subjective judgments e.g. feeling guilty. Teachers may have tunnel vision and may no be the most appropriate person to assess those specific students. Requires introspection from the adolescents.		

<b>2. PARTICIPANT DETAILS</b>		
<b>2.1 Give the number of intended research participants:</b> 12		
<b>2.2 (a) From where will the research participants be recruited?</b> The centre <b>(b) How will the research participants be recruited?</b> From enrolments from the school.		
<b>2.3 If you are going to utilise a database as an information source, have you established that the participants named on the database have given their permission for their details to be used for research purposes?</b>	<b>Yes</b> ( × )	<b>No</b> ( )
<b>2.4 How will you obtain a research participant's agreement to be involved in your research? Note: A copy of any consent form and/or information sheet for the project should be attached to this application. PLEASE EXPLAIN IF THE CONSENT FORM AND/OR INFORMATION SHEET IS NOT ATTACHED.</b> (Details on how to complete a consent form and information sheet are attached to this application form.)		
<b>2.5 How will you be protecting the research participants' confidentiality?</b> Not using names		
<b>2.6 Is it possible that your research involves gaining informed consent from research participants such as minors, people in dependant relationships, the mentally ill or unconscious patients?</b>	<b>Yes</b> ( × )	<b>No</b> ( )

<b>2.7 Is it possible that some of your participants will be from an Aboriginal and/or non-English speaking background?</b>	<b>Yes ( x )</b>	<b>No ( )</b>
<b>2.8 If you have answered <u>yes</u> to either 2.6 or 2.7, please provide details of how the research participants' rights will be protected and if applicable, how you will be sensitive to their cultural backgrounds. (The Committee considers that there may be specific issues related to the inclusion of participants from Aboriginal or non-English speaking backgrounds and considers that while some projects may not be specifically targeting these groups, they may still be included in the participant group and may require careful consideration on the part of the researcher).</b> All the stakeholders have been informed about the outline and their involvement in the project.		
<b>2.9 Does your research involve the collection of human tissue?</b>	<b>Yes ( )</b>	<b>No ( x )</b>
<b>2.10 If you answered <u>yes</u> to 2.9, please provide details on any requirements to obtain consent from the persons from whom the human tissue is derived or from the organisation which has custody of the human tissue.</b>		
<b>2.11 Does your research involve children or young people under the age of 18?</b>	<b>Yes ( x )</b>	<b>No ( )</b>
<b>2.12 If yes to 2.11, have you obtained a Working with Children Check?</b> <i>If you have obtained a clearance to work with children, please attach a copy of the notification to this application - Please note that approval to undertake research activities involving children/young people will not be granted without the appropriate clearance.</i>	<b>Yes ( x )</b>	<b>No ( )</b>

<b>3. PROCEDURAL EVALUATION</b>		
<b>3.1 Describe the research procedures/methodology as they affect the research participants and any other parties involved. Comment on any biomedical procedures, procedures to elicit information (through personality tests, questionnaires, surveys, observations), procedures designed to influence the knowledge, thinking, attitudes, feelings or other aspects of behaviour of research participant(s). Include approximate time involved per session and number of sessions per subject.</b> All students are expected to fill in self-assessments, questionnaires, surveys, observations and assessments, the project will have a methodological approach to the study will be qualitative with selected case studies across Years 8-10		
<b>3.2 Does the project involve any of the following procedures?</b> a) the use of chemical compounds, drugs or biological agents? b) any invasive procedures (eg. blood sampling, tissue extraction, telephone sampling, etc) c) any identification procedures (eg. fingerprinting, TAPE/VIDEO RECORDING, photography, etc)? d) deception of participants at any stage of the project? e) accessing confidential personal data without prior consent of the research participants? f) obtaining information from another party (eg. doctor, employer) which requires identification of a research participant?	<b>Yes</b>	<b>No</b>
		x
		x
		x
		x
		x
<b>3.3 If you have answered yes to any of the questions in 3.2, please provide details.</b>		
<b>3.4 Has application been made for external funding</b> (a) If yes, what is the name of the funding agency? (b) What is the outcome? Approved ( ) Pending ( ) Refused ( )	<b>Yes ( )</b>	<b>No ( x )</b>
<b>3.5 Does this research involve another institution (eg. university, government school, health care facility)?</b>	<b>Yes ( x )</b>	<b>No ( )</b>
<b>3.6 If you answered <u>yes</u> to 3.5, give details including whether or not you have submitted an application to that institution for ethics approval. If you have already received ethics approval from that institution, please attach a copy of your letter of approval with this application.</b>		

<b>4. JUSTIFICATION AND ETHICAL CONSIDERATIONS</b>		
<b>4.1 What, in your opinion, are the ethical considerations in this proposal? (You may wish to comment, for example, on issues to do with consent, confidentiality, risk to research participants etc.)</b>		

All the ethical considerations of consent ands confidently are adhered too. No students are put at risk, and if any negative consequences arise with students, they will be given the option of not being involved.		
<b>4.2 Give details of the arrangements that have been made for the safe storage of data and also the measures which will be adopted to protect confidential records about research participants. (eg. locked filing cabinet). The Committee expects that data would normally be stored in a staff member's office or School. Students should clearly indicate where their research data is to be stored.</b>		
<p>(a) <b>During the study;</b> Locked up in a cabinet with limited staff access, and backed up on a USB stick</p> <p>(b) <b>After the study is completed:</b> All will be held in a locked storage area</p>		
<b>4.3 How will confidential records be destroyed after the study is completed? (The Committee recommends that confidential records be stored for <u>at least five years</u> and that the records be destroyed by a <u>shredder</u>)</b> The confidential records be stored for at least five years and that the records be destroyed by a shredder.		
<b>4.4 Will anyone else, apart from the Principal Investigator(s), have access to the confidential records or (where applicable) human tissue samples?</b>	<b>Yes</b> ( )	<b>No</b> ( x )
<b>4.5 If you answered <u>yes</u> to 4.4, please provide an explanation.</b>		
<b>4.6 If your research involves the collection of human tissue, please explain how you will store and dispose of the human tissue.</b>		
<b>4.7 May any party, other than investigators, claim ownership of materials or results derived from this research?</b>	<b>Yes</b> ( )	<b>No</b> ( x )
<b>4.8 If you answered <u>yes</u> to 4.7, please provide an explanation.</b>		
<b>4.9 Are there any other comments which you would like to add which may assist the Committee in its consideration of this project?</b> Previous pilot studies study has given some early indications of the program's effectiveness.		



<b>5. DECLARATION; I have attached the following documents:</b>		<b>Yes</b>	<b>No</b>
• Consent form			x
• Information sheet		x	
• Surveys/non-standard questionnaires – please note that if you are using a standard questionnaire there is no requirement to include this with your application.		x	
• Ethics approval from external institution (including approval from the Department of Education and Training if applicable)			x
• Notification of clearance to work with children (if applicable). Refer to <a href="http://www.kids.nsw.gov.au">www.kids.nsw.gov.au</a> for information, and contact Mr Paul Compton in the Division of Human Resources on (02) 6933 4386 for further information.		x	
<b>5.1 If you are unable to provide the Committee with any of the above supporting documents, please provide a brief explanation:</b>			
<b>5.2 Can the Principal Investigator certify that the investigators and assistants involved in experimentation have been fully briefed on procedures and relevant ethical considerations.</b>		<b>Yes ( x )</b>	<b>No ( )</b>
<b>5.3 Have the investigators and assistants involved in the experimentation read the guidelines of the relevant professional body (if applicable), and if yes, please give the name of the this body.</b>			x
<b>5.4 We, the undersigned, have read the National Statement on Ethical Conduct in Research Involving Humans (issued by the National Health and Medical Research Council)* and the Charles Sturt University Code of Conduct for Research (contained in the University's Academic and Administrative Manuals) and accept responsibility for the conduct of this research in respect of the National State Statement and any other conditions specified by the University's Ethics in Human Research Committee.</b>  * The National Statement can be found at <a href="http://www.nhmrc.gov.au/publications/files/e35.pdf">www.nhmrc.gov.au/publications/files/e35.pdf</a>  <i>Note; All Principal Investigators, Co-investigators and Supervisors are required to sign this declaration.</i>			
<b>Name</b>	<b>Role (eg. Principal Investigator, Co-Investigator or Supervisor)</b>	<b>Signature</b>	<b>Date</b>
Gillian Stuart	Principal Investigator	GS	20.9.07
Julie Lancaster	Supervisor		

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## **Executive Summary**

The purpose of this study is to test the hypothesis that: By training “at-risk” adolescent students demonstrating emotional disturbances and behavioural disorders, students and staff through workshops and staff in-services about the positive effects physical exercises has on behaviour and learning, both groups will be motivated to participate in daily practice of a physical training program called Brain Gym® exercises as an intervention strategy. As a direct action, students’ self-esteem and well-being did improve social-psychological health, resulting in the decrease of the frequency of their challenging behaviours by eighty per cent.

## **Introduction to the Report**

The aim of the project is to build a whole school approach to inclusion of all students with disabilities in a supportive school community, fostering a high achievement for all staff and students. The essential, practical problem – solving the nature of action research will allow teachers to be changed- agents with professional knowledge, implementing sound educational practice from the ‘bottom –up’ and therefore placing them in a stronger position to influence policies which shape their classrooms and communities (Burns, 2000; Parsons & Brown, 2002). The evaluator’s interest was to examine the effects of an exercise program called Brain Gym® on the frequency of challenging behaviours in adolescents and to investigate to what extent changes in social relations result in change in the school community as a function of the exercise intervention.

Given the relationship between affect and psychological well-being the hypothesis is that a biological intervention exercise program such as Brain Gym® can have psychological results in reducing triggers such as Oppositional Defiant Disorder (ODD), and Conduct Disorder (CD), depression, anxiety and self- harm behaviours. It is beneficial for the psychological well-being of the individual to reduce the intensity of psychological problems faced by that person, such as contributing social factors of interactions with others. It is impossible to suggest that physical exercises alone can make all the difference. Changes in teacher’s methods; changes in the combination of students and

population, changes in the staff, or measurement error are all possibilities. Yet the data can reflect changes in students if it occurs. A change in the trend line certainly may indicate a program effect, but the change may have been caused by something occurring at the same time or a combination of effective strategies working simultaneously.

The report will be shared with the school executive and staff at the Centre. The limitation of this study design is such that inference about a causal pathway is speculative. The cross-sectional nature of the observations limits the extent to which causality can be inferred.

Overview of the report contents:

- Literature Review
- Focus of Evaluation
- Overview of Plan and Procedures
- Conclusion and Recommendations
- Appendices

## **Literature Review**

### **Introduction**

Exercise is beneficial for the human body has been commonly accepted by many and has widespread support (Trembley, 2000). Studies have shown that improving children's movement competence, results in a parallel improvement in aspects of behaviour (Henderson & Sugden, 1992; Tammelin, 2003). The effects of regular physical activity or exercise training on social-psychological health have been extensive. The primary outcomes most studied include depression, stress, anxiety, self-concept and self-esteem (Norris, 1992; McMahon, 1988; Brown, 1986).

It has been hypothesised that physical activity improves social and moral development, as well as academic performance (Dwyer et al. 2001, Stewart 2005). Children with developmental delays are vulnerable to unhappiness throughout adolescence which can contribute to a chain of mental health complications, including depression, various adjustment reactions, conduct disorder to serious social maladjustment and lifelong under achievement (Loose et al., 1991; Pearce, 2002; Hannaford, 2002; Goddard, 1996; Levine, 1984). Despite evidence linking physical activity during childhood to improved health, Physical Education in Australia is not as highly rated as reading, writing and arithmetic (Lyons, 2003). Therefore it competes with the six other key learning areas for the afternoon time slot (Evans, 2003; Corbin, 2001; Kelly et al., 1989).

There are an increasing number of adolescents with an emotional disturbance (ED) and /or behaviour disorder (BD) in NSW secondary schools, even with the focus on quality teaching (NSW Department of Education and Training 2005). Rowe and Rowe (2000) indicate that there is a need to develop more specific programs and approaches which affect self regulation, improve communication and alleviate social/behavioural dysfunction within this population group. Brennan (2006) estimates that there is up to one hundred and eight thousand (or one in five) adolescents in New South Wales high schools who have a moderate to severe mental health problem which fits into the BD/ED diagnosis. The overlap that exists between mental health and learning difficulties is well

documented (Hazell, 1997). Research indicates that the number of students at risk of educational failure is increasing (Minskoff, 2005; Clay 1995; Goddard, 2002).

The most important feature of outcomes based education is that all students are expected to be successful (Killen, 1998). However if students are not successful in the early stages of their education they often remain unsuccessful for their entire school career, and any success is replaced by failure, depression and social isolation (Losse et al., 1991).

Modern brain imaging techniques allow educators to examine the connections between life experiences, brain physiology, behaviour and cognitive ability based on information gained from Position Emission Topography (PET), Functional Magnetic Resonance Imaging (fMRI), and other brain scans (Diamond, 2000; Sousa, 2006; Kramer, 2007). Educating teachers to focus on the most effective strategies of instruction, assessment and differentiation, based on current research of learning theories (Conway, 2005; Zirpoli, 2005; Tomlinson, 2001), and validated through brain imaging studies, will guide teachers to design learning experiences that conform more closely to the ways in which the brain learns best (Jensen, 2006; Brandt, 1999; Caine & Caine, 1990; Sousa, 2006).

The concept of behaviour and learning as a “whole body experience” is receiving much greater acceptance than the old model where mind and body were viewed separately (Blakemore, 2003; Hannaford, 1995; Dennison, 2006; Diamond, 2003; Thelan, 1994). Brain Gym® is biological intervention (exercise) that could have a positive psychological result in well-being, that could reducing the triggers of ODD, CD, depression, anxiety and self harm behaviours, increasing positive interactions related to social factors. The physical exercise program Brain Gym® provides an excellent opportunity for researchers to investigate the links between this daily regimen of physical activities and its purported benefits. This study therefore fits into the developing area of investigation where there are interests in both the relationship between exercise and physical functioning for the students and how, taking an interactive perspective of body and mind, this can lead to a stronger psychophysical system which promotes better



coping with stress and a reduction in challenging behaviour (Norris et al., 1992; Brown, 1986).

### What is a Behaviour Disorder (BD)?

Children are considered to have a behaviour disorder (BD) when their behaviour falls outside the norm such as: being inattentive, withdrawn, aggressive, non-conforming, disorganised, immature, or unable to get along with others (Bos et al., 2000). The most common disruptive behaviour disorders include Attention Deficit Hyperactivity Disorder (ADHD), Oppositional Defiant Disorder (ODD), and Conduct Disorder (CD). Some of these disruptive behaviours share common symptoms, and have high co-morbidity, so diagnosis can often be difficult and time consuming (Busamante, 2000). These disorders in children and adolescents may be caused by biopsychosocial factors (Oltmanns & Emery, 1995):

- biological factors such as genetic inheritance, chemical imbalances in the brain, and damage to the central nervous system, such as a head injury.
- psychological factors of past experiences from environmental factors including exposure to violence, extreme stress, drugs and alcohol, and the loss or death of an important person.
- social factors include current circumstances, unsuitable teaching instruction and/or poor interpersonal interrelations with family, friends, teachers and students.

In the biopsychological model, all of these are causal factors and affect each other. Interventions in any of these areas, or combinations of them, affect the other areas (Dickson, 2005; Oltmanns & Emery, 1995).

### BD's are grouped into two broad categories: externalising and internalising.

Externalising behaviours are characterised by acting out aggression, interfering, attention seeking, and conduct problems. Externalising behaviours appear to be more intolerable to teachers than other undesirable behaviours because they directly challenge the teachers' authority, interfere with the delivery of instruction, disrupt classroom routines and affect classmates adversely (McConaughy & Skiba, 1993; Safran & Safran, 1987).

Internalising behaviours are viewed as more self-directed, such as being anxious, worried, and depressed (Bos et al., 2000). In general, internalising or over controlled behaviours are more inner-directed and covert in nature (Bocian et al., 1998).

#### What is an Emotional Disturbance (ED)?

The term "emotional disturbance" is not a fully accurate medical term, but is commonly used in ordinary context to refer to those psychological disorders (Psychological Disorders, 2007) that appear to affect emotions. Some of these disorders include: bi-polar disorder, schizophrenia, post traumatic stress syndrome, depression, borderline personality disorder, eating disorders, anxiety disorders and obsessive compulsive disorder. Many students express their emotional pain through self-harm, such as cutting, burning, or self-mutilation, which is often anxiety based and is of increasing concern to mental health and educational practitioners (Mc Alpine, 2007). Typically, the majority of students diagnosed with ED have been victims of emotional, physical (abuse and neglect) and /or sexual abuse. Further, it should be ensured that the educational interventions should match the established needs of the students with ED (Zabel, 1998).

The Individuals with Disabilities Education Act (IDEA, America) defines an emotional disorder as: a condition exhibiting an inability to learn, to build or to maintain relationships, showing inappropriate behaviour and a general pervasive mood of unhappiness. It is characterised by a tendency to develop fears and physical symptoms associated with school. These characteristics are observed over a long period of time and to such a marked degree, that they adversely affects a child's educational performance (Code of Federal Regulations, Title 34, Section 300.7(c) (4) (i)) U.S.A. Department of Education, (2001).

## **Review of Literature**

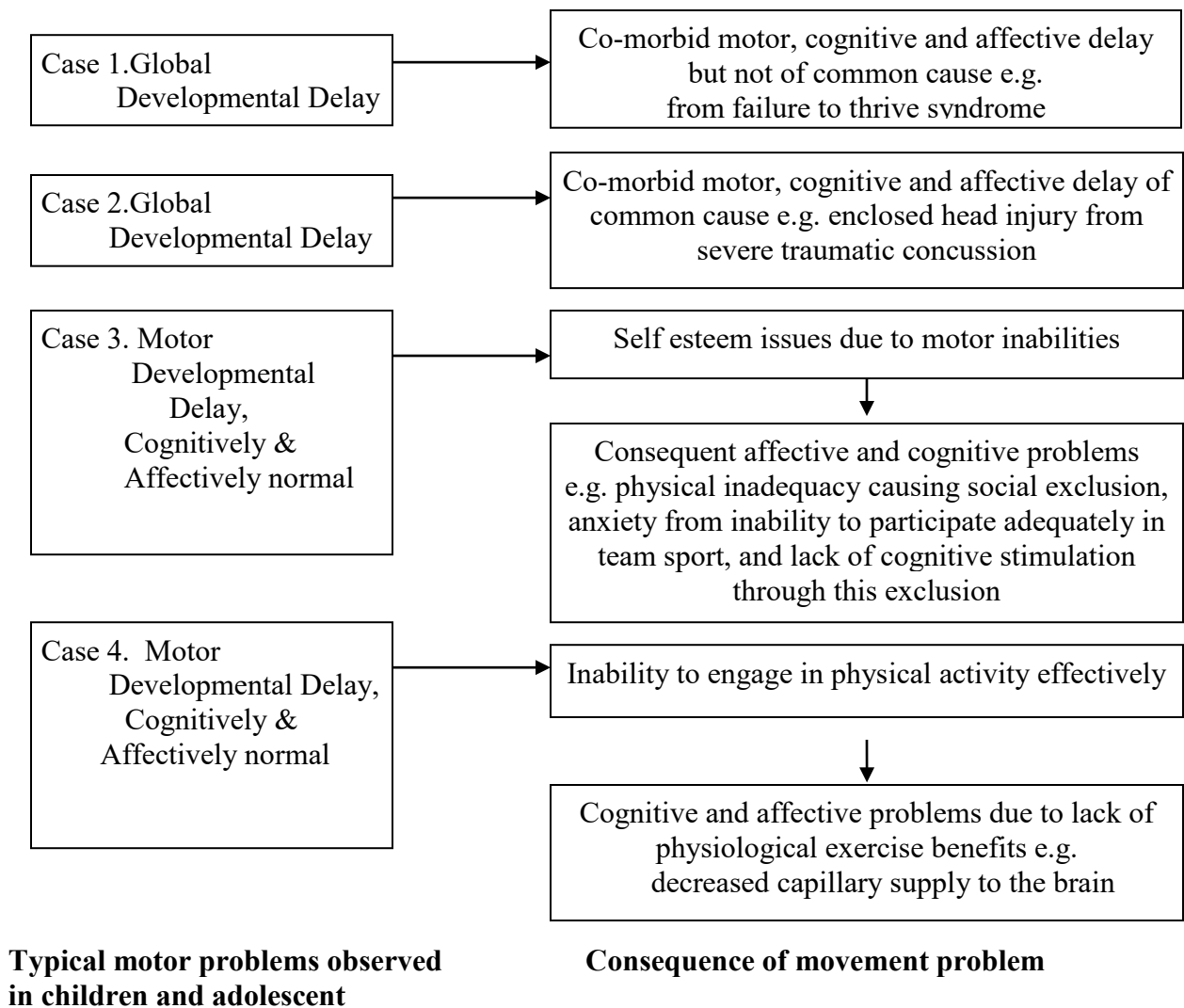
This thesis will first examine this hypothesis by invoking studies on the positive influences that physical exercise has had directly on global developmental delay, or indirectly on self-esteem and level of engagement, which has a consequent effect on affective and cognitive problems. Secondly, studies on effective teaching, behaviour and learning intervention programs will then be reviewed, as well as current research on how the brain learns best. Thirdly, studies on the intervention of the specific exercise program, Brain Gym© will be scrutinised with respect to underlying developmental processes. Finally, conclusions on the positive effects of daily exercise with adolescents will be used to draw conclusions about how future development programs could be refined.

In Australia, up to one in three children and young adolescents suffer from diagnosable mental health problems, which include behaviour problems, anxiety, depression, drug and alcohol use and delinquency (McInerney & McInerney, 2002). Social, emotional and behavioural difficulties impact on student motivation and the ability of individuals to benefit from schooling. Consequently, students then fall behind scholastically and the emotional, social and behaviour problems may become further exacerbated. This indicates a reciprocal relationship between mental health and schooling (Roeser et al., 1998).

One stage of life in which change, stress and depression are particularly prevalent is adolescence (Norris et al., 1991, Pearce, 2002). Around five per cent of seven to twelve year old children will have depression, but this rises to fifteen to twenty per cent of teenagers between the ages of thirteen to eighteen (Morgan, 2005). The effects of regular physical activity or exercise training on social-psychological health have been studied quite extensively. The higher rates of depression related to less exercise in all ages. A big problem with children and an even a greater problem with adolescent, but both could be helped by exercise. (Krammer, 2007). A growing literature documents multiple physical and mental health benefits of physical activity in young people (Sallis, 1994; Nagal, 2003).

Skilled movement is a fundamental component of human life and the importance of motor competence can determine the extent in which a child can function efficiently within the school environment. In some children, lack of motor competency is but one component of a general picture of delayed development [see Case 1 and 2]. In other children, there is a marked contrast between lack of competence in the motor domain and their excellence in other subjects such as maths. Far more prevalent are the children with continued difficulties in motor tasks and with the educational and behavioural problems. [See Case 3 and 4 (Henderson & Sugden ,1992)].

**Table One. Summary of motor studies problems observed in children and adolescents and their subsequent consequences**



Many researchers have reported that participation in physical activity can enhance psychological well-being, with the primary outcomes being a reduction in depression, stress, anxiety and an improvement in self-concept and self-esteem (McMahon, 1988; Trembley et al., 2000; Young, 1985). Regular physical activity not only develops physical fitness and contributes to psychological health and well being during childhood, but it also increases the probability of children becoming active adults (Sallis & Patrick, 1994; Tammelin, 2003; McAuley et al., 2000).

Dua & Hargraves (1992) investigated the effect of aerobic exercise on negative and positive thoughts, stress and depression. The exercise group of adults reported a more positive effect associated with thoughts, stress and depression compared to the control group who did no exercise, confirming the relationship between exercise and effect. Brown & Lawton (1986) in a cross-sectional study of life stress and well being in adolescence found that the negative impact of life events was significantly lower among students who exercised. Even short moderate physical exercise for a generalised effect can improve brain and behaviour performance. A study by Scholey et al., (1999) found that physical activity increases the number of capillaries in the brain, which increases the amount of oxygen that fuels the brain. Standing up and moving around can increase the flow of blood to the brain by up to fifteen to twenty per cent. Our brains do not work best when we are sitting for long periods (Jensen, 2006; Pearce, 2002).

Folkins and Sime (1981) have suggested that early research on the psychological effects of physical exercise training was inhibited by the view that the mind was separate from the body. However, they propose that a more recent psychosomatic perspective has supported the conceptual link between mind and body and has provided the foundation for empirical inquiry into fitness. Here, the question of how a change in physical fitness can affect personality has become relevant, as there is growing evidence which suggests that psychological benefits follow exercise. Simons and Birkmer (1988) found that after exercise, subjects had positively enhanced mood and reported less tension/anxiety, depression/dejection, anger/hostility, confusion/bewilderment and more vigour/activity.

Topp (1989) found that regular exercise which improved the fitness of undergraduate students also significantly reduced their test anxiety.

Movement competence enables a child to function better in daily life. It creates the opportunity for a child to develop the competence and confidence to become and remain physically active throughout their lives. Just as importantly it can improve other aspects of the child's development such as self-control, the ability to co-operate with others, self esteem and confidence (Walkley et al., 1993). Students with poor motor skills are easily spotted in the physical education class and appear to disturb others (Lerner, 2003). Gross motor proficiency can contribute significantly to improving self-image and self-competence. Children who are clumsy or awkward commonly feel ineffective and inferior to their peers, as they are last to be chosen for teams or are ridiculed during physical education classes (Case 3) (Levine, 1984).

Schoemaker & Kalverboer (1994) found that children who are clumsy are more likely to be introverted than children without movement problems. They judge themselves to be less competent both physically and socially, and are significantly more anxious. Bouffard et al., (1996) conducted an observational study conducted over a two months period in playground settings with fifty-two subjects, which revealed that during playtime, children with movement difficulties were vigorously active less often, played less often with large playground equipment (Case 3) and spent less time in positive interactions with others (Case 4).

Other studies have also shown that improving a child's movement competence results in a parallel improvement in other aspects of behaviour. Tammelin (2003) and Hannaford (1995) showed that children who are happier, more confident and have self-control are better able to develop coping strategies. Henderson & Sugden (1992) cited a study by Stott, Marston & Neill (1975), who were interested in children who experienced 'emotional and behavioural difficulties'. Over six hundred children participated in the study that investigated the relationship between motor impairment and social adjustment. The results indicated that twenty-five per cent of maladjusted children had co-ordination

difficulties, a much higher than normal incidence. They reported that their findings were consistent with many other studies demonstrating a relationship between poor co-ordination and behaviour disturbances of various kinds.

Norris et al. (1992) investigated one hundred and forty-seven adolescents who had experienced a higher incidence of life events and who demonstrated a strong association between stress and anxiety/depression and hostility. The adolescents were assigned to either high or moderate aerobic training, flexibility or a control group for a ten week program. Analysis revealed that those who undertook greater physical activity also reported less stress and lower levels of depression, with a reduction in hostility.

A myth exists that physical signs of clumsiness and the psychological concerns associated with school failure will disappear with maturation (Losse et al., 1991).

Longitudinal studies show that many develop serious educational, social or emotional problems as they progress through school (Henderson & Barnett, 1996). Geuze & Borger (1993) followed up and assessed whether clumsiness persists beyond the age of twelve. The findings were that fifty per cent of clumsy children were still markedly below the level of normal motor performance and those parents and teachers reported the parallel characteristics of lack of concentration and problems in social behaviour.

Henderson et al. (1991) in their paper *The clumsy child in school – are we doing enough?* presented the single case of an intelligent child who was identified as having quite severe coordination problems in her early life that were never remediated. As she got older, her success was replaced by failure, depression and social isolation. The authors reported the long term prognosis includes distress, a high incidence of learning difficulties, school failure and psychological problems for children who are “clumsy”, and the educational implications of failing to recognize the need to help these children.

Children with ‘developmental output failure’ are vulnerable to unhappiness throughout adolescence. This contributes to a chain of mental health complications, including depression, various adjustment reactions, conduct disorder which result in serious social

maladjustment and lifelong under achievement (Levine, 1984; Loose et al., 1991; Pearce, 2002; Hannaford, 2002; Goddard, 2002; Henderson & Barnett, 1996). Hall et al., (1995) conducted a detailed study of children selected by their teachers as having poor co-ordination for their age. The results of the study demonstrated that at the age of sixteen, all of the children continued to have substantial motor difficulties, as well as a variety of educational, social and emotional problems. As ‘clumsy’ children progress through the school system without additional support, the long-term prognosis is not good (Losse et al., 1991; Henderson et al., 1989).

Movement competence enables a child to function better in daily life, and just as importantly improve other aspects of development, such as self-control, the ability to cooperate with others, self-esteem and confidence (Shephard, 1997). Henderson & Sugden (1992) found that providing interventions for children with movement difficulties improved motor competence which then opened the doors to full participation in activities for daily living. The associated problems of low self-esteem and poor strategies for learning were also alleviated.

Research shows that very few “grow out of” their movement difficulties and continue to struggle with issues of underachievement and low self-esteem into the teenage years (Henderson et al., 1991; Cantell et al., 1994; Geuze & Borger, 1993; Henderson et al., 1994). The early detection of motor problems and the start of appropriate intervention programs is very important to minimise many physical and related emotional problems (Walkely et al., 1993; Henderson & Sugden, 1992). The link between poor behavioural health, learning under-achievement and mental health, is problematic to the extent that what should be an education issue has become a major health issue (DeWatt et al., 2004; Lyon, 2003; Rowe & Rowe, 2000).

Each of the studies firstly supports the developing area of investigation in the relationship between exercise and physical functioning, and demonstrates having a stronger psychophysical system promotes better coping with stress and mental health. Secondly, the shift in focus on the physical to the psychological benefits of exercise represents the



growing recognition of the importance of self-esteem in problematic behaviour. Finally, what is strongly evident is that when intervention programs did not address the movement problems, individuals continued to deteriorate and other psychological problems developed as a consequence.

The relationship between physical activity and academic performance has been the subject of research and speculation for some decades (Stewart, 2005; Williams, 1988; Dwyer et al., 2001; Shephard et al., 1984; Maeland, 1994; Bluechardt & Shephard, 1995; Maeland & Sovik, 1993). Intentional, skilled motor movements are critical links in the transformation of ideas or plans into products (Levine, 1984). Although the evidence regarding the relationship between physical education activity and consequent academic achievement is limited, physical activity and health-related physical education appear to be, albeit weakly, positively associated with academic performance (Tappe & Burgeson, 2004). There is, however, evidence that physical education is an effective strategy in promoting physical activity, and physical education would by implication enhance academic achievement (Sallis & Patrick, 1994).

Numerous studies show that behavioural problems frequently co-occur with learning difficulties. What is taught, how it is taught and the environment in which it is taught all affect behaviour (Zirpoli, 2005; Conway, 2005; De Watt et al., 2004). 'Acting out' and avoidance behaviours include chronic inattentiveness and disinterestedness, low self-esteem and disengagement or withdrawal from willing participation (Rowe & Rowe, 2003). The child who is commonly described as "lacking concentration", having difficulties or is under stress, has deficiencies in learning readiness skills. To cope with the problem the child "opts out" by using disruptive strategies to avoid unpleasant situations, and gives a message to the teacher that something is amiss (Bullus & Coles, 1998).

As demonstrated by suspension rates throughout the various Australian states, it is likely challenging behaviour and anti-social behaviour is increasing (Griffiths, 2002; Commonwealth of Australia Enquiry, 2002; Stewart, 2005). Even with all the academic

interventions and changing methods in education, the percentage of the children suffering from learning difficulties has remained largely unchanged since the 1970s (Lyons, 2003; Goddard, 2002). In 1996, one hundred and ten students with a Behaviour Disorder (BD) were placed in units. By 2005, this had increased to three hundred and thirty-nine. Similarly, the placement of students with Emotional Disturbance (ED) increased from three hundred and sixty-five places in 1996, to seven hundred and forty-one in 2005 (Student Discipline in Government Schools, 2006). Poor student behaviour and substandard results is a loud call from students to the educational community to start seeing education from their perspective.

Violence is increasing in our schools and teachers are expected to cope with outbursts that are quite foreign to many and are not part of their training (Griffiths, 2002; Walker et al., 1996). In 2007, in the state of New South Wales, twenty new suspension centres were implementing behaviour modification plans for students returning to school after long suspension (twenty days). Eight new behaviour schools and seven new tutorial centres for secondary students were opened in 2007, so even more disruptive students could be taken out of the classroom. In 2008 there will be: thirty-five Behaviour schools, twenty-two Suspension centres, and forty Tutorial centres. These programs aim to reduce the disruptive behaviour of students and enable them to positively engage with school and the community (Student Discipline in Government Schools, 2006). An Australian study carried out by Sugai and Evans (1997) indicated that ED/BD students were significantly behind their peers in self management and social interactions.

Behaviour support programs provide a number of popular interventions for students with disruptive behaviour. One of the most ironic interventions is “time-out” for a particular misbehaviour thus relieving him or her from having to perform an undesirable task. Suspensions and expulsion usually intensify the difficulties between teachers and students, instead of establishing the bonds that are necessary to manage behaviour. The widespread use of “conflict resolution” will not do much to alter the more serious and pervasive problems e.g. gang violence and patterns of bullying (Walker et al., 1996). This population is diverse in nature and presents a number of distinct subgroups, e.g. gang

members, fire setters, paedophiles', so different interventions are required because social skills training alone is not adequate (Bullis et al., 2001).

Training of school personnel to treat and cope effectively with students with a history of anti-social conduct is often inadequate (Walker et al., 1996). Greene et al. (2002) provided data to indicate that teaching children with oppositional /aggressive behaviours is rated as more stressful than teaching children with ADHD. Dishion et al. (1999) tested the hypothesis that high-risk young adolescents potentially escalate their problem behaviour and negative life outcomes in adulthood when they are all grouped together in intervention programs. They conducted a longitudinal research revealed that "deviancy training" within adolescent friendships predicts increases in delinquency, substance use, violence and adult maladjustment. The scientific and professional community must be open to the possibility that intentions to help may inadvertently lead to unintentional harm:

**"Therefore, the cost effectiveness of group interventions is retained if focus is on the parents and aggregating young adolescents is avoided" (Dishion et al. 1999, pp.762).**

Rowe & Rowe (1999) investigated the link between students' disruptive behaviour problems at school (particularly inattentiveness-ADD/ADHD) and their poor achievement progress in literacy. This overlap is problematic to the extent that what is essentially an education issue has become a major health issue. The findings suggest that intervention strategies targeting both domains are required. If a student has failed to benefit from teaching strategies dealing with the cognitive domain, then it is time to examine the motor skills of the child, to see if there is a physical basis underlying the poor academic performance (Goddard, 1996; Cohen, 1993; Lyons, 2003).

Quality teaching in NSW is based on the assumption that improvement in the quality of teaching will result in an improvement in student outcomes, such as performance, criterion preference or standardized basic school testing (Quality teaching in NSW Public Schools, 2003). The most important feature of outcomes based education is that all students are expected to be successful (Killen, 1998). Quite clearly, one of the

consequences is that students, who are not successful in the early stages of their education, often remain unsuccessful for the entire school career (Losse et al., 1991).

Academics like Wang, Haertel and Walberg (1994) analysed fifty years of research data in order to uncover the most important factors affecting student learning. Their findings pointed to teacher attributes and competencies interacting with student attributes and aptitudes to exert a most powerful set of influences on learning outcomes. Agne, Greenwood and Miller (1994) claimed that, “Research is discovering that teachers’ beliefs can make or break the learning process” (p.141). Ginsburg (1989) suggested “the most effective strategy for dealing with learning and behaviour problems is to improve the quality of instruction” (p.237).

Such instruction is carried out by teachers who are responsive to instructional needs of individuals who may vary in cognitive capacity, relevant conceptual knowledge, motivation and a wide range of other characteristics (Harris & Pressley, 1991). Teachers need to build on what students know and take them to the next stage; providing support and fine tuning as they move to independence (Clay, 1991). Therefore assessment, planning, teaching and evaluating are integrally linked with each other in an ongoing process. Assessment becomes part of teaching for success and a way to extend rather than merely measuring learning (Tomlinson, 2001). Classes need to be structured in context to meet the diversity and range of all students, by differentiating the curriculum to make content available to them (Conway, 2005). Research has indicated that positive behaviour management and discipline of students can be influenced if the classroom is viewed as an eco-system. There is a significant finding to support the fact that ‘when teaching and learning are productive, behavioural problems are reduced and positive social inclusion is enhanced’ (Conway, 2005; Doyal, 1986; Dempsey, 2005). This gives support to the need for individualized programs of which specific exercise interventions could be one.

To engage these poor performing students, teachers will need to develop different attitudes and new strategies for teaching, behaviour management and assessment. (Killen, 1998; Zirpoli, 2005; Thomlison, 2001). Perhaps the biggest challenge for the teacher is making changes in their own behaviour in response to the student, their methods of

teaching and possibly the need for re-arrangement of the whole classroom environment (Demerssemans 2004; Lohrmann & Talerico 2004; Nagel, 2003). Kameenui (1993) in his study found that many teachers could identify children experiencing failure in their programs but they did not have the skills and strategies to meet the childrens' unique needs to overcome their failure.

Teachers can choose to blame the student or look at the effectiveness of their teaching in reaching these students – many choose the former, believing it is not possible to help some students at all. How teachers feel about the cause of learning and behaviour difficulties seems to be critical (Dal Santo, 1992). Vickery (1988) states that successful learning for all students is both the starting point and bottom line of outcomes based planning in assessing students' prerequisite knowledge and skills. If students do not have the fundamental prerequisite skills for learning, teachers must provide strategic instruction to build these foundations. Johnston & Johnston (2001) support Vickery's findings in their conclusion that when students have mastered foundation physical skills for learning they are neurologically ready to meet and respond to the demands of formal learning and behaviour management.

Behaviour and learning difficulties are often caused by neurological problems, not educational ones (Pheloung, 2006). "Can we alter and improve the trajectory of the developing brain? The answer is thankfully yes." (p.17). Research supports this view by encouraging adolescents in an enriched environment to do daily physical activity. This can enhance behaviour and learning, but it rarely happens (Jensen, 2006). Despite normal hearing acuity, difficulties with processing auditory information have been noted to be the most common problem in children and young people presenting to paediatricians for assessment of behavioural and learning difficulties (Rowe & Rowe, 2003).

Significant information is emerging on brain physiology, behaviour and cognitive ability from Position Emission Tomography (PET) and Functional Magnetic Resonance Imaging (fMRI). Brain scans such as these which concern the adolescent brain activity can inform methods and practice in education (Souha, 2006; Greenleaf, 2003; Hansen et al., 2002).

Diamond (2000) through her research utilizing such imaging, discovered that motor development and cognitive development may be fundamentally interrelated. Contrary to popular notions that motor development begins and ends early, whereas cognitive development begins and ends later, both motor and cognitive development display equally protracted developmental timetables. When cognitive development is perturbed, as in a neurodevelopment disorder, motor development is often adversely affected. Like the prefrontal cortex, the cerebellum reaches maturity late. Many cognitive tasks that require prefrontal cortex also require the cerebellum, which governs gross motor movement as well as modulating almost all the functions of the rest of the brain (Hannaford, 1995).

Due to our understanding of neurological underpinnings of learning and behaviour difficulties, we have a solid foundation on which to base educational decisions (Wolf, 2006). Motor activities precede mental actions: then both act together: and finally motor activity is subordinate to mental action ( De Quiros & Schrager, 1979). Interestingly it is the right hemisphere of the brain that recognizes negative emotions faster. The left hemisphere notices positive ones faster. Studies indicate that the left hemisphere is more active when we are experiencing positive emotions (Jensen, 2002; Peace, 2002; Begley, 2007). The adolescent brain is a time where particular connections (already in existence) are strengthened, and where others decrease in strength depending on the demands/ stimulation from the environment. A window of opportunity exists for teenagers to develop their brain through activities in which they choose to participate (Sedra, 2003; Zirpoli, 2005).

If you've been involved in the field of education for any length of time, you've seen many innovations programs come and go (Wolfe, 2006). Attempts to link the findings of brain research directly to classroom practice should be interpreted with caution.

However, an emerging trans-disciplinary approach, involving cognitive neuroscience, psychology, education, and health, has resulted in a "new science of learning" which has much to offer (Brandt, 1999). This approach has the potential to shed light on the impact of movement, intention, memory, language and behaviour (Bereiter, 2000; Brandt, 1999;

Sylwester, 1995; Cain & Caine, 1991; Greenleaf, 2003). Based upon research, a brain compatible classroom is similar to the premise of quality teaching and effective instruction, where teachers create a positive climate explicitly and methodically, to provide opportunities for authentic learning, reflection and self-assessment. One of the new emerging understandings is that effective learning relies on physical exercise as an integrating function (Bereiter, 2000; Brandt, 1999; Cain & Caine, 1991; Greenleaf, 2003).

The complex interaction that seems to exist between motor, cognitive, and affective activities must be addressed if the process of assessment and intervention is to be effective (Henderson & Sugden, 1992). Given the importance of both academic and behavioural agendas to the wellbeing of adolescents, more programs that successfully integrate behavioural interventions into course curriculum's would be beneficial to youth (Zirpoli, 2005).

Despite the evidence linking physical activity during childhood to later health outcomes (Tappe & Burgeson, 2004), physical education programs have eroded during the past two decades (Trembley et al, 2000). Physical education as an integral part of the total school curriculum has tremendous impact in terms of promoting physical activity because most children and adolescents regularly attend school. Shephard (1997) from his research reiterated the importance of establishing positive health habits at an early age, and proposed that school boards should be encouraged to follow a policy of required daily physical activity in schools. Kramer, (2007) in his studies found that if exercise programs were easily accessible, (low-cost and low-tech) widespread participation was achieved. More opportunities need to be provided to increase physical activity and promote mental health. Rowe & Rowe (2003) in the following quote emphasises the need for new interventions. With the growing body of evidence regarding the contribution of physical education and physical activity, this could be the part of the solution to help public health and education:

**“For what is demonstratively the most salient and problematic issue in child and adolescent mental health, the challenge into the new millennium is to refocus the prevailing psycho-behavioural models accounting for the overlap between inattentive behaviour problems and**

**poor academic achievement together with their related intervention emphases to educational ones. In their view, the personal, social and financial costs of failure to meet this challenge will be both unsustainable and unbearable.”(Rowe & Rowe, 2003, pp.92)**

As already reported, there is strong evidence to suggest that physical exercises can make a difference to how students act, think and feel. However, there are obstacles which are inhibiting the access of students to the right types of physical exercise which enhance neurological and psychological development. Firstly, mainstream educational communities are still regarding thinking and action as separate functions, assigning them different priorities. But as brain studies probe deeper into the relationship between body and mind, the impact of exercise on challenging behaviour disorders and learning becomes more apparent (Sousa, 2006; Goddard, 2002; Diamond, 2003; Thelan, 2001).

Secondly, the strategies and processes that are highlighted as being effective interventions in teaching and behaviour are not working, due to the increasing need for behaviour placements and settings. Motor activities are typically part of the curriculum in early childhood special education programs. However less attention is placed on the role of motor development for older children (Lerner, 2003). Activities involving movement are reduced or eliminated when school budgets and timetables get tight. But our attempts to encourage people to find 30 minutes a day to engage in some form of physical activity have, by and large, not met with much success (Evans, 2003, Salmon et al., 2005). Adolescence seems to be a high-risk period for developing sedentary habits and is therefore of special interest in research (Tammelin, 2003). Finally, what is strongly evident is that when intervention programs do attempt to address students’ anti-social behaviour, these interventions are not working and challenging behaviours are escalating (Zirpoli, 2005).

Much has been written about the value of motor development to behaviour and learning, with early educators viewing motor growth as the cornerstone of child development. Physical exercise and motor experiences are crucial for human development (Lerner, 2003). It is therefore essential, from a preventive aspect to ensure the quality and quantity of exposure to correct fundamental movement skills, that are necessary goals of teachers, coaches and parents (Landy & Burridge, 1999; Walkley et al., 1993).

Concerned Mothers, Fathers and carers have heard about a link between crawling, or



rather not crawling and difficulties (Reich, 2001). The children who cannot cross the sagittal midline that divides the right and left side of the body have problems with communication across the corpus callosum between the motor areas (Ayres, 1971; Cohen, 1993; Goddard, 2002; Dennison, 2006; Dennison & Dennison, 1994; Diamond, 2003; Hannaford, 1995; Walther, 1981; Hannah, 1994; Goodheart, 1970).

Cromie (2003) reported on the study results of how abuse during childhood can change the structure and function of a child's brain. The researchers led by Mar Teicher, compared brain scans from fifty-one patients and ninety-seven healthy children. In boys, neglect was associated with a significant reduction in the size of the corpus callosum. It was also abnormally small in girls who were sexually abused. Their finding was that the smaller corpus callosum leads to less integration of the two halves of the brain, and that this can result in dramatic shifts in mood / personality, and less motor integration.

Since the early 1970's, Dr. Paul Dennison, who directed several learning centres in Southern California, noticed that many of his clients labelled who were learning disabled and ADD, had mixed dominant of left-eyed and right-handed. He worked with behavioral optometrists and body specialists to investigate how to modify learning programs to include more physical exercises in learning. His research led him to the study of Applied Kinesiology, a system which evaluates body function through the relationship of muscles and posture (Walther, 1981). Dennison & Dennison (1994) related motor skills to brain function and began looking at laterality, which is the ability to move easily across the front midline of the body between the left and right hemispheres and how it affects our ability to process information. The Dennison's established an organization called Educational Kinesiology (Edu - K) with Brain Gym® being the introductory physical exercises. Through their research they developed patterning movements and specific activities, which they reported allowed for integration of the whole brain for learning (Dennison, 2006):

**“The Brain Gym movements have been designed to activate various cognitive functions, including communication, organization and comprehension. The movements are effective because they activate the brain in specific ways that ready us for learning. Brain Gym strengthens the physical skills involved in the learning process, and when we feel physically prepared to meet the day, the mental aspects of our learning comes easily”( pp. 46 ).**

Dennison built his work on Thie (1989) and Walther (1981), and their studies of Applied Kinesiology as chiropractors. Walther and Thie found that a normally functioning and well organised human brain has significant integration between the left and right hemispheres via the corpus callosum. This communication is necessary for an individual's optimum function. The term integration refers to children bringing various opposing muscle and sensory systems into co-ordinated interaction with one another (Gallahue & Ozmun, 2002).

The concept of 'patterning', which is using the left side and right side of the body together, such as the movement involved in crawling, was initiated by Doman and Delacato. In the 1960s, psychomotor patterning was proposed as a new treatment modality for people with mental retardation, brain injury, learning disabilities, and other cognitive maladies. In more recent years some the technique is premised on a bankrupt and discarded theory and has failed when tested under controlled conditions. It was debated in the scientific literature up until the early 1970s, when the scientific medical community arrived at the consensus that it should be discarded as a false concept with no therapeutic role. Its use, however, has not stopped (Novella, 2005). Yet it is interesting to look at the case of neurologist Paul Bach-y-Rita's father who totally remodelled his stroke affected brain through patterning type movements (Doidge, 2007).

While there are those in the educational field who downgrade the importance of Doman's and Delacato's work, and it is certainly no panacea for all reading, speech and learning problems, "kinesiology" techniques can determine when cross co-ordination techniques are necessary (Dickson, 1990). Goodheart (1970), in his research from Applied Kinesiology, discovered a type of patterning he called 'homolateral' (same side arm and leg), where people were unable to cross pattern - in other words, had an inability to cross the midline of the body. Goodheart associated this with schizophrenia as 'every' person with this diagnosis had a homo-lateral pattern. In his paper he wrote:

**“Every patient with a previously validated diagnosis of schizophrenia, had a variety of muscle imbalances with the usual weakness causing hypertonicity of the opposite or contra lateral antagonistic muscle”(pp .G).**

From 1987 to 1990, Robert Eyestone M.S., Educational Psychologist with the Weber County Mental Health Department in Weber, Utah, conducted three studies using the Edu-K repatterning pre-checks to determine whether specific populations were using one-sided or cross-lateral processing of visual and/or motor information. In the 1987-88 study, two hundred and fifty-seven out of two hundred and seventy participants, tested from a population defined as being “at-risk”, tested one-sided; thirty-seven of three hundred and ten participants in the group not defined as "at-risk" tested one-sided. In the 1988-89 study, five hundred and thirty-nine of five hundred and fifty-two participants from "at-risk" populations tested as one-sided processors. In the 1989-90 study, two hundred and two of two hundred and four participants from "at-risk" populations tested as one-sided; one of ninety-seven participants in the group not defined as at-risk tested one-sided. Out of a group of one thousand and twenty-six students who were “at risk” nine hundred and ninety of them were homolateral in comparison four hundred and seven that were not defined “at risk” only thirty-eight were homolateral (Fig. 1). The study was conducted specifically for the purpose of measuring the effectiveness of the screening device to determine ease of processing. Highly significant correlates were found between those tested using homolateral processing and those in Resource, Handicapped, or Juvenile Detention Centres. Results suggest that the Dennison test for laterality may be an effective tool for screening individuals for further testing (Eyestone, 1990).

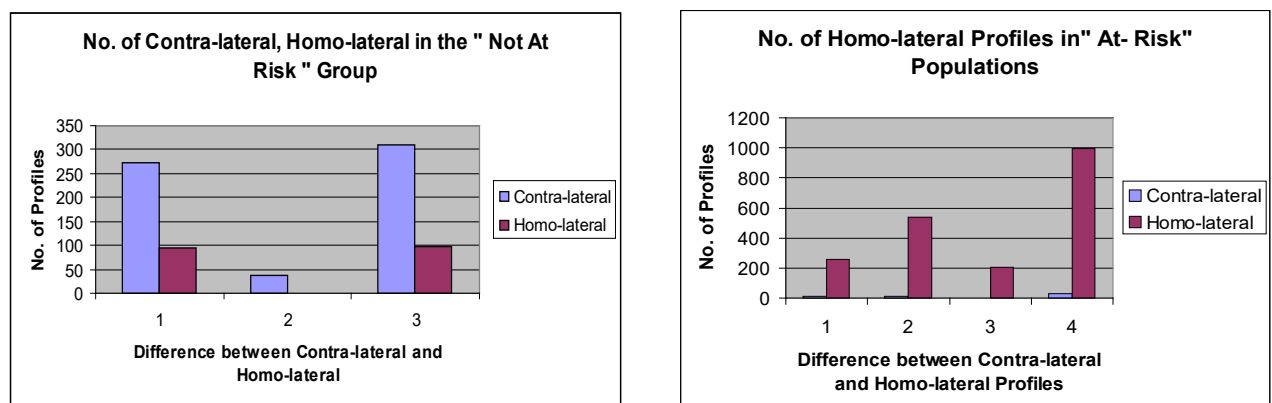


Figure One. Robert Eyestone (1990) – ‘Correlates of Educational Kinesiology re-patterning pre-checks with at- risk populations.’

Goddard (2002) states that simple crossing the mid-line of the body movements such as standing on one leg , or being able to touch one ear with the opposite hand and repeat this on the other indicate that a child has not gained a degree of balance and co-ordination, which lays the foundation for self- control. Immaturity in the functioning of the nervous system is accompanied by signs of emotional immaturity such as poor impulse control, difficulty in reading the body language of others (social cues) and unsatisfactory peer relationships. No amount of behaviour modification will make a difference until the underlying neuro–developmental delay is addressed. Cohen’s (1993) work verified Goddard’s as when various reflexes fail to initiate, integrate and inhibit, the system is locked into a developmental ‘holding pattern’ that prevents natural maturation of neural systems. This lack of maturation is then manifested in extremes in persons having brain dysfunction.

Schiller (1999) suggests that performing arm and leg movements that cross over from one side of the body to the other can have a dramatic effect on learning. Since the left side of the brain controls the right side of the body and the right side of the brain controls the left side of the body, the two sides of the brain are forced to communicate when legs and arms cross over. Many of these difficulties have been associated with the lack of motor coordination, which includes the inability to cross the midlines of the body as explored by various researchers in the educational field (Jenson, 2006).

Studies by Hannaford (1995), a Neurophysiologist, have also shown reciprocal physical exercises using both sides of the body in a coherent manner can fully activate whole body function. However, a person who is labelled “hyperactive” or “autistic” often demonstrates a survival reaction through their movements by reacting to loud sounds, unable to cross the mid-line of their body or stand on one foot. Such a person is functioning only from the sympathetic nervous system, which puts them on high alert for danger and gross-motor movements associated with fight or flight are activated. Children who are in a constantly stressed states are operating from their lower survival centres of the reptilian brain and have no access to the higher thinking order of the neo–cortex.

Hannaford (1990), with her research in the effects of Brain Gym® with special education students, found that slow, integrated exercises, done consciously with good balance, intentionally cross the mid-line of the body and equally activate both right and left motor and sensory cortex's, as well as the rest of the brain that is associated with actions, and thus over ride the "fight" and "flight" system. Hannaford (2002) stated that Brain Gym® exercises eliminated or greatly ameliorated the symptoms of hyperactivity, learning disabilities, attention deficit disorder, emotional handicaps and foetal alcohol syndrome.

Sifft and Khala (1991) conducted an experimental study using Brain Gym® with university students to investigate whether Brain Gym® activities including Dennison Laterality Repatterning (contra-lateral movements) would influence the response times to a visual stimulus. Out of the three groups, two groups were superior to the control group and the repatterned group improved twice as much as the Brain Gym® only group. Morris, Sifft and Khala (1998) studied the effect of Educational Kinesiology on the static balance of learning-disabled children. Using sixty children, age's seven to eleven; they found that the children who were re-patterned performed better than the children who only completed the movement exercises.

Cammisa (1994) reported that students who were learning disabled showed a significant improvement in perceptual motor skills following an Educational Kinesiology program, but no significant improvement in academic skills. Wolfson (2002) in his study, where four adults were given individual single session intervention with Brain Gym® exercises found increases in all four participants' conceptual understanding of how to achieve their goals as well as in the complexity of their performance. Wolfson reinforces his findings when he states:

**"Also, I suggest that a rapid transition to a higher stage of complexity is more likely to occur when people are in an "ideal learning state" for performing their tasks. Using Brain Gym exercises, which seem to restore fluid, balanced movements and reduced anxiety reactions may be one of many ways to elicit this ideal state" (Wolfson, 2002, pp.198).**

Spalding (2005), in her unpublished dissertation called *Discovering the experiences of contralateral movement across the midline by teachers and their students*, reported that

the teachers expressed that the exercises facilitated a less stressful environment because children were calmer, more at ease and in a better frame to learn new things. Some teachers identified students who could better regulate their and other students' personal space. The teachers thought this encouraged better work habits and less behavioural conflicts because students weren't in each others space. This behaviour corresponds to the ability to cross the midline and therefore know where you are in space, as reported by Dennison (1994). Teachers that continued the exercises after the study perceived them to be an important part of the curriculum. They stated that when they did not do them there was more chaos and hyperactivity in the classroom.

Brain Gym® exercises simulate many of the development movements that babies and young children naturally perform, and improve the processing of sensory information (Hocking, 2005). The Dennison's have created an elegant system of checks and balances that recreates one's ability to recapture and repattern incomplete developmental movements and emotional overlays, which allows one to begin again in creating a balanced mind/body relationship to life. Educational Kinesiology, an international drug-free movement-based discipline of mind/body integration, and its Brain Gym® exercises are presented as both a tool of understanding and a way reducing and reordering the AD/HD symptoms of separation ( Bouchard Lugaro, 2004). Much brain research has been done to examine the role of the motor-cortex in behaviour and learning. Exercise activates and alters the brain in specific known ways, and the pathways created are then used for other learning. Brain Gym® is an effective group of exercises to activate balanced movement (Diamond, 2003).

Promislow (1999) writes that not all children who have not crawled will have a learning disability. However, many of them won't have sufficient experience of crawling to become automatic and integrated. The homolateral crawl in the repatterning process helps the students integrate what is important in effective behaviour management and learning, being able to stop and think. The homolateral processing state (stop and think) linked with the learned contra-lateral processing state (move and think), helps students to move between the two states easily. The program is a positive intervention that enhances

performance, reducing challenging behaviour and improving academic performance. Reich (2001) reported that some children who miss significant developmental steps such as crawling can later on exhibit learning and behaviour problems. The non-crawlers who do well in school and do not fit into the theory, do so as there are other factors that influence brain development, such as nutrition, emotional stress and parental involvement (Pearce, 2002).

Few studies provide a clear theoretical and empirical basis to guide programs intended to enhance both the academic and the pro-social behaviour of students identified as at risk (Dishion et al, 1999). Students in schools present with a multitude of challenging behaviours, and to engage students in learning requires a mental component and psychomotor skills that are strongly linked to developmental patterns (Dennison, 2006; Hannaford, 2002). Brain Gym® is a biological intervention (exercise) that can have a positive psychological result in reducing the triggers of ODD, CD, depression, anxiety and self harm behaviours, and increasing positive interactions related to social factors. The program is a positive intervention that can enhance performance and in turn reduce challenging behaviour and improve academic performance (Hannaford, 1995; Siffert & Khala, 1991; Sallies & Patrick, 1994; Pierson, 2002). The Brain Gym® activities are effective because they address specific movements on which auditory, visual and tactile skills depend, enhancing rather than replacing other programs or curricula (Dennison, 2006). Academic success depends on having these auditory and other skills in place (Rowe & Rowe, 2000). Research is shifting the focus in education towards a new paradigm where physical exercise is a doorway to effective behaviour management and life long learning - a natural process (Lyons, 1999; Jensen, 2006).

The overall theme of this paper is to provide a rationale for motor development to have an equal footing with the affective and cognitive domains in education (Thelan, 1995; Pearce, 2002; Diamond 2000; Bloom, 1956; Gardner, 1983). Body, thought and emotion are intimately bound through intricate nerve networks (Hannaford, 2002; Diamond, 2003). It is through action that the whole brain and body develops, and each successful developmental milestone depends on movements that have become automatic and easy to

perform. These developmental milestones are especially important well into adolescence years. Yet the longer children stay at school, the longer they are required to sit still (Pearce, 2002; Jensen, 2006).

Programs that have the greatest likelihood of success are able to evaluate progress on improving outcomes in the schools' academic and social goals. Ongoing assessment and feedback allows for adjustment in programs as aspects of the school climate changes (Bain, 2007). There is a clear need by all stakeholders in education and health to focus on efforts on enhancing student self-control and academic self-efficacy rather than just enhancing students' perceptions of themselves. Early identification of students defined as "at- risk" is essential to design effective interventions.

Delimitations are those which narrow a study in scope. The project was confined to a specific group of teachers and students whose observations are limited to a time frame of ten weeks. Weaknesses have to do with the failure of some of the teachers to accurately record data and teach the exercises satisfactorily to the students. It is usually left to physical educators to implement effective physical education curricula. As a result of imprecise reporting and implementation, the validity and reliability of the information gathered might be questioned. A major threat over time is that with the nature of the students, problems will occur due to medication, attendance and family crises.

Researchers' relationship with the subjects being studied can make a difference. If the researcher is studying one group, is that group typical of others with the same type; are teachers in one school representative of teachers in similar schools in another part of the region? Generalisation can be a problem. In this study, perhaps the strongest and the weakest association is the author's participation and objectivity in the study and in the kinesiology field for twenty-one years. As a child, the author missed the crawling developmental pattern and had learning and behaviour difficulties. The author's life changed significantly for the better after learning to contra-lateral at the age of twenty-eight. The biases could be a major weakness in the reporting of the data, whilst the experience, training, knowledge and access to the students are a major strength.



## **Focus of Evaluation**

### **Evaluation Object**

The causal hypothesis was that the majority of the students' challenging behaviour was escalating at the Centre and that by training students and staff at workshops and staff in-services about the positive effects physical exercise has on behaviour and learning, both groups would be motivated to participate in daily Brain Gym® exercises as an intervention strategy. As a direct action, students' self-esteem and well-being would improve social-psychological health, impacting on decreasing the frequency of challenging behaviours. The information was by observation of the evaluation object in action (Fitzpatrick, 2004).

The methodological approach to the study was qualitative with selected case studies using Action Research across Years 8-10. The instruments used were surveys, observations, base-line data, workshop feedback, questionnaire, self-evaluations and checklist (Fitzpatrick, 2004).

The collection of data will be able to address the scope of the study. Using a mixed method of tools will indicate if the exercise program was an effective intervention in the reduction of challenging behaviour. The limitations of this study design are such that inference about a causal pathway is speculative. The cross-sectional nature of the observations limits the extent to which causality can be inferred. Qualitative methods such as direct observation and content analysis with quantitative methods such as surveys and base-line comparisons will provide the researchers with enough information to address the effectiveness of the intervention.

### **Subjects**

The students were ten students, eight boys' and two girls in Year 8-10 at an educational setting in a BD/ED Tutorial Centre situated in Western Sydney, Australia. The Tutorial Centre is an educational service provider for students with emotional disturbances and behaviour disorders in Years 8-10 and services the whole of a District. Students in this study have generally demonstrated extremes in behaviour and emotional disturbance.

They are referred to the Centre because they exhibit behaviour that is inappropriate in the mainstream classroom and are frequently unable to fit in to the routines established by classroom teachers. They are often underachievers socially and academically, are absconders and are at times extremely resistive to authority. To be accepted into the unit the students must undergo a clinical diagnosis assessment by a psychologist who then diagnoses them with either a BD or an ED disability confirmation rating or a combination of the two disorders. Students come with extremes in life experiences and attract a spectrum of diagnoses, from major depression to post-traumatic stress disorder. Many students have co-morbid conditions.

### **Evaluation Questions**

The first question to focus the study was; what are the major concerns of the school community? The Participant-Oriented evaluation approach advocates the involvement of program participants in evaluation, allowing for a greater understanding and overall picture of all aspects of the program and the audience being given the opportunity to be able to respond. The benefit is that the different values and needs of individuals and groups are served by the program. With the evaluators being involved in setting the boundaries a better informed program staff will be the result (Fitzpatrick, 2004).

Bernstein and Tiegerman- Farber (2002) state that it is important that parents and professionals be part of an interactive process and through discussion and negotiation the school community can develop clear goals, to shape a whole school program model. The evaluations will help the school community to adopt a self-review approach to analyse the school cultures, policies and practices. Being able to identify the barriers of students, creating an atmosphere where students will be able to feel better about themselves and each other will influence the core business of teaching and learning.

The Mind Matters Survey comprises thirty seven questions pertaining to the academic and social climate of the students' classroom and school which enables the school community stakeholders to identify areas of concern. The participants are asked to choose a rating between strongly agree through to strongly disagree. Each answer is

given a weighted average that indicates issues of concerns to be addressed. The Mind Matters survey was developed through a regional collaboration of Health Services in 2000 to provide schools with a tool to create a whole school approach and to address and implement change in the mental well-being of students in the areas of caring relationships, high achievement and authentic participation. Within this study all stakeholders are consulted at the planning and data-interpretation phases of the evaluation, which allows for a much better ownership, empowerment participation and partnership between the evaluators and the practitioners. The case study project will reflect the work of Stakes (1975b) 'prominent events in a responsive evaluation' (Fitzpatrick, 2004).

The second focus question is; will the exercise intervention program Brain Gym© reduce the challenging behaviours in the students? Good discipline is fundamental to the achievement of government priorities for the public school system. In line with this, schools must have a School Discipline Policy which is developed in consultation with school community members. The centre promotes excellence, opportunity and success through the development and demonstration of the five codes of conduct; following staff instructions; working to ability; using appropriate language, respect and staying in the right place. Challenging behaviours will be measured as a frequency of occurrences towards the centres five codes of conduct.

Success in changing students' behaviour can happen within the school, as a consequence of being able to identify the purpose of the behaviour and replacing that behaviour, through a collection of data finding the right reinforces to motivate the change (Zirpoli, 2005). Student's records of base-line data indicate student's attitude and response to the school's code of conduct. This enables the teacher to look at all 'the individual behaviours that tend to occur together and those that do not' (pp.66) and to establish patterns of behaviour (O'Neil et al., 1997). It is important to measure the frequency of the maladaptive behaviour using event recording and data collection, which provides teachers, with objective information to make informed programming decisions (Alberto

& Troutman, 2006). This data will give a visual evaluation, if the movement program has made a difference to students' attitude towards themselves, the school and each other.

**Displaying the data in graphs, helps summarize data in a convenient manner, communicate program effects, and provide feedback to teachers and the students (Zirpoli 2005, pp.121).**

The Laterality Check quantitative score through direct observation is deemed appropriate in the present study, as a summary of the physical exercise mastered or not, and will provide a percentage scale of students who have difficulties in executing the movement in "at risk" groups and/or who present challenging behaviours (supporting the findings by Eyestone (2000) and Goodheart (1970)). Simple crossing of the mid-line of the body, or not being able to do so, indicates a degree of balance and co-ordination which lays the foundation for self-control (Goddard, 2002). Immaturity in the functioning of the nervous system is often accompanied by signs of emotional immaturity such as poor impulse control, difficulty in reading the body language of others (social cues) and unsatisfactory peer relationships (Cohen, 1993) - all behaviours that are concerns of the students in the study.

The final focus question; is the training and workshop for staff and students adequate enough for training purposes? Perhaps the biggest challenge to the teachers is making changes in their own behaviour in response to the student, their methods of teaching, and, possibly, the need for rearrangement of the whole classroom environment (Demerssemans, 2004; Lohraham & Talercio, 2004). It is through professional development training that teachers themselves become the empowered agents and purveyors of change, having consequent domino effects on the teaching and classroom behavioural management practices of other teachers and throughout the profession (Rowe & Rowe, 2003).

Open-ended responses to questions can produce useful information but analysis presents problems if viewed on its own. The data will be merged with students' base line data to help formulate an overview of the case studies. Trembley (2000) in his study to assess the school climate, administered a questionnaire concerned with how various aspects of home and school environments affect children's' attitudes. The data information

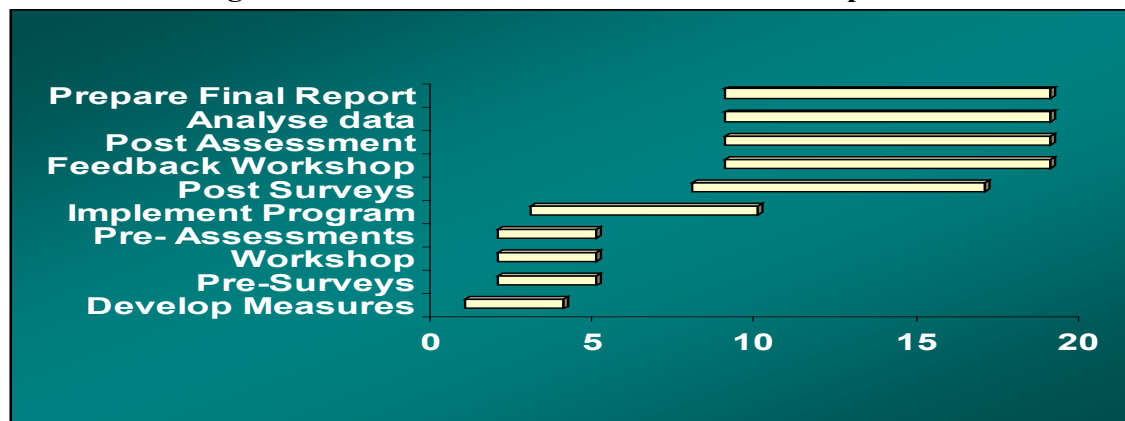
collected will be merged with other measures of assessment. The evaluations will provide feedback of the content and interest of the students/staff and enable to self-evaluate their physical activities and experience with the exercise intervention.

### **Implementation of the intervention**

**Table Two Timeline of Program Implementation**

Milestones	Weeks	Weeks
Term 3		
Develop Measures		
Staff Meetings-Brain		
Gym Training		
Term 4		
Measures	1	3
Pre-Surveys	2	3
Workshop	2	3
Pre- Assessments	2	3
Implement Program	3	7
Post Surveys	8	9
Feedback Workshop	9	10
Post Assessment	9	10
Analyse data	9	10
Prepare Final Report	11	15

**Figure Two. Gnatt Time-line of Evaluation Report**



## **Measures**

### **Laterality Check (Appendix. 1)**

Before the intervention program began all students were checked for laterality, a fundamental motor skill of ability to perform a contralateral movement. This is the ability to cross the mid-line of the body by touching their left hand on their right knee, then reversing the movement to touch their right hand on their left knee. The inability to perform this movement is called a homolateral pattern. Dennison & Dennison, 1996; Johnson & Johnson, 1996; Doman-Delacato, 1960; Goodheart, 1970; Eyestone, 2000; Sift and Khala, 1991; Camissa, 1994; Hannaford, 1995; Goddard, 2002; Cohen, 1993; Pheloung, 2006; Bullus & Coles, 1998; Spalding, 2005 are all researchers who have used the lateral check as a measure for assessing developmental patterns and neurological concerns.

### **Base –line Data (Appendix. 2)**

Information is collected on each individual, recording the frequency of their challenging behaviour towards the code of conduct, before the program is implemented. The relevance for this assessment is that it will measure the effectiveness of the intervention program and provides useful comparison evaluation after the program's implementation. Data is analysed to assess the program's effectiveness to determine whether challenging behaviour is increasing, decreasing or remaining the same. The purpose of the A-B-A- design is to demonstrate clearly the relationship between student performance and an intervention. This allows for an analysis of the controlling effects of the program's introduction (Zirploi, 2005). Studies by Tammelin, 2003; Rowe & Rowe, 2000; Bullis et al, 1996 and Kramer, 2007 followed the A-B-A design to investigate the effectiveness of an intervention program on adolescents.

The base-line data information provided patterns of behaviour that had occurred before the intervention. That is, for seventy per cent of the students' their challenging behaviour was escalating at the Centre before the intervention program was implemented. This supports Dishion et al., (1999) who claim in their hypothesis that "at risk" young adolescents potentially escalate their problem behaviour when they are all grouped together in intervention programs.

### **Mind Matters Surveys (Appendix. 3)**

A survey oversimplifies the method of drawing a representing sample, as not all members of the total population were represented. Some of the stakeholders may not want to disclose information and feel vulnerable and the survey requires introspection from the adolescents, which could influence lying.

The survey recorded students' evaluation regarding the culture of the school and how the challenging behaviour was affecting the school community before and after the intervention of exercise. This allowed for an analysis of comparison. Researchers such as Norris et al., 1991; Trembley et al. 2000; Brown & Lawton, 1986 all used surveys with weighted answers to investigate the powerful relationship between physical activity and psychological well-being. In all the surveys, participants were asked for a rated response to a life event, which included school-related experience that was analysed in terms of benefits of psychological well-being.

### **Professional Development -Training Feedback- Teachers/ Students (Appendix. 4)**

Teacher and student measured if the intervention was adequate to their needs. The questionnaire data was qualitative, with attitudes recorded toward the program and a content analysis conducted to the responses to open-ended items (Gall et al., 1999). It was necessary to give respondents the opportunity to give their own views on the topic being researched and to raise some issues of which the researchers were not aware of - e.g. the area of energy levels where the majority of participants felt "tired" (Bell, 1999).

The feedback creates opportunities to present an even stimulus, at the same time where the use of fact finding is an easy, cheap and quick way of obtaining information (Walker, 1985). Questionnaires with face-to-face contact can be biased contact due to the lack of formal interpretive opportunity.

### **Behaviour Management Plan (Appendix. 5)**

The Behaviour Management Plan has been part of the Centre since 2000. A fidelity measure questionnaire was given to the staff about the behaviour management system that had been with the school process for a period of five years. Ninety percent of the staff felt confident and had an average of two years experience in its implementation. Most reported it as an effective and consistent management strategy with clear instructions recording, and consequences for challenging behaviour. Within this study all stakeholders are consulted at the planning and data- interpretation phases of the evaluation, this allows for a much better ownership, empowerment, participation and partnership between the evaluators and the practitioners.

The Behaviour Management Plan is a rated contingent scheme related to earning points dependent upon how students follow the five school rules. The Centre operates on a token economy and has a raffle ticket 'caught you being good' system. Bronze, Silver and Gold awards attract 'extra curricular experiences' that give students an incentive to maintain improvement. Reinforcers are food i.e. breakfast, morning tea and lunch; prizes, outings and interest time. It supports Choate's (1997) theory that good behaviour is rewarded by a progression of levels. Bonus points are given to students who demonstrate desired social skills. Discipline involves implementation of a system of responses and consequences, which is directly linked to the level system. When students are acting in an unsafe manner by being impulsive, non-compliant and aggressive or showing off-task behaviour, withdrawal from the classroom in a time-out area is utilised. The message to the student is that withdrawal is not a punishment. It is an opportunity to calm down and get back on track.

### **3) Brain Gym © Program (Appendix. 6)**

The teachers were asked to instruct the students in the exercises each morning for a period of ten minutes for ten weeks. Staff members were instructed in the twenty-six different exercises and the benefits of daily exercise at a staff in-service before the start



of the project in the previous term. Each morning in the school assembly area, students were asked to choose a teacher, around whom they stood in a small circle while the teacher demonstrated the various exercises to the students, who then would mimic the exercise with their own body. Under close supervision, teachers were guided by the research officer with the use of a checklist and direct observation in a mentoring role. Researcher relationship with the subjects being studied can make a difference. If the researcher is studying one group, is the group typical of others with the same, are teachers in one school necessarily representative of teachers in similar school in another part of the region? Generalisability may be a problem.

Eight of the key Brain Gym® exercises (the Lazy 8, the Double Doodle, Alphabet 8's, Think of an X, the Elephant, the Energy Yawn, the Cross Crawl, and the Owl) were developed from Dr Dennison's work with the optometrists with whom he shared offices at his reading centres during the 1960s.

Five of the movements (Cross Crawl Sit-ups, Arm Activation, the Foot Reflex, Think of an X, the Elephant, the Energy Yawn, the Calf Pump, and the Neck Rolls) are directly from, or modifications of, common warm-up movements used by runners and other athletes.

Nine of the exercises (Water, the Rocker, Balance Buttons, Brain Buttons, the Thinking Cap, Positive Points, Hook-ups, the Earth and Space Buttons) are derived from principles of acupuncture, as they relate to the central nervous system and as adapted in processes such as Applied Kinesiology (Walther, 1981) and Touch for Health (Thie, 1989). The four "Buttons" also introduce visual skills described in developmental optometry.

The remaining four (Belly Breathing, the Energizer, the Grounder, and the Gravity Glider) are from exercise disciplines such as modern dance and postural balancing.

## **Overview of Plan and Procedures**

### **Description of Plan**

The stakeholders are the school executive, students and teachers working in collaboration to reduce the frequency of challenging behaviour. The basic structure will be as follows:

1. Over a period of 10 weeks in Term 3, through staff development at weekly staff meetings, teachers will receive training about the impact of movement on behaviour and learning, and of an exercise intervention program called Brain Gym© (See Appendix.6a).
2. At the beginning of Term 4, all students and staff will participate in a workshop about the positive effects of movement has on behaviour and learning (See Appendix. 6b).
3. At the beginning of Term 4, all students will participate in ten minutes of daily Brain Gym© exercises led by all the teachers (Appendix. 6c).

### **Summary of Findings**

The Mind Matters Survey (Appendix 3) provided the answer for the first focus of the study. It gave the school community the opportunity to voice concerns in the areas of caring relationships, high achievement and authentic participation. Initially, all members of the school community were surveyed. Amongst the Parent Survey there were no major concerns identified. All felt positive about the level of learning and care of their students/carers. The only issue identified in the Staff Survey, was that they did not have any staffroom area for them to access. Due to the positive feedback by both parents and staff, it was deemed unnecessary to do a post-survey.

It was revealed during the pre and post Student Survey's that students felt confident that they had an adult/teacher to talk to; looked forward to the future; and reported they were successful learners. The areas that were identified as a concern were in social issues of being teased, bullied, intimidation and ignored, even though forty per cent of students after the intervention, strongly agreed that they felt safer. Training of school personnel to treat and cope effectively with students with a history of anti-social conduct is often

inadequate (Walker et al., 1996). In the area of authentic participation it was interesting that in the pre-survey seventy per cent of students felt bored. After the exercise intervention fifty per cent no longer felt that way. This supports Folkins and Sime (1981), Simons and Birkmer (1988), Topp (1989), Dua & Hargraves (1992), some of the researchers that advocate in their studies that exercise can have a positive effect on the thinking pattern or behaviour participants. Fifty per cent of students believed that since being at the school, they had improved in management of behaviour and emotions, and in addition, had increased learning. The only student, whose challenging behaviour had doubled, reported the school was helping her “heaps” with her behaviour.

One of the outcomes for the project was that as a function of the exercise intervention, students’ social relations could change in the school community, by being able to form peer acceptance through friendships, positive interactions, participation in classroom activities, and through the ability to express his/her needs and frustration in appropriate ways (Maag, 2001). As a direct action from the exercise intervention, students’ self-esteem and well-being did improve the social-psychological health of individuals in the school community. The data from the surveys showed there were improvements in the formation of friendships. In the first survey, forty per cent felt they had a friend, which increased to seventy per cent post intervention. In October, forty per cent felt ignored by a friend, yet later in the year, they felt unsure that this was still such a strong issue. What was evident in both surveys was that bullying and teasing was still a major concern. This finding supports the evidence that this population is quite diverse in nature and presents a number of distinct subgroups, e.g. gang members, fire setters, paedophiles; thus different interventions are required (Bullis et al., 2001; Rowe & Rowe, 2003).

The mental health issues are certainly evident from the student self-evaluation workshop comments (Appendix. 4) which occurred at 10.00 am on a weekday. Ninety per cent of the adolescents reported that they were “tired”. Descriptions of themselves included; “f---ed up”; “Dumbum”; “mean; cruel and slack”; “dirty and confused”; “stressed, cranky and crap”; rebel, aggressive and friendly”. At the workshop for most of the students after they exercised, there was a change in how they felt. Comments changed to “nice, tired

and caring”, “energetic”, “fairest”, “happy and calm”, “awake and smart”. Some students reported a reduction in tiredness, whilst others students’ tension levels dropped, with calmness and energy on the increase. Zabel (1998) and Walker et al.,(1996) report that ED/BD students are victims of emotional, physical and/or sexual abuse and the educational interventions should match the established needs of the students

The second focus question was: did the exercise intervention program Brain Gym© reduce the challenging behaviours in the students? The author acknowledges the area of BD/ED for adolescents is a very complex one and that not one solution will be the answer. The author also acknowledges that her investigation into this movement program with ten students at an Adolescent Centre in NSW has its limitations. However the results of the ten week program of daily practice of Brain Gym© with eighty per cent of students demonstrating a significant reduction in the frequency of their challenging behaviours certainly warrants further investigation (See Figure Three). Within this eco-system of inclusive education, it is paramount that each person feels safe and that a behaviour-modification plan is in place that reduces negative behaviours through a consistent use of a code of conduct. Before intervention, fifty per cent of students agreed they felt comfortable at the school and fifty per cent were unsure. In December seventy percent in total felt comfortable with a significant change of fifty per cent strongly feeling this way Appendix 2)

The two students whose challenging behaviour increased have significant mental health issues (See Appendix 4). What is significant to note in this student population is that eighty per cent of students had a homolateral pattern before the intervention programs (See Appendix 1). Goodheart (1970) previously associated it with mental health, with schizophrenia - as every person with this diagnosis had a homolateral pattern. Eyestone (1990) discovered over ten years and thousands of subjects that highly significant correlates existed between those tested using homolateral processing and those in Resource, Handicapped, or Juvenile Detention Centres. A change in the trend line certainly may indicate a program effect, but the change may have been caused by something else occurring at the same time.

Intervention programs must address anti-social behaviour, academic failure, enhancing student self-control and academic self-efficiency together in order to cater for diverse adolescent needs (Rowe & Rowe, 2003). Few studies provide a clear theoretical and empirical basis to guide programs intended to enhance both the academic and the pro-social behaviour of students identified as “at risk” (Dishion et al, 1999) which Brain Gym© offers. The hypothesis of Dishion et al., (1999) that “high-risk young adolescents potentially escalate their problem behaviour when they are all grouped together in intervention programs”, was evident at the centre. This is demonstrated by the fact that seventy per cent of students’ challenging behaviour in the previous terms, prior to the study/intervention, was on the increase (See Appendix 2)

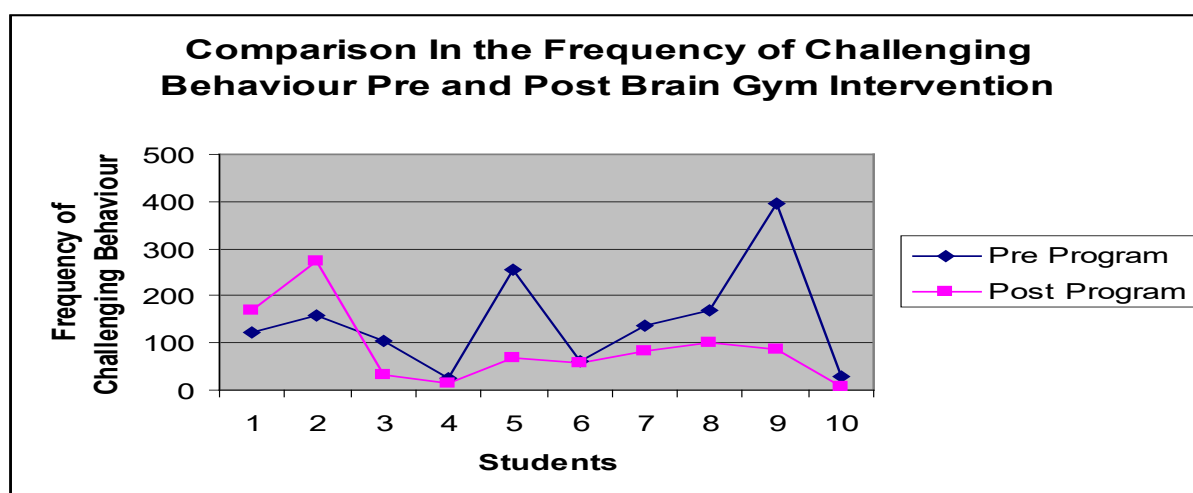


Figure Three: Comparison Base –Line Data pre and post intervention of program

The final question to be answered was the feedback from staff and students to see if the training was adequate for their purpose. Four out of the six teachers felt that the planning of the training/workshop met their needs and motivated them to implement the daily exercise program more (See Appendix 4). One teacher wanted further information on the effect on specific behaviours and learning outcomes. The final teacher, who wrote ‘I don’t like moving’, found the whole experience extremely frustrating. Five of the teachers reported that the workshop achieved its broad aims, with one commenting on how the program improved the “moods” in her students and their “attitude towards one

another”. Other teachers reported that the students gained current and relevant information on the link between movement, behaviour and learning, linking theory with practice and giving the opportunity for students to “acquire skills to help them improve their brain function.”

The teacher’s comments at the beginning of the workshop included “happy”, “energetic, enthusiastic”, “spaced-out”, “rushed”, “stressed”, “tired” and after exercise moved to comments such as “alert”, “relaxed”, “awake”, “confident”, “calm”, “vigilant”, “interested and more focused”, “unhappy”, “tired and relaxed”. Greene et al., (2002) provided data to indicate that teaching children with oppositional/aggressive behaviours is rated as more stressful than teaching children with ADHD. This intervention of exercise to the staff from the comments has seemed to increase their own psychological well-being.

The best components of the staff feedback from the workshop were that the practical activities and involvement of all participants provided, “a good balance of theory and practical activities”. “The juggling was fun for everyone”. The group dynamics of the workshop were mostly positive, which resulted in “improved happiness”. An observation from one teacher was that, “The people most reluctant to participate in movement were also those most reluctant to participate in the workshop”. The presenter “set a good pace whilst alleviating possible negative dynamics. The dynamics were positive and energetic.”

The common thread to all present was that more time should have been allotted to the workshop. “It was a good session with difficult clientele”. One teacher expressed an appreciation to the presenter “for providing a new technique in our routine and motivation in our jobs. I feel movement is a very important activity before starting classes”.

The validity of the hypothesis was proven as that: By training students and staff at workshop/staff meetings about the positive effects movement has on behaviour and

learning, both groups were motivated to participate in daily practice of a physical training program called Brain Gym© exercises as an intervention strategy. As direct action, students' self-esteem and well-being did improve social-psychological health, impacting on decreasing the frequency of challenging behaviours in eighty per cent of students. Even though there were changes in the social ethos of the school community, bullying, teasing and intimidation were still a concern at the centre.

### **Conclusion and Recommendations**

The author acknowledges that the area of BD/ED for adolescents is a very complex one and that not only one solution will be the answer. What will be required is collaboration between police, health providers, teachers, parents and schools to work with adolescents to develop an array of strategies to meet their individual special needs. Professional training for teachers must be based on Inclusive Education where programs cater for all students (Sharpe & Hawes, 2003; McLeskey & Waldron, 2002). Inclusive Education signifies a period of genuine professional transformation, where changes are leaving many in the field to re-evaluate service delivery and collaborative partnerships needed to support all students (Salisbury et al., 1997; Friend & Cook, 2003). Collaboration amongst Special Education, mental health and public health systems is being promoted for the mental health of young people in schools (Crowling, 2005).

In Special Education in Australia, principles such as 'inclusion', 'social justice' and 'anti-discrimination' are personal beliefs, attitudes or philosophies that underpin legislation. Laws and policies protect people with a disability against discrimination in education in the areas of admission, access and harassment. The Disability Standards for Education (2005) (the Standards) are formulated under the Disability Discrimination Act 1992 (DDA). The main aim is to provide effective education to students with special educational needs and teachers are required to integrate children with diverse abilities and problems into the classroom. Policy, such as the practice of inclusion, is then left with teachers, academics and parents to implement practical processes in: enrolment; participation; curriculum development, accreditation and delivery; student support

services and elimination of harassment and victimisation (Dempsey, 2005; Sharp & Hawkes, 2003).

If change is to occur it has to start from the Principal and proceed down to the classroom teachers. It has to be embedded in the daily teaching practice to be effective educators. Classroom teachers have to be skilled to support and effectively implement inclusive school programs. As Mc Leaky & Waldron (2002) state about professional development:

**“It is axiomatic to state that sufficient opportunities for professional development must be provided in order to ensure that teachers are well prepared for successfully developing and implementing inclusive programs”(pp.159).**

Sustained improvement can be achieved via teacher professional development which maximizes their teaching and behavioural management skills in the classroom. By training teachers with specific skills to address movement difficulties, teachers become the empowered agents and purveyors of change, having consequent domino effects on the teaching and classroom behavioural management practices of other teachers, and throughout the profession.

One could argue that it has never been more important to promote regular health-enhancing physical activity among our nation’s youth (Stewart, 2005).Overweightness and obesity has doubled among children in Australia. There is an urgent need to develop primary prevention strategies to prevent current and future unhealthy weight gain (Salmon et al., 2005; Magarey et al., 2001; Booth et al., 2001). According to the Australian Bureau of Statistics (2000) more children are spending their leisure time in sedentary behaviour with electronic games and computers. For an exercise program to be successful it needs to be frequent (Corbin, 2001; Brown et al.; 1986 and Gardner, 1991).

This paper investigates the hypothesis that the daily practice of a physical training program called Brain Gym® with “at-risk” adolescents demonstrating emotional disturbances and behavioural disorders, can reduce the frequency of their challenging behaviours. Movement, either directly or indirectly, has a positive effect on affective and



cognitive problems. Interventions were highlighted that are utilised within various school settings with respect to underlying developmental processes. Several key findings may assist in redefining programs for the future development of adolescents.

### **Key Findings**

After a comprehensive review of all the promising physical exercise interventions, a brief summary of some of the central issues to develop effective educational programs for adolescents.

1. The early detection of motor problems and the early start of appropriate intervention programs are very important to eliminate or minimize many physical and related emotional problems.
2. Individual children with "definite or "moderate" motor problems could be further assessed to identify the exact nature of their difficulties. An interdisciplinary approach that identifies the exact nature of the difficulties is vital, as one individual's difficulties and the behavioural/social milieu created around this individual as a result, can affect the learning of all the children in his/her classroom. It can also impinge on the teacher's role and confidence unless the teacher is provided with skills and support to manage the individual child's difficulties within a classroom setting. Brain Gym® training could offer this skill/support base to teachers.
3. All students from Kindergarten to Year 12 need to participate in thirty minutes of physical activity during each day they are at school.
4. Intervention programs must address anti-social behaviour, academic failure, enhancing student self-control and academic self-efficiency in order to cater for diverse adolescent needs.
5. Staff development must be emphasized as one of the top school priorities, and staff development should be aligned to address the physical, affective and cognitive needs of

all students. This highlights the window of opportunity whilst their vulnerable adolescent brains are still under construction.

6. Due to the immense number of homolateral patterned people evident in “at-risk” groups, further investigation is required.

The health benefits of regular activity are widely publicised through the academic and popular press. Yet, at no other time in history have we done less crawl and physical activity (Booth, 2001; Salmon, 2005; Dennison, 2006). Poor motor development is being impacted by an increase in the amount of inactive time spent in automobiles, watching television, and in front of computers. The disappearance of swings, see-saws and merry-go-rounds, a reduction of school physical education programs, and lack of emphasis on walking or riding bikes verses motorised transportation all contribute to this trend (Jensen, 2006; Evens, 2003).

Compounding the situation of lack of exercise is research, which suggests that a high proportion of adolescents “at risk” cannot execute the task of cross crawling. Experts report that an inability to cross crawl indicates a neurological dysfunction which limits the workings of the brain in undertaking basic learning tasks which could underpin learning difficulties and behaviour problems.

The number of adolescents who have behavioural disorders and/or emotional disturbances is increasing in our schools. In 2007, for NSW alone, one in five (one hundred eighty thousand) adolescents will fit the BD/ED diagnosis and already there are nearly one hundred centres (Behaviour schools, Suspension/Tutorial centres) devoted to treat and rehabilitate these adolescents. The real concern here is that research is suggesting that opening these new centres is not the entire answer, as the aggregation of youths “at risk” in these centres allows them all to get together, feed off each other and increase their negative behaviour.

The escalation of BD/ED in our schools is a loud call from students to the education system to start seeing education from their perspective. If rehabilitation centres are not the answer, then the real answer must be found in our classrooms. To engage these disruptive performing students and win them back, teachers will need to make changes in their own behaviour and attitudes and be helped with training to develop new strategies for behaviour management and learning. Enriched environments and learning provisions towards physical activity are by far the most salient influences on students and behavioural, cognitive and affective outcomes.

To remediate the motor skills of students that are identified at schools, the normal protocol is that the students are required to go outside the school system to a behavioural optometrist, occupational therapist, speech therapist, physiotherapist or other professional, to remediate their basic motor skills, so that they learn, review and develop basic movement patterns (Johnson, 2003). The ultimate goal of future projects is the collaboration of the health department and the education department to approach the integration of the program into the school curricula that is most effective, practical and feasible in terms of cost. Due to the fact that most of the students' parents/carers are from the lower socio-economic stratus and the extensive waiting list to access some of the free services available, the school needs to be able to provide a program to remediate the skills within the school curriculum.

This paper has set out to assess the validity of an exercise program called Brain Gym®. In the process of research, the author has discovered an education system which is beginning to groan with the increasing number of adolescents who cannot cope in our school classrooms and with teachers untrained to deal with their special needs. Whilst a lot more research is required into the benefits of Brain Gym® and other similar exercise program, the author purports that consistent daily practice of Brain Gym®, in conjunction with an array of other classroom strategies, may help to alleviate challenging behaviours and assist students to achieve better learning results. If the needs of “at-risk” adolescents are acknowledged and met adequately, their potential to succeed can be realised, resulting in adults with greater self esteem and a passion for their future prospects.

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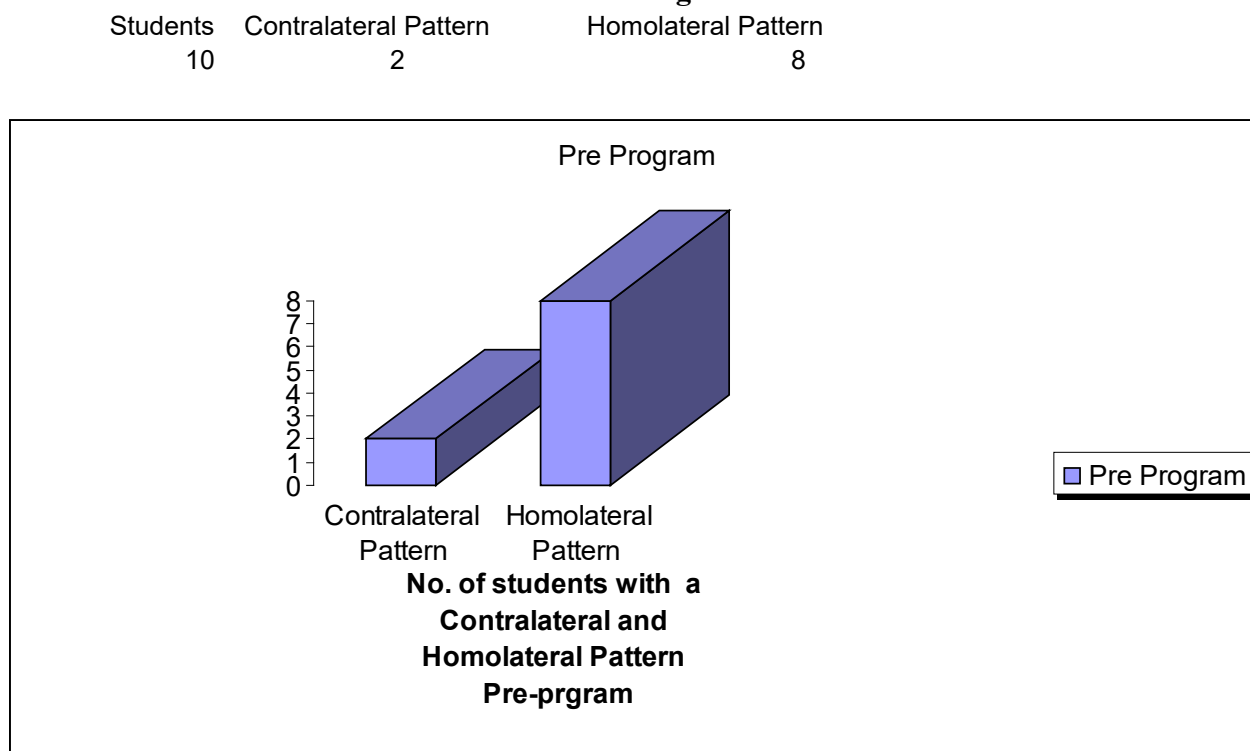
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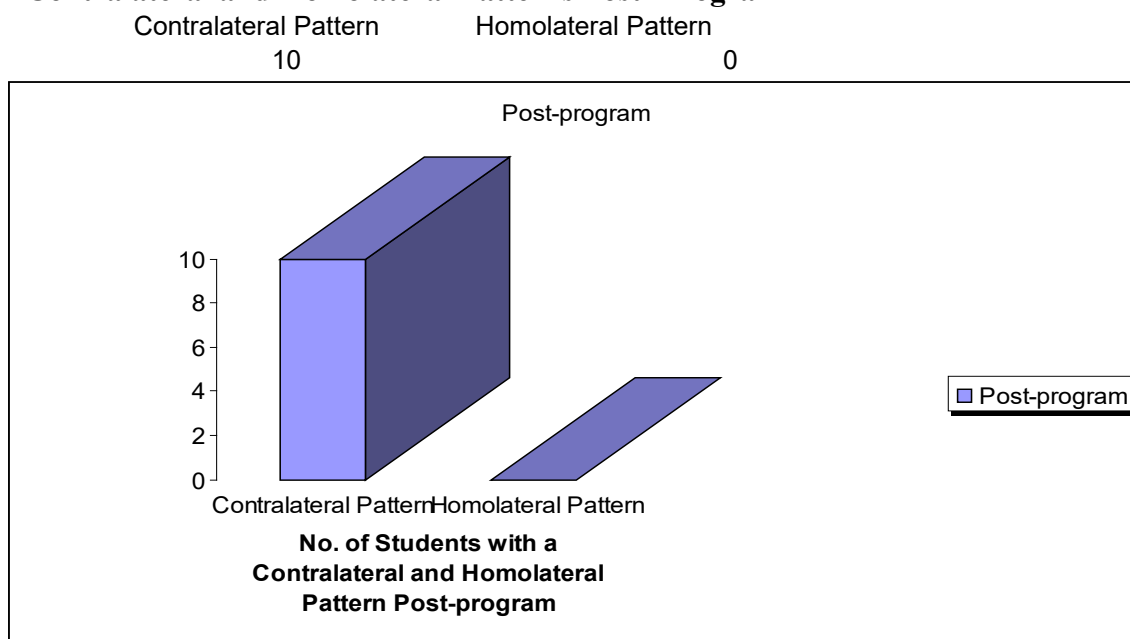
## Appendices

### Appendix 1

#### **Contralateral and Homolateral Patterns Pre- Program**



#### **Contralateral and Homolateral Patterns Post- Program**

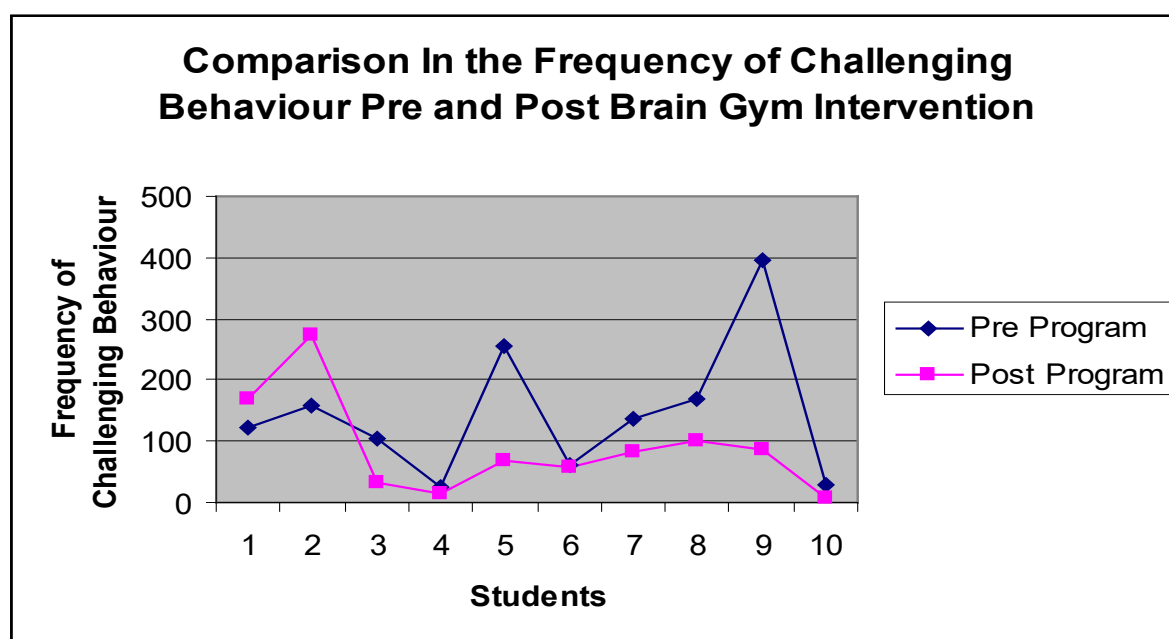


**Fig 1: No. of student who could perform a Contralateral and Homolateral Patterns Pre and Post program**

## Appendix 2 - Comparison Base –Line Data

### Frequency of Challenging behaviours

Student No.	Term 3 No. of Behaviours	Term 4 No. of Behaviours
1	123	169
2	158	273
3	105	31
4	25	14
5	256	69
6	62	59
7	135	83
8	168	101
9	397	86
10	29	7



### **Challenging behaviour is recorded through checks and withdrawals**

#### **Checks:**

- Checks are “reminders” that student’s action is not acceptable at school.

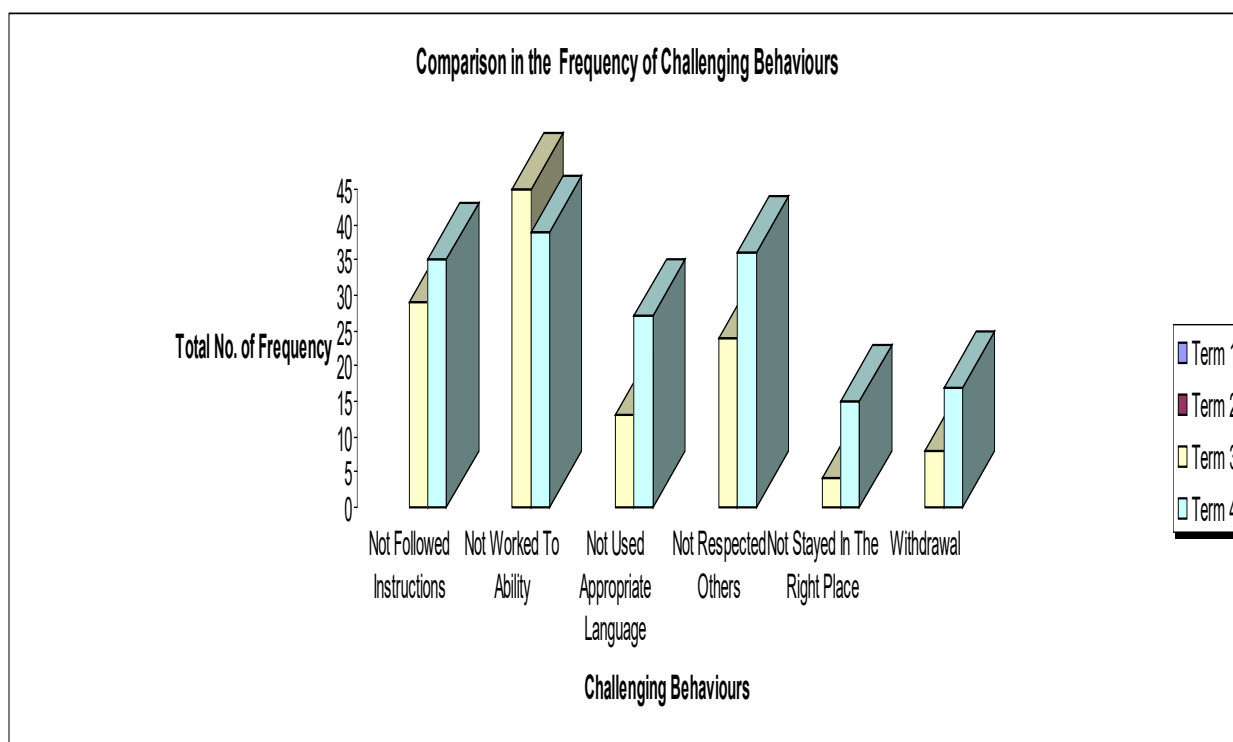
#### **Withdrawals-**

- Withdrawals are to be taken when student’s action is escalating or if a staff member feels that the student’s action will lead to an unsafe environment.

Withdrawals and checks are not to be seen as a punishment, but as an opportunity for students to have some space / time to reflect on situation, what is the real issue?

**Appendix 2 - Comparison Base – Line Data**  
**Student No. 1**

<b><i>Reasons For Checks Total</i></b>	<b><i>Term 1</i></b>	<b><i>Term 2</i></b>	<b><i>Term 3</i></b>	<b><i>Term 4</i></b>
Not Followed Instructions			29	35
Not Worked To Ability			45	39
Not Used Appropriate Language			13	27
Not Respected Others			24	36
Not Stayed In The Right Place			4	15
Withdrawal			8	17
Total			123	169

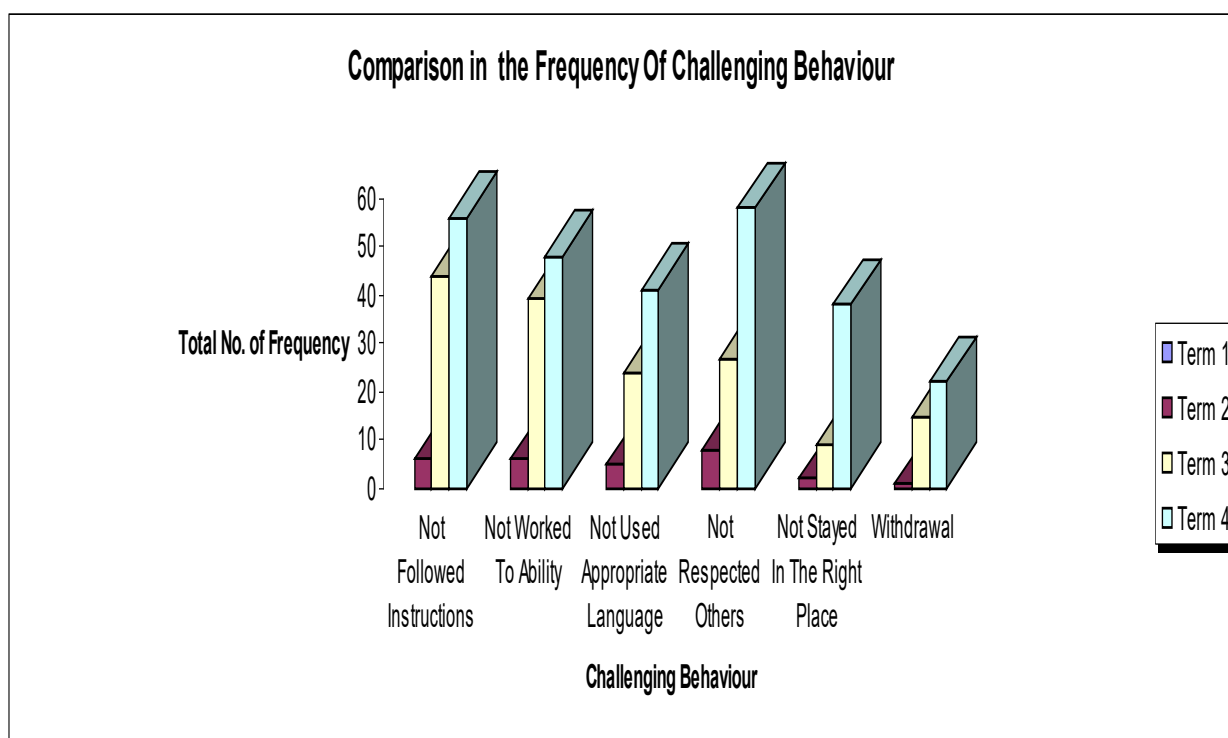


**Workshop Feedback**

Student No.1, who has extreme anxiety disorder with Tourettes Syndrome commented that he learnt how his brain worked. Since being at the school, he felt that his learning had improved. When he began the workshop he described himself as happy, tired and calm, which turned into energized, happy and f---ed up. It is interesting that the program had no effect on his challenging behaviour.

**Appendix 2 - Comparison Base – Line Data**  
**Student No. 2**

<b><i>Reasons For Checks total</i></b>	<b><i>Term 1</i></b>	<b><i>Term 2</i></b>	<b><i>Term 3</i></b>	<b><i>Term 4</i></b>
Not Followed Instructions		6	44	56
Not Worked To Ability		6	39	48
Not Used Appropriate Language		5	24	41
Not Respected Others		8	27	58
Not Stayed In The Right Place		2	9	38
Withdrawal		1	15	22
			158	273

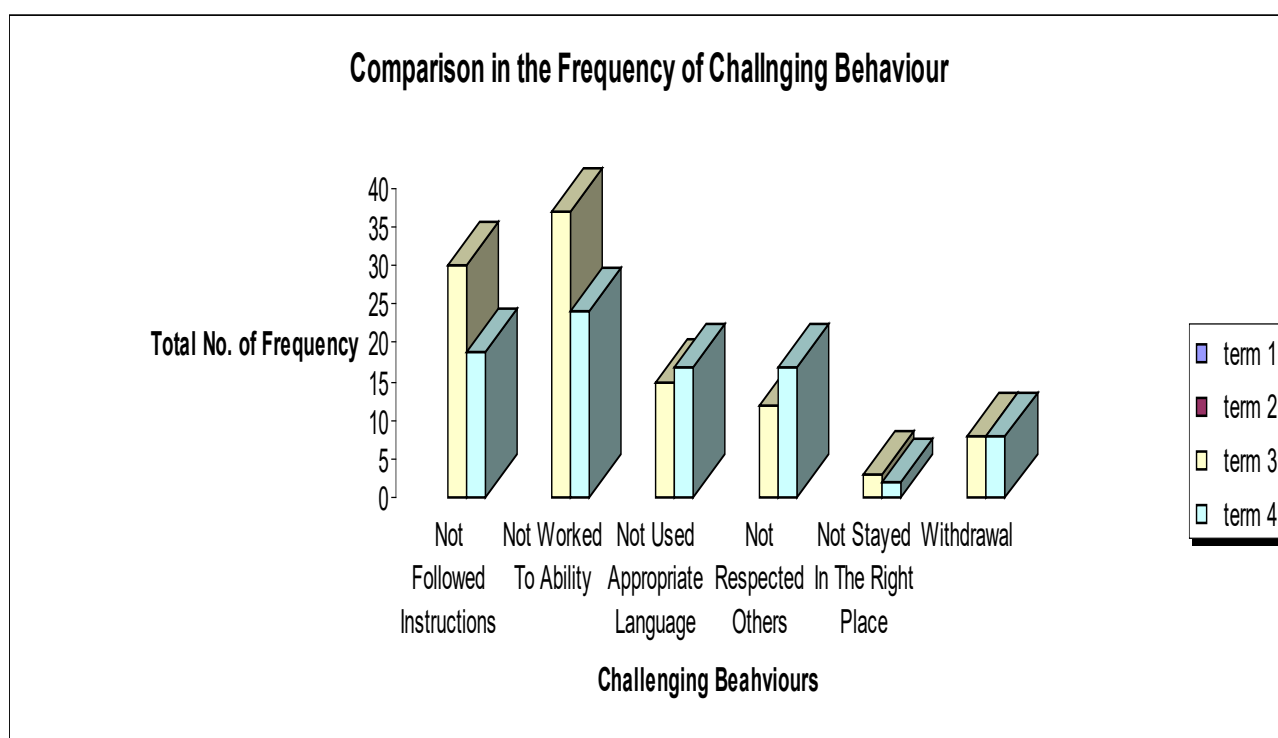


**Workshop Feedback**

Student No. 2, who is 15 year old girl with ADHD and Bi-polar disorder, and within the last two months fully abandoned by her family and living in a crises refuge, called herself a “Dumbum”. She described herself as stressed, cranky and crap, which changed to tired, stressed and annoyed. The only positive change was that she charted a minimal reduction in tiredness, tension and energy. Her challenging behaviour escalated due to the unpredictability of her out of school care.

**Appendix 2 - Comparison Base – Line Data**  
**Student No. 3**

<b><i>Reasons For Checks Total</i></b>	<b><i>Term 1</i></b>	<b><i>Term 2</i></b>	<b><i>Term 3</i></b>	<b><i>Term 4</i></b>
Not Followed Instructions			30	19
Not Worked To Ability			37	24
Not Used Appropriate Language			15	17
Not Respected Others			12	17
Not Stayed In The Right Place			3	2
Withdrawal			8	8
Total			105	31

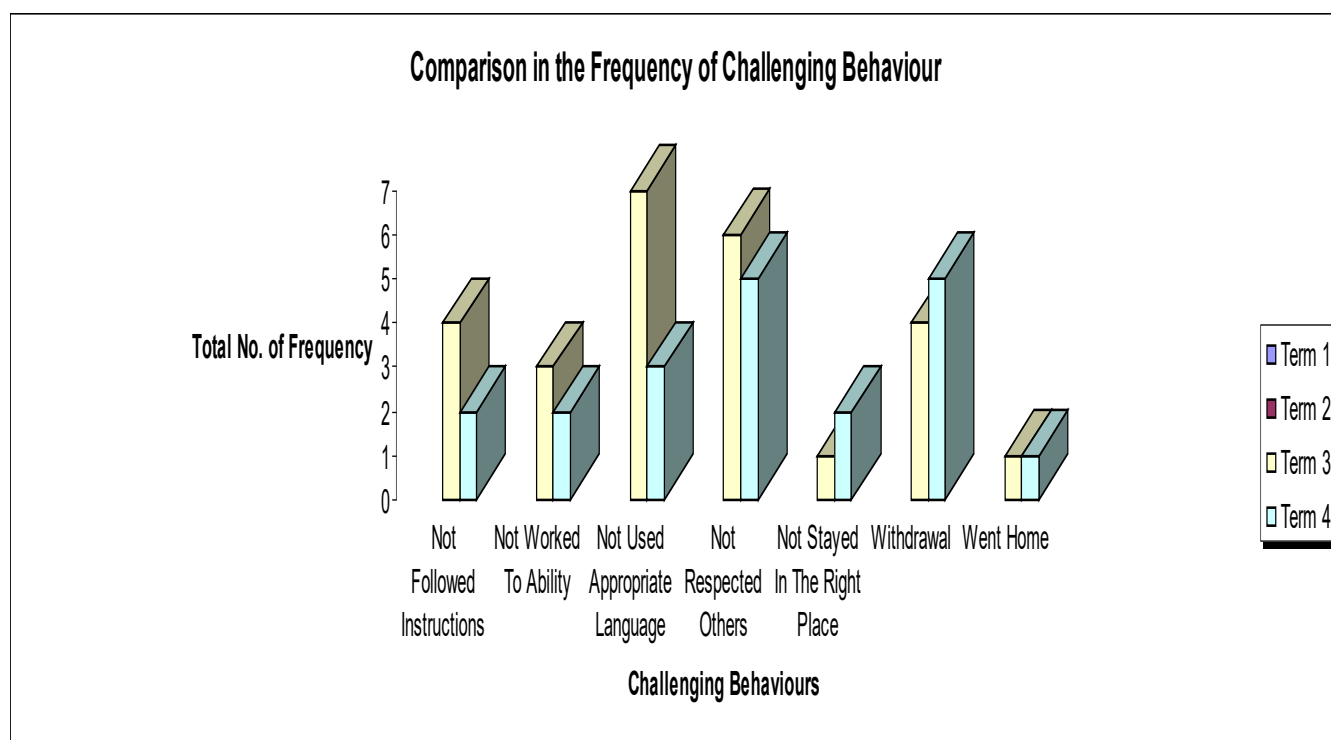


**Workshop Feedback**

Student No. 3, a depressed 13 year old boy and known weapon carrier, was expelled from his last school as he poses a physical threat students and staff. He is resistant to nearly all strategies and interventions the school provides and “learnt nothing”. Surprisingly his challenging behaviour reduced in two areas in the code of conduct: following teacher’s instruction and working to his ability.

**Appendix 2 – Comparison in Base – Line Data**  
**Student No. 4**

<b><i>Reasons For Checks Total</i></b>	<b><i>Term 1</i></b>	<b><i>Term 2</i></b>	<b><i>Term 3</i></b>	<b><i>Term 4</i></b>
Not Followed Instructions			4	2
Not Worked To Ability			3	2
Not Used Appropriate Language			7	3
Not Respected Others			6	5
Not Stayed In The Right Place			1	2
Withdrawal			4	5
Went Home			1	1
<b>Total</b>			<b>25</b>	<b>14</b>

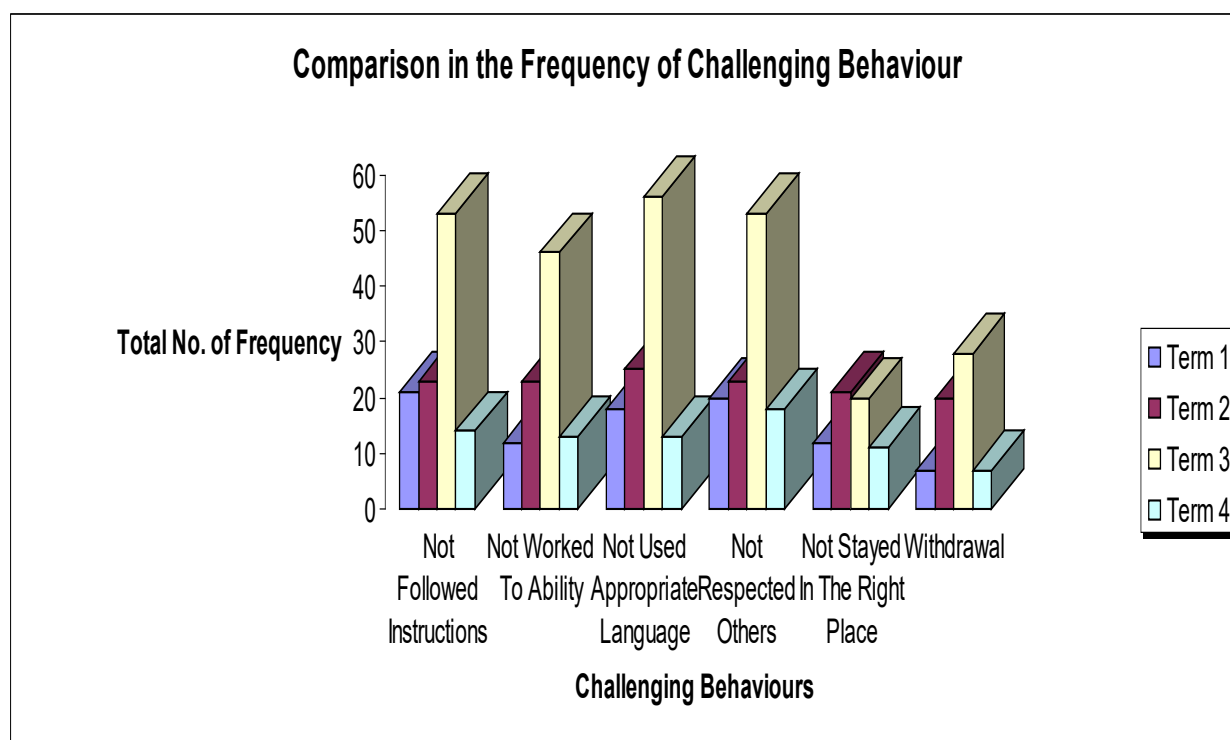


**Workshop Feedback**

Student No.4 has ADHD, autism, depression and in recent months was firstly physically assaulted by two youths as part of a gang pay back through a school incident, and then a week later was subjected to a drugged sexual assault. This 14 year old boy thinks that “it is good to exercise”, and thought the workshop was “fun” and believes that his learning, behaviour and emotions have all improved. At the beginning of the workshop, he described himself as “mean, cruel and slack” which completely turned around into “nice, tired and caring”. Even with the dramatic events in his life outside of school, he still managed to reduce his challenging behaviour

**Appendix 2 – Comparison in Base – Line Data**  
**Student No. 5**

<b><i>Reasons For Checks Total</i></b>	<b><i>Term 1</i></b>	<b><i>Term 2</i></b>	<b><i>Term 3</i></b>	<b><i>Term 4</i></b>
Not Followed Instructions	21	23	53	14
Not Worked To Ability	12	23	46	13
Not Used Appropriate Language	18	25	56	13
Not Respected Others	20	23	53	18
Not Stayed In The Right Place	12	21	20	11
Withdrawal	7	20	28	7
<b>Total</b>	<b>90</b>	<b>135</b>	<b>256</b>	<b>69</b>

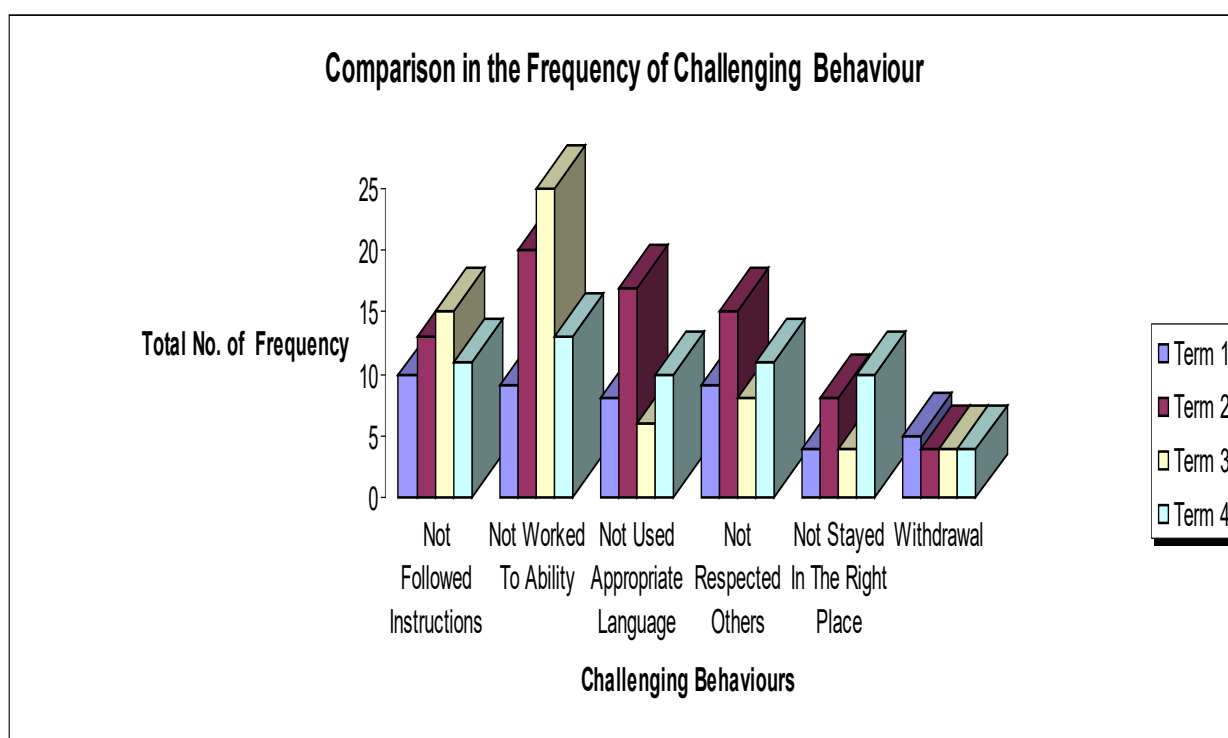


**Workshop Feedback**

Student No. 5 is a 14 year old girl with anger management issues and an eating disorder, who in the past had only resolved issues through physical violence. Her feedback about what she learnt in the workshop was “that you should eat before you move around”. The workshop achieved “well”. She felt that movement is important in learning and positive behaviour, and that the school had helped improve her learning. She started the workshop with the words “tired, dirty and confused”, which later resulted into “sick, bored and tired”. She rated that her tension levels dropped from a 7 to a 5, and level of calmness improved from a 3 to a 5. Her challenging behaviour has reduced by more than 50%.

**Appendix 2 – Comparison in Base – Line Data**  
**Student No. 6**

<b><i>Reasons For Check Total</i></b>	<b><i>Term 1</i></b>	<b><i>Term 2</i></b>	<b><i>Term 3</i></b>	<b><i>Term 4</i></b>
Not Followed Instructions	10	13	15	11
Not Worked To Ability	9	20	25	13
Not Used Appropriate Language	8	17	6	10
Not Respected Others	9	15	8	11
Not Stayed In The Right Place	4	8	4	10
Withdrawal	5	4	4	4
Total	44	77	62	59



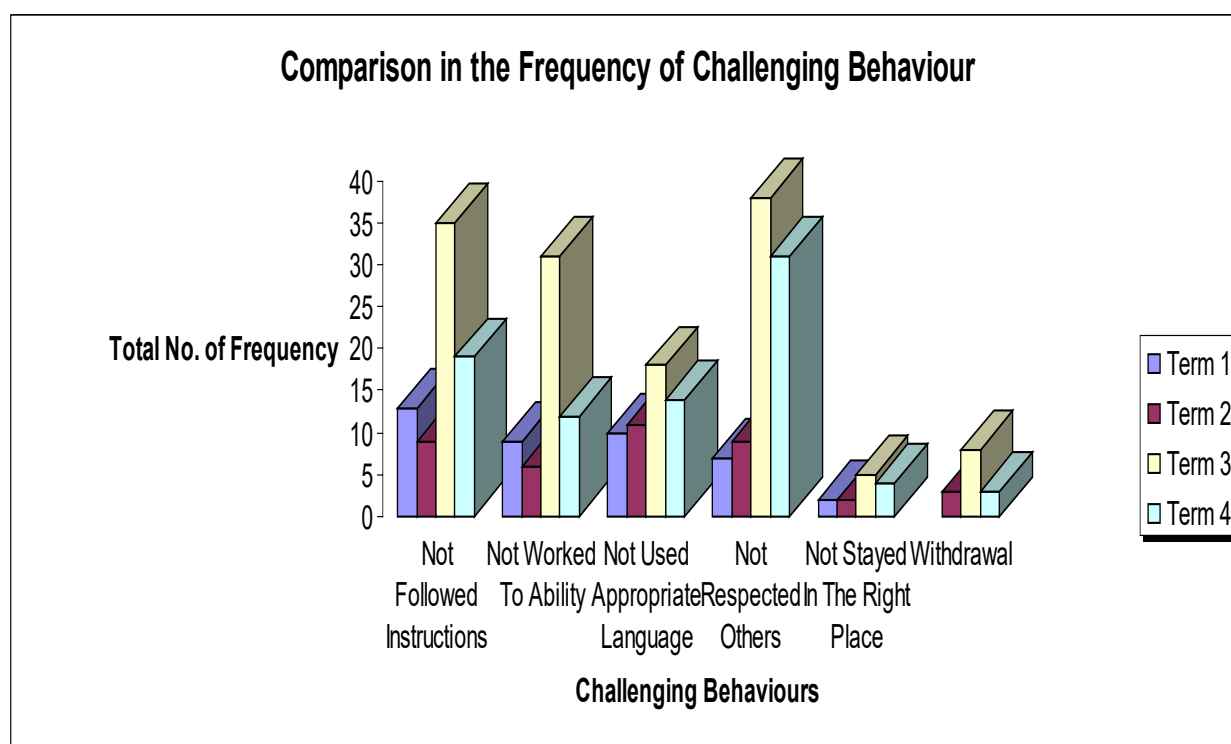
**Workshop Feedback**

Student No.6 is a 16 year old autistic boy, who when stressed, releases from his mouth filthy obscenities, especially towards women. He was a known weapon carrier with a history of extreme violence towards students and staff. From the workshop he felt he learnt “a lot”. He described himself as “nice and sore” to “sore, energetic and tired”. After some exercises he rated that his energy level lifted from a 4 to 10, and a feeling of calmness increased going from a 1 to 3. He has decreased his challenging behaviour in four areas of the code of conduct.



**Appendix 2 – Comparison in Base – Line Data**  
**Student No. 7**

<b><i>Reasons For Checks total</i></b>	<b><i>term 1</i></b>	<b><i>term 2</i></b>	<b><i>term 3</i></b>	<b><i>term 4</i></b>
Not Followed Instructions	13	9	35	19
Not Worked To Ability	9	6	31	12
Not Used Appropriate Language	10	11	18	14
Not Respected Others	7	9	38	31
Not Stayed In The Right Place	2	2	5	4
Withdrawal		3	8	3
Total	41	35	135	83

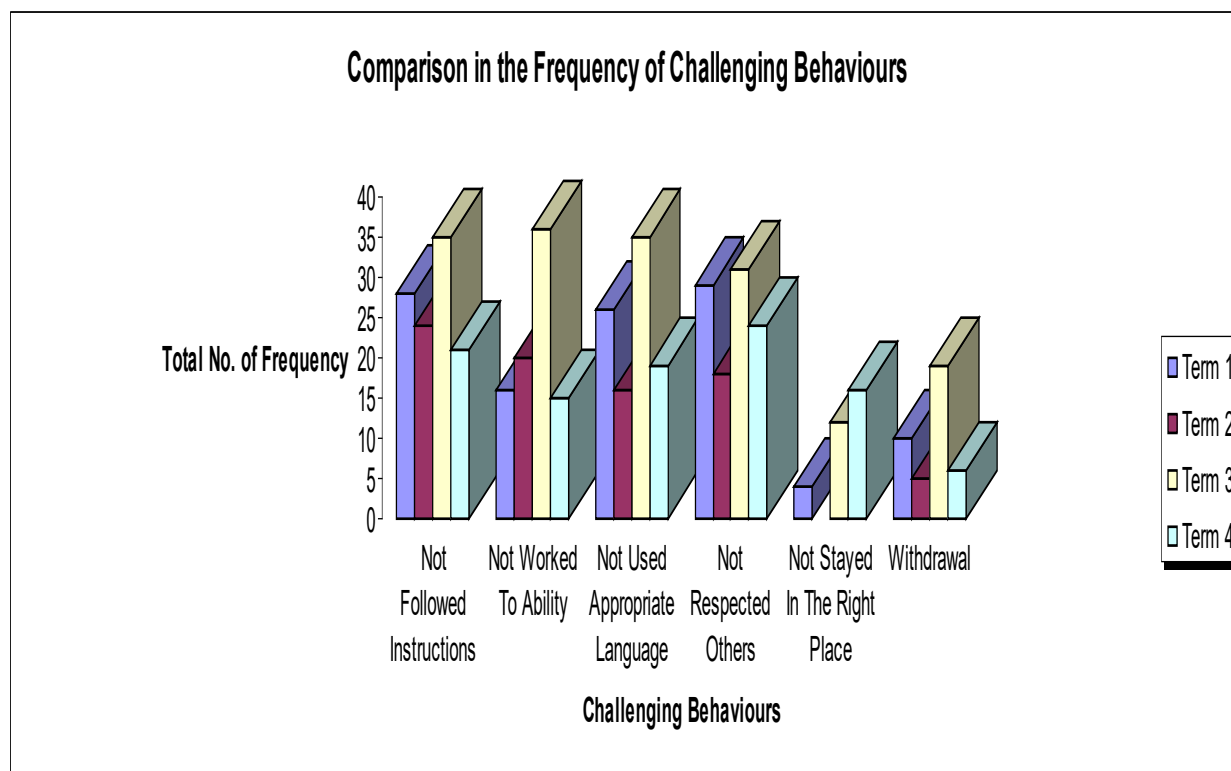


**Workshop Feedback**

Student No.7 is a 15 year old boy with a low maturity level, who makes silly squeaking noises constantly from his mouth. From the workshop he learnt “how his brain works” and that he felt that that at the school he had learnt more and was calmer. At the beginning of the workshop he described himself as “calm, happy and tired”, which later on turned into “fairest, happy and calm”. His evaluation of his tension reduced from a 10 to 4. This student improved in all areas of the code of conduct.

**Appendix 2 – Comparison in Base – Line Data**  
**Student No. 8**

<b><i>Reasons For Checks total</i></b>	<b><i>Term 1</i></b>	<b><i>Term 2</i></b>	<b><i>Term 3</i></b>	<b><i>Term 4</i></b>
Not Followed Instructions	28	24	35	21
Not Worked To Ability	16	20	36	15
Not Used Appropriate Language	26	16	35	19
Not Respected Others	29	18	31	24
Not Stayed In The Right Place	4		12	16
Withdrawal	10	5	19	6
<b>Total</b>	<b>113</b>	<b>83</b>	<b>168</b>	<b>101</b>

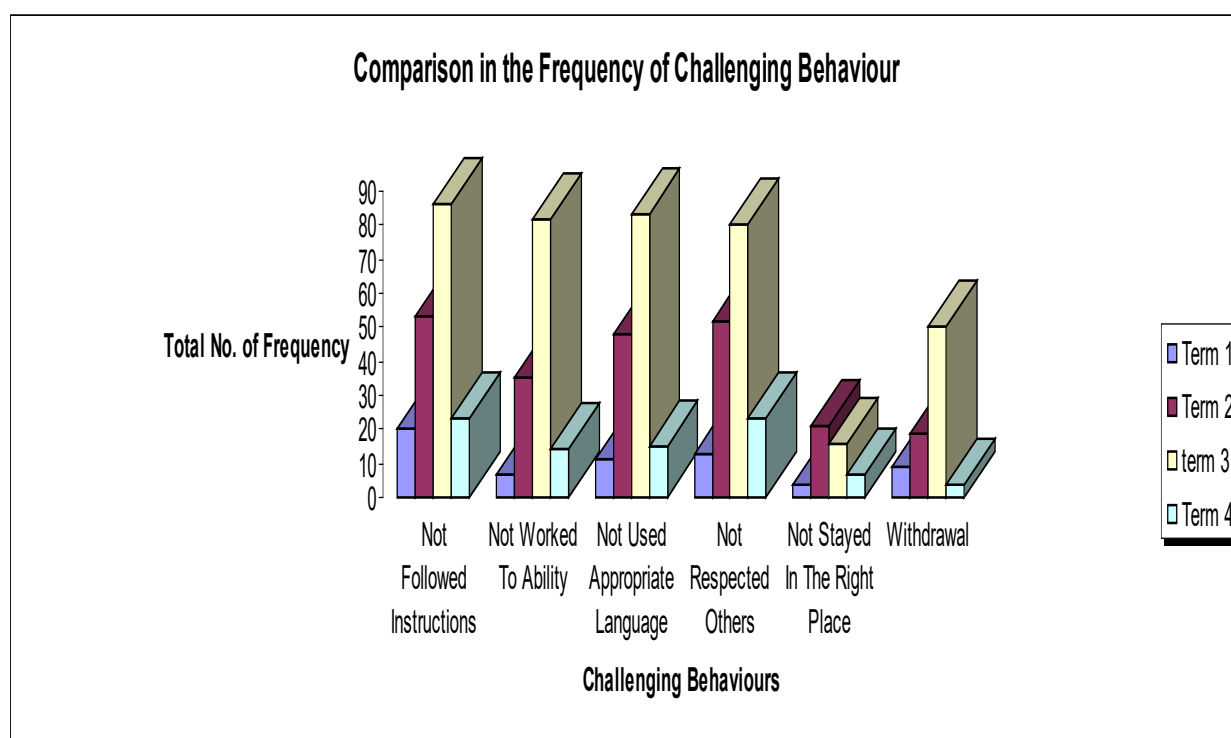


**Workshop Feedback**

Student No. 8 is a 15 year old boy, with an anxiety condition where he constantly picks on people with negative or sexually inappropriate comments and then denies or justifies his behaviour. It is interesting to note the answer to the question: ‘what feedback could you give about other students in the workshop’, his answer is “your stupid”. He learnt “how exercise effects the brain”, and he believes that the school has helped him with his learning, behaviour and emotions. He described himself with the words “tall, good looking and smart” to “energetic, awake and smart”. This student improved in all areas of the code of conduct.

**Appendix 2 - Comparison Base – Line Data**  
**Student No. 9**

<b><i>Reasons For Checks Total</i></b>	<b><i>Term 1</i></b>	<b><i>Term 2</i></b>	<b><i>Term 3</i></b>	<b><i>Term 4</i></b>
Not Followed Instructions	20	53	86	23
Not Worked To Ability	7	35	82	14
Not Used Appropriate Language	11	48	83	15
Not Respected Others	13	52	80	23
Not Stayed In The Right Place	4	21	16	7
Withdrawal	9	19	50	4
<b>Total</b>	<b>64</b>	<b>228</b>	<b>397</b>	<b>86</b>

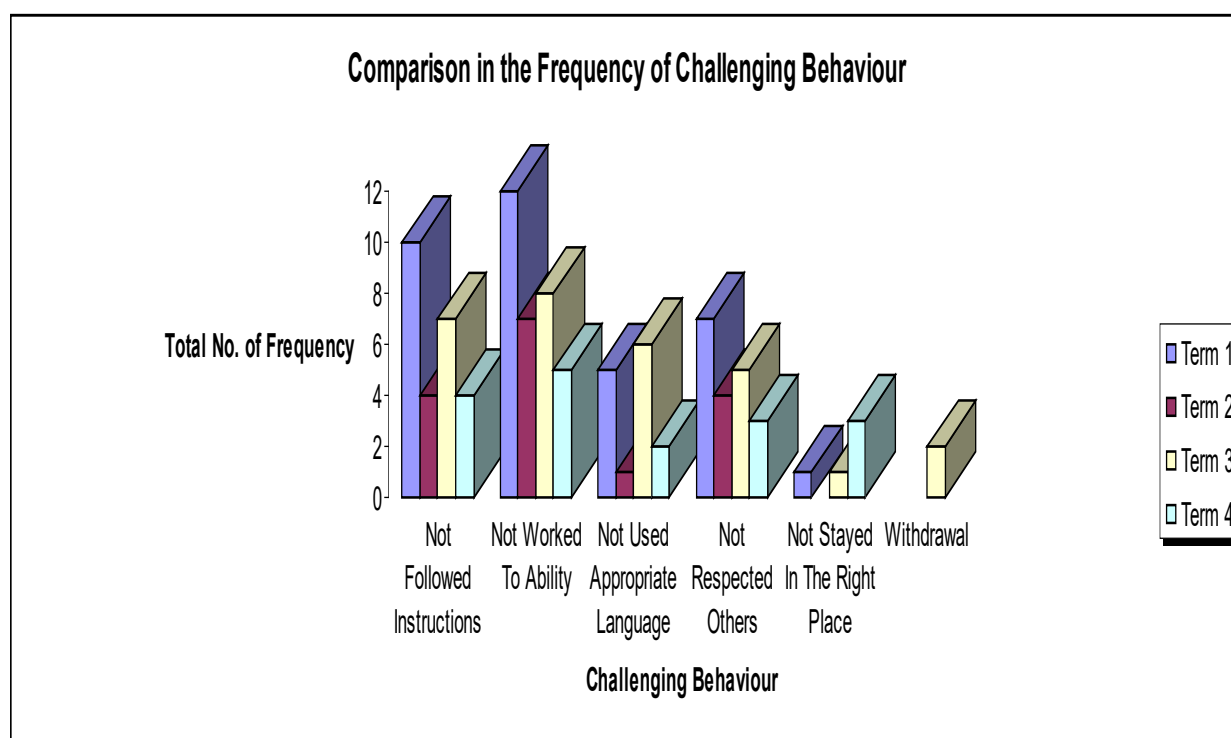


**Workshop Feedback**

Student No. 9 is a 14 year old boy who is a bully with the use of verbal and physical violence towards staff and students. He thought the workshop “worked good”. It is interesting the words he used to describe himself, “as a rebel, aggressive and friendly” and nothing seemed to change for him throughout the workshop. He managed to reduce his challenging behaviour by 75 %

**Appendix 2 - Comparison Base –Line Data**  
**Student No. 10**

<b><i>Reasons For Checks total</i></b>	<b><i>Term 1</i></b>	<b><i>Term 2</i></b>	<b><i>Term 3</i></b>	<b><i>Term 4</i></b>
Not Followed Instructions	10	4	7	4
Not Worked To Ability	12	7	8	5
Not Used Appropriate Language	5	1	6	2
Not Respected Others	7	4	5	3
Not Stayed In The Right Place	1		1	3
Withdrawal			2	
<b>Total</b>	<b>35</b>	<b>16</b>	<b>29</b>	<b>7</b>



**Workshop Feedback**

Student No. 10 is an overweight 16 year old boy, who is aggressive, depressive, autistic with obsessive compulsory disorder, who does not like to do exercise. His comment is that “movement does not work”, and that he has improved “well” in all aspects of behaviour, learning and emotions. His comments to begin the workshop with were “tired, bored and annoyed” and even though he became “more annoyed”, and his calmness level increased to from a 5 to a 7, he still managed to participate. This student reduced his challenging behaviours.

## Appendix 3 Mind Maters Survey- October- 07

### Appendix 3a Mind Maters Survey- October- 07

Student Survey Tally Sheet		Survey 1 October 07									
Questions	Female (1)	Male (2)								% Female	
1	2	8								20	
	Year 7 (1)	Year 8 (2)	Year 9 (3)	Year 10 (4)	Year 11 (5)	Year 12 (6)	Average yr level of Responders				
2		4	4	2							2.8
	less than 1 (1)	1,2 (2)	2,3 (3)	3,4 (4)	4,5 (5)	5,6 (6)	Average years at the School				
3							#DIV/0!				
	Yes (1)	No (2)					% Indigenous				
4							#DIV/0!				
	Strongly Agree (1)	Agree (2)	Unsure (3)	Disagree (4)	Strongly Disagree (5)	Averages Responses					
I enjoy school generally	1	6	1	0	2	2.6					
I like my teachers	2	4	2	2	0	2.4					
I have teachers who teach me in way	5	5	0	0	0	1.636363636					
I learn something useful most days	3	6	1	0	0	2					
I like my classmates	5	5	0	0	0	1.7					
I try hard at school	3	7	0	0	0	1.7					
I have skipped days at school	5	1	4	0	0	1.8					
I find school interesting	0	2	1	3	4	3.9					
I am safe and secure at school	0	4	5	0	1	2.8					
Other students seem safe and secur	2	6	1	1	0	2.1					
I feel comfortable at school	1	6	2	1	0	2.3					
I feel successful at some part of my	0	5	5	0	0	2.5					
I am bored with schoolwork	2	8	0	0	0	1.8					
I feel high school as enjoyable as pr	2	5	1	1	1	2.4					
I have friends I can talk to at school	4	4	0	1	1	2.1					
I have been ignored by my friends a	5	2	0	3	0	2.1					
I have an adult who I could go to at	0	4	0	3	3	3.5					
I have a friend who listens and who	5	2	2	1	0	1.9					
I have moved school often	3	1	3	3	0	2.6					
My belongings are safe at school	1	2	0	3	4	3.7					
I have been teased or bullied at scho	2	3	3	2	0	2.5					
Other students are teased and bullie	0	2	2	3	3	3.7					
I have been physically intimated and	6	2	2	0	0	1.6					
Other students have beenphysically	0	1	1	2	6	4.3					
I think what I am learning at school v	6	2	2	0	0	1.6					
I think people are friendly to new pe	5	3	2	0	0	1.7					
I find that there are big sections of a	1	2	2	2	3	3.4					
I am happy that I can choose subject	1	5	1	3	1	2.818181818					
I know what to do to stop feeling str	3	3	4	0	0	2.1					
I am proud to be part of this school	1	4	2	0	3	3					
Someone at school would notice if I	1	1	4	3	1	3.2					
I look forward to my future would no	3	4	1	1	1	2.3					
I have a teacher or another adult in t	7	1	1	0	1	1.7					
I think my parents /guardians feel co	3	4	0	2	1	2.4					
	4	5	1	0	0	1.7					
						#DIV/0!					

### Appendix 3 Mind Maters Survey- December 07

Student Survey Tally Sheet Survey/2 December 07						
Questions	Female (1)	Male (2)			% Female	
1	2	8			20	
	Year 7 (1)	Year 8 (2)	Year 9 (3)	Year 10 (4)	Year 11 (5)	Year 12 (6)
2		4	4	2		Average yr level of Responders
	less than 1 (1)	1,2 (2)	2,3 (3)	3,4 (4)	4,5 (5)	5,6 (6)
3						Average years at the School
	Yes (1)	No (2)				#DIV/0!
4					% Indigenous	
	Strongly Agree (1)	Agree (2)	Unsure (3)	Disagree (4)	Strongly Disagree (5)	Averages Responses
I enjoy school generally	0	8	1	1	0	2.3
I like my teachers	6	3	0	1	0	1.6
I have teachers who teach me in wa	4	3	2	0	0	1.777777778
I learn something useful most days	2	5	1	2	0	
I like my classmates	1	3	5	0	1	2.7
I try hard at school	2	6	2	0	0	2
I have skipped days at school	0	2	2	0	6	4
I find school interesting	3	4	2	1	0	2.1
I am safe and secure at school	4	4	1	0	1	2
Other students seem safe and secur	1	5	4	0	0	2.3
I feel comfortable at school	5	2	1	1	1	2.1
I feel successful at some part of my	4	4	1	1	0	1.9
I am bored with schoolwork	1	1	6	1	1	3
I feel high school as enjoyable as pr	4	2	2	0	2	2.4
I have friends I can talk to at school	4	4	0	2	0	2
I have been ignored by my friends a	1	1	5	1	2	3.2
I have an adult who I could go to at	5	4	1	0	0	1.6
I have a friend who listens and who	1	6	0	2	1	2
I have moved school often	1	3	3	0	2	2.888888889
My belongings are safe at school	4	3	3	0	0	1.9
I have been teased or bullied at scho	0	4	2	2	2	3.2
Other students are teased and bullie	1	4	2	1	2	2.9
I have been physically intimidated and	1	2	2	1	5	3.636363636
Other students have beenphysically	1	4	5	0	1	2.636363636
I think what I am learning at school v	5	1	4	0	0	1.9
I think people are friendly to new pe	5	1	4	0	0	1.9
I find that there are big sections of s	2	5	0	0	2	2.444444444
I am happy that I can choose subject	5	2	2	1	0	1.9
I know what to do to stop feeling str	1	4	2	2	0	2.555555556
I am proud to be part of this school	4	1	4	1	0	2.2
Someone at school would notice if I	3	2	5	0	0	2.2
I look forward to my future would no	3	4	3	0	0	2
I have a teacher or another adult in t	5	3	2	0	0	1.7
I think my parents /guardians feel co	4	5	1	0	0	1.7
						#DIV/0!

## **Appendix 4 Students and Teachers Feedback**

Four out of the six teachers felt that the planning of the workshop met their needs and motivated them to implement the daily exercise program more. One wanted further information on the effect on specific behaviours and learning outcomes. The final teacher, who wrote 'I don't like moving', found the whole experience extremely frustrating. Five of the teachers reported that the workshop achieved its broad aims, with one commenting how the program improved the "moods" in her students and their "attitude towards one another". Other teachers reported that the students gained current and relevant information on the link between movement, behaviour and learning, linking theory with practice giving the opportunity for students to "acquire skills to help them improve their brain function."

The best components of the workshop feedback by the staff were that the practical activities and involvement of all participants provided, "a good balance of theory and practical activities". "The Juggling was fun for everyone". The group dynamics of the workshop were mostly positive, which resulted in "improved happiness". An observation from a teacher was that, "The people most reluctant to participate in movement were also those most reluctant to participate in the workshop". The presenter "set a good pace whilst alleviated possible negative dynamics. The dynamics were positive and energetic."

The common thread to all present was that more time should have been allotted to the workshop. "It was a good session with difficult clientele". One teacher expressed an appreciation for the presenter "for providing a new technique in our routine and motivation in our jobs. I feel movement is very important activity before starting classes".

The teacher's comments at the beginning of the workshop included happy, energetic, enthusiastic, spaced-out, rushed, stressed, tired and after exercise moved to alert, relaxed, awake, confident, calm, vigilant, interested, more focused, unhappy, tired and relaxed.

### **Students' feedback from the Workshop**

Student No.1, who has extreme anxiety disorder with Tourettes Syndrome commented that he learnt how his brain worked and his ability. Since being at the school, he felt that his learning had improved. When he began the workshop he described himself as happy, tired and calm, which turned into energized, happy and f---ed up. It is interesting that the program had no effect on his challenging behaviour.

Student No. 2, who is a 15 year old girl with ADHD and Bi-polar disorder, and within the last two months fully abandoned by her family and living in a crises refuge, called herself a "Dumbum". She described herself as stressed, cranky and crap, which changed to tired, stressed and annoyed. The only positive change was that she charted a minimal reduction in tiredness, tension and energy. He challenging behaviour escalated due to the unpredictability of her out of school care.

Student No. 3 who is a depressed 13 year old boy and weapon carry, who was expelled from his last school as he threatened to harm students and staff, and is resistant to all strategies and interventions the school provides 'learnt nothing'. Surprisingly his challenging behaviour was reducing.

Student No.4 who has ADHD, autism, depression and in recent months firstly physically assaulted by two youths as part of a gang pay back, and a then a drugged sexual assault, thinks the "it is good to exercise", and thought the workshop was "fun" and believes that his learning, behaviour and emotions have all improved. At the beginning of the workshop, he described himself as "mean, cruel and slack" which completely turned around into "nice, tired and caring". Even with the dramatic events in his life outside of school, he still managed to reduce his challenging behaviour.

Student No. 5 who is a 14 year old girl with anger management issues and a eating disorder, who in the past had only resolved issues through physical violence. Her feedback about the workshop was "that you should eat before you move around". The workshop achieved "well", that movement is important in learning and positive behaviour, and that the school had helped improve her learning. She started the workshop with the words "tired, dirty and confused", which later resulted into "sick, bored and tired". Her tension level dropped from a 7 to a 5 and calmness improved from a 3 to a 5. Her challenging behaviour reduced.

Student No.6 is a 16 year old autistic boy, who when stresses releases from his mouth filthy obscenities, especially towards women, he was a weapon carry with a history of extreme violence towards students and staff. From the workshop he felt he learnt "a lot". He described himself as "nice and sore" to "sore, energetic and tired". After some exercises his energy went from a 4 to 10 with calmness going d from a 1 to 3. He managed to reduce his challenging behaviour.

Student No.7 is a 15 year old boy with a low maturity level that makes silly squeaking noises constantly from his mouth. From the workshop he learnt how his brain works and that he felt that that at the school he had learnt more and was calmer. At the beginning of the workshop he described himself as "calm, happy and tired", which later on turned into "fairest, happy and calm". His tension reduced from 10 to 4.

Student No.8 has a 15 year old boy, with an anxiety condition where he constantly picks on people with negative or sexually inappropriate comments and then denies or justifies his behaviour. It is interesting to note the answer to the question what feedback could you give about other students in the workshop, his answer is "your stupid" He learnt "how exercise effects the brain", and he believes that the school has helped him with his learning, behaviour and emotions. He described himself with the words "tall, good looking and smart" to "energetic, awake and smart".



Student No. 9 is a 14 year old boy who is a bully with the use of verbal and physical violence towards staff and students. He thought the workshop “worked good”. It is interesting the words he used to describe himself as a rebel, aggressive and friendly” and nothing seemed to change for him throughout the workshop. He managed to reduce g his challenging behaviour.

Student No. 10 is an overweight 16 year old boy, who is aggressive, depressive, autistic with obsessive compulsory disorder, who does not like to do exercise. His comment is that “movement does not work’, and that he has improved “well” in all aspects of behaviour, learning and emotions. His comments to begin the workshop with were “tired, bored and annoyed” and even though he became “more annoyed”, and his calmness level increased to from a 5 to a 7, he still managed to participate.

## **Appendix 5 Behaviour Management Plan**

**Each day, students are given opportunities to follow the school rules, modify behaviour when necessary and accept responsibility for their own behaviour. In accordance with these principles, students are acknowledged through our system of rewards and trading.**

### **REWARDS**

Students earn points throughout the school day. This is a positive reinforcement system in which students ‘earn’ points, as opposed to losing points. Students earn points according to how they follow the school rules. Generally, students should be earning approximately 50 points per day. Some automatic points and penalties apply for specific behaviours, though these will generally be applied to specific behaviours of individual students on a needs basis.

Throughout the day, students participate in a ‘caught you being good’ raffle ticket system in which staff members give students raffle tickets for appropriate behaviour and participation, both in class and in the playground. These tickets are drawn on nominated days and prizes may include reinforcers such as computer passes or token reinforcers such as food items. Staff nominates students to receive merit certificates. Each semester, the whole Centre awards presentation is given to formally acknowledge students’ efforts.

The Centre has flexibility in the recognition of students’ efforts and further acknowledgements may include such things as special outings or morning tea with the Principal.

The staff and students of the Centre work together to ensure the efforts of everyone are continually being acknowledged and also ensure the reward system meets the needs and interest of students.

### **TRADING SYSTEM**

A rewards and trading system based on the allocation of points is used to encourage appropriate behaviour. This is a mutual ‘good will’ system in which the Centre provides the opportunity for this to occur on the provision that students show ‘good will’ to staff and the other students. This system should not replace the provision of sustenance from home, though it is apparent that many students rely on this system for their general dietary needs whilst at school.

The basic premise of the system is that students earn points and the next day they may trade those points for rewards, privileges and the use of specialised equipment. Students’ points and levels are discussed each morning at the Centre briefing and students become aware of how many points they have earned and what they are entitled to. If during the day, students do not show ‘good will’, then their opportunity for trading is jeopardised for that day.

## LEVEL SYSTEM

Then Centre operates on a four level tier system, which forms an integral part of the Center's Behaviour Management Plan. The levels are closely linked to the Centre's Discipline Code, in particular, the system of Checks, Withdrawals and Partial Day Suspensions.

Students move between levels according to behaviours and attendance patterns. All new students commence on Level Bronze, Day One.

### TIN – LEVEL

Students on Level Tin must demonstrate appropriate behaviours and attendance for five consecutive days to progress to Bronze Level. Any partial day suspensions, suspensions or truancy – unexplained leave or leave without permission – will result in the student commencing the following day on Tin Level, Day One. However, students can earn one, two or three withdrawals and still progress to the following day.

### TIN - LEVEL PRIVILEGES

- Access to all education programs
- Access to “Caught You Being Good” cards and inclusion in raffle draws.
- Inclusion in attendance draws
- Access to Merit Certificates
- Access to Breakfast Program
- Inclusion on excursions – provisional on executive approval
- Access to P.C.Y.C, YMCA and Don Bosco – provisional on executive approval.

### BRONZE - LEVEL

Students on Bronze Level must demonstrate appropriate behaviour and attendance for ten consecutive days to progress to Silver Level Three withdrawals will result in students remaining on their current day. Any partial day suspensions or leave without permission will result in the student commencing the following day on Bronze Level, Day One. However, students can earn one or two withdrawals and still “make their day”. A short or long term suspension or unexplained leave, will result in the student commencing the following day on Tin Level, Day One.

### BRONZE LEVEL - PRIVILEGES

- All Tin Level privileges
- Inclusion in Bronze Level Luncheon – as per timetable
- Access to pool table at lunchtime – on limited days
- Access to sports equipment at lunchtime (eg. ball)

## SILVER LEVEL

Students on Silver Level must demonstrate appropriate behaviour and attendance for fifteen days to progress to Gold Level. Two or three withdrawals will result in students remaining on their current days. Any partial day suspensions or leave without permission will result in the student commencing the following day on Silver Level, Day One. Students can earn one withdrawal and still “make their day”. A short or long term suspension or unexplained leave will result in the student commencing the following day on Tin Level, Day One.

### SILVER LEVEL - PRIVILEGES

All Tin and Bronze Level privileges.

Access to shop at recess/lunchtime (with parental permission note)

Access to Silver Level barbeque

Access to music at lunchtime (subject to bookings).

## GOLD LEVEL

Students on Gold Level have reached the highest level available to students at Penrith Adolescent Centre. At Gold Level students are expected to be a role model for other students and maintain high standards of behaviour and attendance. A Short or Long term suspension will result in the student commencing the following day on Tin Level, Day One.

Consequences for truancy by Gold Level students will be considered on an individual basis by executive staff. A student on Gold Level can be given a partial day suspension and still maintain their level.

### GOLD LEVEL - PRIVILEGES

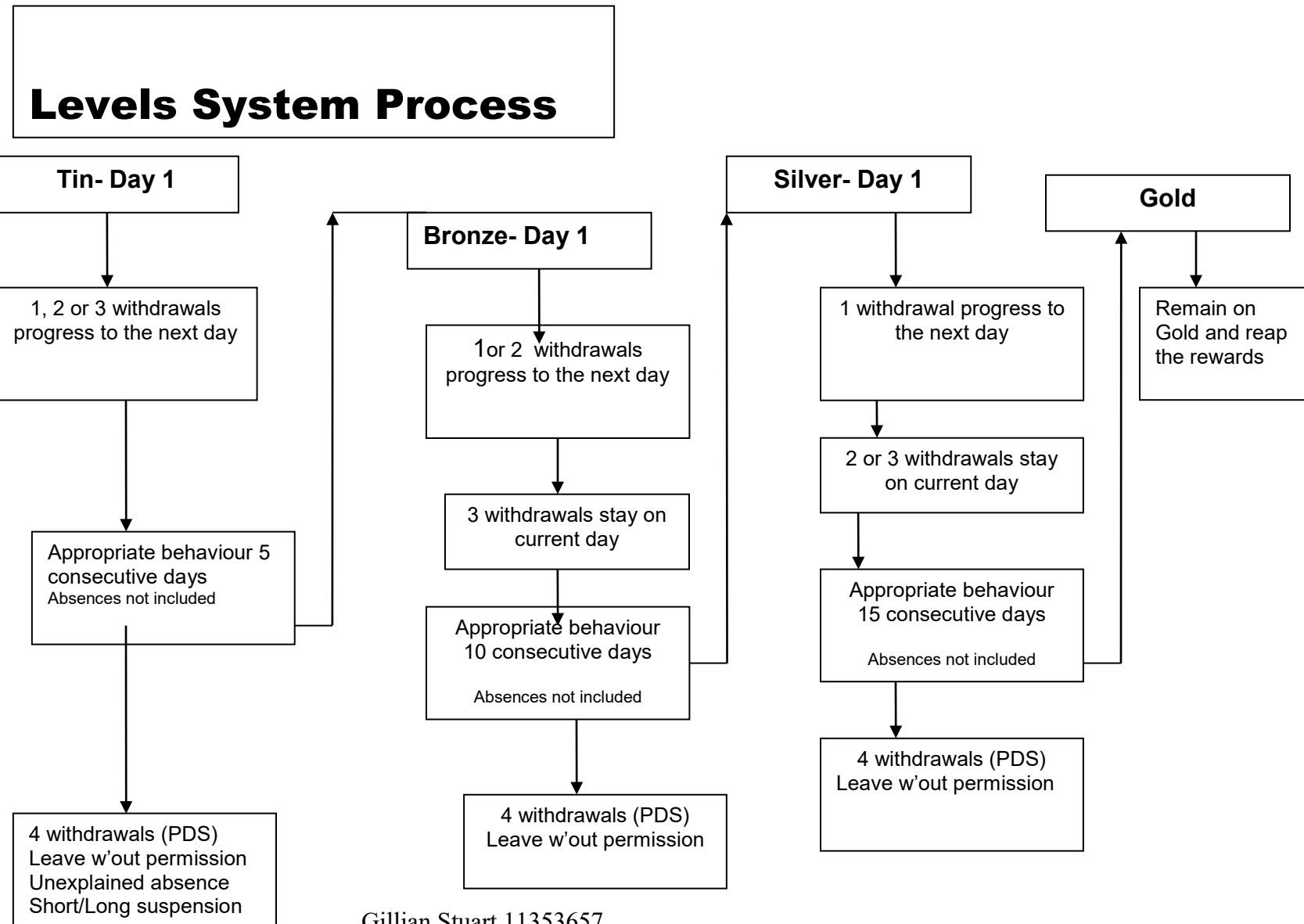
All Levels Tin, Bronze and Silver privileges

Name entered on PAC Honour Board

Access to Gold Level Luncheon

Access to shop

**\*\*Explained absences do not contribute to a student's progression through the Levels.**



### Levels

There are 4 levels in operation at this Centre. Progression through the levels system requires students to be following school rules, earning points and getting minimal withdrawals according to their level i.e. TIN = 1/2/3/ withdrawals BRONZE= ½ withdrawals SILVER= 1 withdrawal GOLD

Any student that has an at-home isolation or Partial Day Suspension loses all days and points earnt.

<b><u>TIN</u></b> <ul style="list-style-type: none"><li>Return from suspension</li><li>5 days of appropriate behaviour and attendance then move to BRONZE</li></ul>	<b><u>BRONZE</u></b> <ul style="list-style-type: none"><li>NEW STUDENTS</li><li>10 days of appropriate behaviour and attendance then move to SILVER</li></ul>	<b><u>SILVER</u></b> <ul style="list-style-type: none"><li>15 days of appropriate behaviour and attendance then move to GOLD</li></ul>	<b><u>GOLD</u></b> <ul style="list-style-type: none"><li>Highest level available</li><li>Expectations of being a role model and privileges associated with this level</li></ul>	
<b><u>CHECKS-WITHDRAWALS-AT HOME SOLATION/PARTIAL DAY SUSPENSION</u></b>				
<b><u>Checks</u></b> <ul style="list-style-type: none"><li>Disruptive behaviour</li><li>Talking to other students in time out</li><li>Annoying others</li><li>Making silly noises</li><li>Swinging on chairs</li><li>Tapping desks</li><li>Talking out of turn</li><li>Swearing</li><li>Not obeying instructions</li></ul>	<ul style="list-style-type: none"><li>Negative comments</li><li>Answering back/arguing</li><li>Eating / drinking in class</li><li>Chewing gum</li><li>Wearing hat inside</li></ul>	<b><u>Withdrawals</u></b> <ul style="list-style-type: none"><li>Graffiti</li><li>Vandalism</li><li>Major disruption<ul style="list-style-type: none"><li>*activating duress alarm</li><li>*interfering with class activities</li><li>*swearing / abuse at staff</li><li>*intimidation</li><li>*play fighting</li><li>*taking someone's possessions</li><li>*gross swearing</li></ul></li><li>Unexplained more than 15 min late</li></ul>	<ul style="list-style-type: none"><li>Using mobile phone</li><li>Tattooing</li><li>Sexually inappropriate comments</li><li>Sexually inappropriate behaviour</li><li>Possession of offensive material</li><li>Persistent disobedience</li><li>Drug reference</li><li>Gang reference</li><li>Unsafe behaviour</li><li>Spitting</li></ul>	<b><u>At home Isolation/ Partial Day Suspension</u></b> <ul style="list-style-type: none"><li>Gross intimidation</li><li>Annoying / harassing of members of the public</li><li>Violence / threatening behaviour</li><li>Smoking</li><li>Contraband</li><li>Disruptive on withdrawal</li><li>4 withdrawals</li></ul>

## BEHAVIOUR MANAGEMENT PLAN DAY BOOKS

- Books are designed to record student's academic and behavioural outcomes on a daily basis. A copy of the top page of the book is sent home with the student for their parents/ carers perusal.
- Information recorded in day books are then graphed in the students base line data
  - The Code of Conduct is based on 5 rules. The five columns each reflect a specific code of conduct ( school rule)
  - Points- 1 point for every Code of Conduct success achieved at an excellent level ( see example below)
  - At the end of each lesson staff with the student evaluate the code of conduct success that has been met. Students will be made aware of the areas they have been successful in, and the areas they have not achieved points in.
  - Be accurate, and consistent, as the points you are awarding are a true reflection of that student's achievements. Not recording this accurately can lead to further issues for colleagues that do implement the system in a consistent manner.
  - In prior consultation, it should be decided which staff member will complete the books. It is however the professional responsibility of the classroom teacher to ensure that the book is completed prior to the end of the lesson. This may mean finishing set work 5 minutes prior to the end of the session and asking the question to each student "Did you follow staff instructions? Did you work to your ability? Did you use appropriate language? Did you respect others? And did you stay in the right Place?"
  - Should a student receive a behaviour modification prompt ( as recorded on the second page) eg a "check" or a "withdrawal", it is a clear indication that the code of conduct in that particular area would not be met and NO POINTS would be awarded in that area.

### Checks:

- Checks are "reminders" that student's action is not acceptable at school.
- See list of behaviours / actions that we as a school have decided are undesirable and do not follow the 5 codes of conduct at the Centre.
- When giving "checks", "withdrawals" to students- staff must be careful not to escalate the situation by their own emotional responses to the behaviour- calm, low- volume statements such as "XXX that is a check for your language" or "XXX, you will need to move to the withdrawal space for XXXX".
- Checks ARE cumulative during the whole day. A student may receive a check in each session, which will result in a withdrawal when the 4<sup>th</sup> check is recorded.
- Checks are to be recorded in the top section of the bottom page. There should be 4 checks in the first row ( if needed of course) , which would result in a withdrawal for " accumulated checks".

**Withdrawals-**

- Withdrawals are to be taken when student's action are listed on the "Withdrawals Table" and / or if a staff member feels that the student's action will lead to an unsafe environment.
- Withdrawals and checks are not to be seen as a punishment, but as an opportunity for students to have some space / time to reflect on situation, what is the real issue? Calm down Speak to a staff member one- on –one in a confidential environment (Usually Head Teacher or School Counsellor). This is not generally possible in the classroom environment, Takes away the "audience" from the student, Stops escalation of the situation.
- Withdrawals are to be recorded immediately they are given with as much information as possible and as descriptive as possible ( see examples below)
- Ensure that the student is aware of the reason that withdrawal has occurred, by citing the withdrawal category.



	Session	T & L Activity	Points	Code of Conduct Achievements				
				1	2	3	4	5
<b><u>Code of Conduct</u></b>  1. Follow staff instructions 2. Work to ability 3. Use appropriate language 4. Respect Others 5. Stay in the right place	1 8-30	Social, Breakfast, Movement, Goal Setting.	2			✓	✓	X
	Staff			Bonus points given for:				
				★	★			
				Bonus points given for:				
				Bonus points given for:				
	11.00	Recess						
	4 11.30	Geography- Distance Ed TP 5 Needed assistance with mapping						
	Staff			Bonus points given for:				

Points reflect on the Code of Conduct being achieved to an excellent eg “star” level. In this example, only the follow staff instructions and work to ability achievements were met, (to a level of excellence). Therefore only two points have been issued this session

Teaching and Learning activity to be recorded here. This assists if another staff member needs to take class in next session. It also is a good measure to see if lesson content/ lesson is a trigger for behavioural issues

Stuart 11353657

## Appendix 6 Brain Gym®

### Staff In-Service Training PowerPoint


**Movement**  
USING MOVEMENT TO ENHANCE LEARNING AND POSITIVE BEHAVIOUR

**This session includes:**


- Current research on learning theories, and how movement underpins their successful implementation.
- Movement activities and exercises to incorporate into instructional strategies to create a positive learning environment.

**Participants will leave with:**

- Exercises to keep themselves motivated, focused, happy and relaxed.
- Confidence to implement movement throughout the learning day, to assist students to be willing, and able to learn and regulate their own behaviour.



**Pre- Activity**




**Brain Gym®**

©Brain Kinect

Brain Gym® uses simple movements to establish new neural pathways for left-right hemisphere energy flow. These movements and positions first energize the flow of information within the brain, restoring ability to learn and function at 100 efficiency. Brain Gym® can also be used to energize and keep learning channels open.


Brain Gym® is based on Educational Kinesiology, the study of movement of the human body in a context to learning and expressing skills. In normal brain the areas of literacy, logic and organization require efficient communication between the many functional centers throughout the brain. Learning and functional disabilities occur when information cannot flow freely between these centers of the brain due to neurological blocks.



**PACE**


Positive  
Active  
Clear  
Energetic

PACE is a three minute exercise in Brain Gym to energize and open neural networks. It has 4 components which are done in the reverse order of the letters. My goal is participants stay calm and focused.




**E - Energy**

- The body's energy is conducted through water. The first step is to drink plenty of water.



**Clear**

Place your left hand over your navel. Place the thumb and middle finger of your right hand on the indentations just below your collar bone and gently massage while breathing slowly. This area is just over the carotid arteries which supply oxygen to the brain. After 30 seconds reverse your hands and continue another 30 seconds.



## Activate

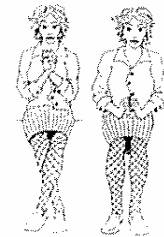
- Activate the neural networks by cross walking. As you lift your left knee swing your right arm over the midline and touch the left knee. Then lift your right knee and swing your left arm over to touch the knee. Do for 30 Seconds



## Positive

A) Place your hands in front of you, hands back to back, thumbs down and cross them with the palms of the hands facing each other. As you clasp them together, bring them under and toward your chest. Cross your right foot over your left. Breathe on the count of 8 as you imagine the goal you wish to accomplish.

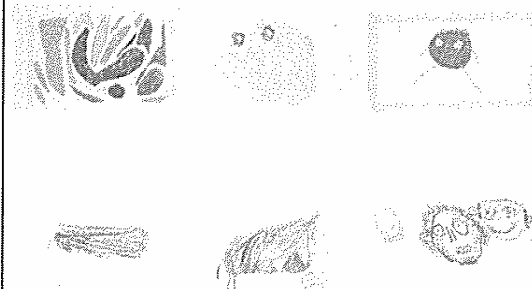
B) Uncross legs and put fingertips together, breathing deeply, bring your attention to your fingers, when each one of them tingling, take your hands apart.



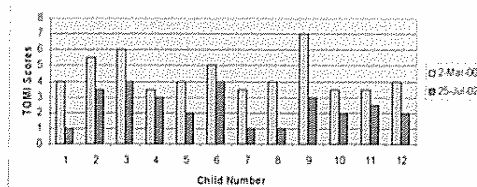
## Successful Learning & Movement A Case Study in NSW Australia From 1986 - 2007



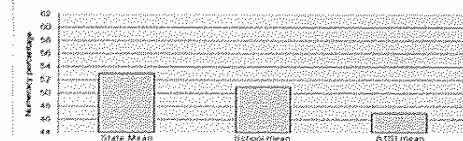
## Visual feedback from two special needs clients



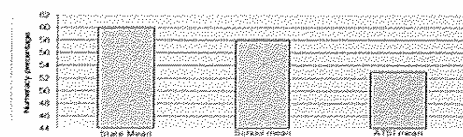
TOMI Scores in 12 children with movement impairments

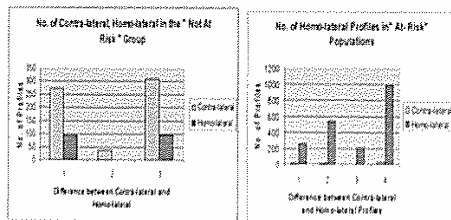


Yr 3 basic numeracy skills - 2003

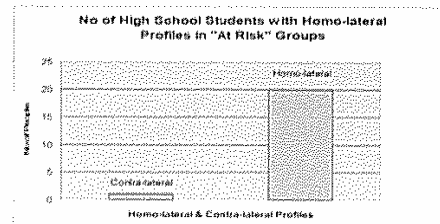


Yr 5 basic numeracy skills - 2003





Out of a group of one thousand and twenty-six students who were "at risk" nine hundred and ninety of them were homolateral in comparison four hundred and seven that were not defined "at risk" only thirty-eight were homolateral

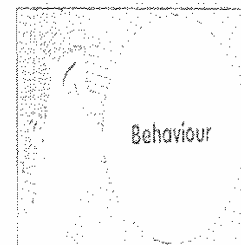


Since being at the school 80 % of students that are identified in an "at-risk" group arrived with an Homo-lateral pattern



## The Framework of Developmental Variation and Learning Disorders

- Attention and Intention
- Simultaneous and Sequential
- Process and Production
- Memory
- Language
- Higher- order cognition
- Motor implementation
- Social ability



## Looking inside the brain

Brain scanning instruments have contributed to our understanding of brain structure and function

- Electroencephalography (EEG)
- Magnetoencephalography (MEG)
- Position Emission Tomography (PET)
- Functional Magnetic Resonance Imaging (fMRI)
- Functional Magnetic Resonance Spectroscopy (fMRS)



Researchers are learning more about the brain chemicals called neurotransmitters

These substances bathe the brain cells and either permit signals to pass between them or inhibit them.

### Implications for teaching

- Wide fluctuations in the concentration of neurotransmitters in certain brain areas can change our mood, affect our movement, diminish or enhance alertness and interfere with our learning ability.
- Research is giving teachers clues about learning, lesson plans, experience, instruction, and assessment.
- Teachers do their best to change the human brain each day, the more they know about how it learns, the more successful they can be !!!!!!!

## Some important Findings

- Movement activates and alters the brain in specific known ways and the pathways created are used for other things.
- The brain takes advantage of parallel, distributed networks and 'use' creates more elaborate representations in the cortex.
- The process is called plasticity and it is what makes the brain able to adjust.
- The brain uses a great deal of energy to learn something and once learned it becomes more efficient. (Pascual-Leone; 1994, 1995)
- Motor task learning makes a cortical output map for sending information to the muscles, and movement alters these maps. The same cortical output that are involved in motor execution are activated in motor imaging. (Diamond; 2003)
- The languages of the brain include chemical, electrical and blood flow languages.
- Emotions affect learning, memory and recall

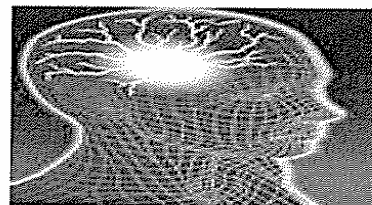
## Movement

- Educational community has regarded thinking and movement as separate functions and assigning them different priorities
- Activities such as movement are reduced as more emphasis is placed on the cognitive e.g. 50 % of time in primary schools devoted to literacy and numeracy , and all the other KLA's have to compete for the afternoon slots .
- Some researchers suggest that movement and exercise improve mood, increase brain mass, and enhance cognitive processing

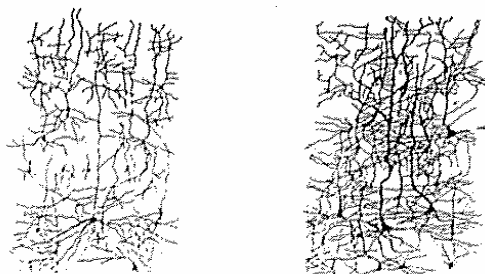
## The BRAIN

ACTION FEELING THINKING

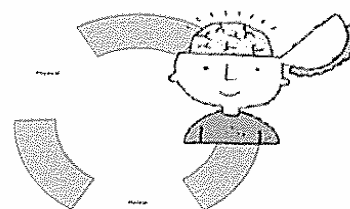
Processing information through neural maps



## Nerve networks



Learning has a physical as well as a mental competent.

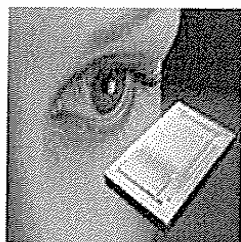


## Motor Implementation

Improving the physical skills that are involved in learning.

These skills include:

- the ability to use the eyes together, to move the eyes smoothly and efficiently, or to stop the eyes and take in the information
- ability to keep the neck relaxed for ease of listening and feedback of thought processes
- hard-wired pathways between the brain and sensory systems,



## Movement Compatible Learning Theories

Definitions and impact on Learning

- Constructivism
- Brain-based Learning
- Neuroscience
- Learning Styles
- Multiple Intelligences
- Right Brain vs. Left Brain



## Constructivism

### Definition

Constructivism is a philosophy of learning founded on the premise that, by reflecting on our experiences, we construct our own understanding of the world we live in. Each of us generates our own "rules" and "mental models," which we use to make sense of our experiences. Learning, therefore, is simply the process of adjusting our mental models to accommodate new experiences.

The purpose of learning is for an individual to construct his or her own meaning, not just memorize the "right" answers and regurgitate someone else's meaning. Good education is inherently interdisciplinary, the only valuable way to measure learning is to make the assessment part of the learning process, ensuring it provides students with information on the quality of their learning.

### How Constructivism Impacts Learning

- **Curriculum**  
Constructivism calls for the elimination of a standardized curriculum. Instead, it promotes using curricula customized to the students' prior knowledge. Also, it emphasizes hands-on problem solving.
- **Instruction**  
Under the theory of constructivism, educators focus on making connections between facts and fostering new understanding in students. Instructors tailor their teaching strategies to student responses and encourage students to analyze, interpret, and predict information. Teachers also rely heavily on open-ended questions and promote extensive dialogue among students.
- **Assessment**  
Constructivism calls for the elimination of grades and standardized testing. Instead, assessment becomes part of the learning process so that students play a larger role in judging their own progress.

## Brain-based Learning

### Definition

This learning theory is based on the structure and function of the brain. The brain is a parallel processor, meaning it can perform several activities at once, like tasting and smelling. Learning engages the whole physiology. The search for meaning comes through patterning and emotions are critical to patterning. We understand best when facts are embedded in natural, spatial memory. Learning is enhanced by challenge and inhibited by threat.

Teachers must immerse learners in complex, interactive experiences that are both rich and real. Educators must take advantage of the brain's ability to parallel process.

Students must have a personally meaningful challenge. Such challenges stimulate a student's mind to the desired state of alertness.

In order for a student to gain insight about a problem, there must be intensive analysis of the different ways to approach it, and about learning in general. This is what's known as the "active processing of experience."

### How Brain-based Impacts on Learning

- **Curriculum**  
Teachers must design learning around student interests and make learning contextual.
- **Instruction**  
Creation of brain-friendly environments. The best way to learn is not through lecture, but by participation in realistic environments that let learners try new things safely.
- **Assessment**  
Since all students are learning, their assessment should allow them to understand their own learning styles and preferences.

## Neuroscience

### Definition

Our brain actually contains three brains: the lower or reptilian brain that controls basic sensory motor functions; the mammalian or limbic brain that controls emotions, memory, and biorythms; and the neo cortex or thinking brain that controls cognition, reasoning, language, and higher intelligence.

The structure of the brain's neuron connections is loose, flexible, "webbed," overlapping, and redundant. It's impossible for such a system to function like a linear or parallel-processing computer. Instead, the brain is better described as a self-organizing system.

Mental concentration and movement alters the physical structure of the brain. As we use the brain, we strengthen certain patterns of connection between nerve cells, making each connection easier to create next time. This is how memory develops.

### How Neuroscience Impacts on Learning

- **Curriculum**  
Organize a curriculum around real experiences and integrated, "whole" ideas.
- **Instruction**  
Learning depends on the integration of brain structures. Action feeling. Thinking. Focus on instruction that promotes complex thinking and the "growth" of the brain.
- **Assessment**  
Neural Plasticity of the brain gives every person the ability to learn and relearn.

## Learning Styles

### Definition

Individuals perceive and process information in very different ways and educational experiences are geared toward their particular style of learning. How is this student smart?

- **Concrete and abstract perceivers**--Concrete perceivers absorb information through direct experience, by doing, acting, sensing, and feeling. Abstract perceivers, however, take in information through analysis, observation, and thinking.
- **Active and reflective processors**--Active processors make sense of an experience by immediately using the new information. Reflective processors make sense of an experience by reflecting on and thinking about it.

### How Learning Styles Impacts on Learning

- **Curriculum**--Educators must place emphasis on intuition, feeling, sensing, and imagination, in addition to the traditional skills of analysis, reason, and sequential problem solving.
- **Instruction**--Teachers should design their instruction methods to connect with all four learning styles, using various combinations of experience, reflection, conceptualization, and experimentation. Instructors can introduce a wide variety of experiential elements into the classroom, such as sound, music, visuals, movement, experience, and even tasting.
- **Assessment**--Teachers should employ a variety of assessment techniques, focusing on the development of "whole brain" capacity and each of the different learning styles.

## Multiple Intelligences

### Definition

This theory of human intelligence, developed by psychologist Howard Gardner, suggests there are at least eight ways that people have of perceiving and understanding the world.

- **Verbal-Linguistic**--The ability to use words and language.
- **Logical-Mathematical**--The capacity for inductive and deductive thinking and reasoning, as well as the use of numbers and the recognition of abstract patterns.
- **Visual-Spatial**--The ability to visualize objects and spatial dimensions, and create internal images and pictures.
- **Body-Kinesthetic**--The wisdom of the body and the ability to control physical motion.
- **Musical-Rhythmic**--The ability to recognize tonal patterns and sounds, as well as a sensitivity to rhythms and beats.
- **Intrapersonal**--The capacity for person-to-person communications and relationships.
- **Interpersonal**--The spiritual, inner states of being, self-reflection, and awareness.
- **Naturalistic**

### How Multiple Intelligences Impacts on Learning

- **Curriculum**--balanced curriculum that incorporates the arts, self-awareness, communication, and physical education.
- **Instruction**--Gardner advocates instructional methods that appeal to all the intelligences.
- **Assessment**--assessment methods that take into account the diversity of intelligences.

## Right Brain vs. Left Brain

### Definition

### How Multiple Intelligences Impacts on Learning

This theory of the structure and functions of the mind suggests that the two different sides of the brain control two different "modes" of thinking. It also suggests that each of us prefers one mode over the other.

- |                     |                      |
|---------------------|----------------------|
| • <b>Left Brain</b> | • <b>Right Brain</b> |
| Logical             | Intuitive            |
| Sequential          | Random               |
| Rational            | Holistic             |
| Analytical          | Synthesizing         |
| Objective           | Subjective           |
| Looks at parts      | Looks at wholes      |

### How right brain vs. left brain Impacts on Learning

- **Curriculum**--in order to be more "whole-brained" in their orientation, schools need to give equal weight to the arts, creativity, and the skills of imagination and synthesis.
- **Instruction**--Classrooms need to cater for right-brain learning activities by incorporating more patterning, metaphors, analogies, role playing, visuals, and movement into their reading, calculation, and analytical activities.
- **Assessment**--For a more accurate whole-brained evaluation of student learning, educators must develop new forms of assessment that honor right-brained talents and skills.

### The Impact on Learning if we are 'Stuck' in mainly Left or Right Brain

Learning involves hard work. We can lose sight of the whole picture or perspective, generalise what is learned, understand parts only and find it difficult to understand concepts. Movement becomes cross-lateralised, slowed down or speeded up.

#### UNINTEGRATED, HOMOLATERAL BEHAVIOURS

##### Left

- over-focused
- obsessive 'my hand'
- worries about making mistakes
- serious-looking
- no new ideas: facts only
- poor memory
- lacks imagination
- clumsy, lacks rhythm
- on time
- word by word slow reader

Difficulty Learning

##### Right

- day dreams
- procrastinator: has difficulty getting started
- lacks organisation
- difficulty expressing ideas
- poor short-term memory
- wiggles a lot
- super sensitive - easily upset
- guesses at words when reading & 'fills' the words
- inattention problems
- messy large handwriting
- no sense of time, late time

Difficulty Learning



Marching - Slipping - Sliding - Crossing - Running  
 Always move opposite arm and leg together  
 and cross the mid-line of the body

### Post Activity



## Brain Gym© Student/Staff Workshop PowerPoint

### Physical Exercise

#### USING MOVEMENT TO ENHANCE LEARNING and POSITIVE BEHAVIOUR

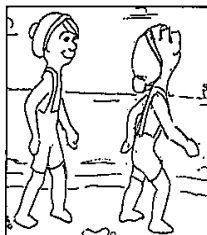
##### This session includes:

- Current research on learning theories, and how movement underpins their successful implementation.

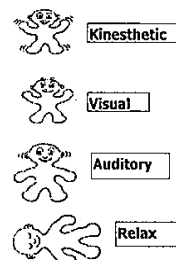
- Movement activities and exercises to incorporate into instructional strategies, to create a positive learning environment.

##### Participants will leave with:

- Exercises to keep themselves motivated, focused, happy and relaxed.
- Confidence to implement movement throughout the learning day, to assist students to be willing, and able to learn and regulate their own behaviour.

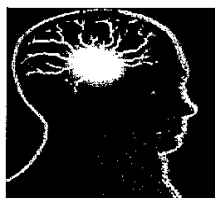
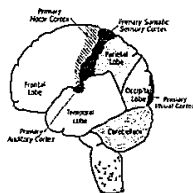


### Assessment-Pre- Activity

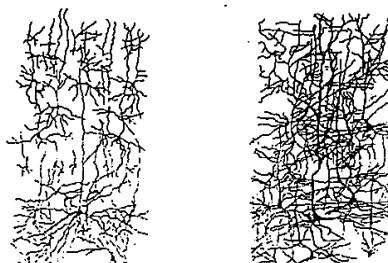


### The BRAIN ACTION FEELING THINKING

Processing information through neural maps



### Nerve networks



### Benefits of Physical Exercise

Neurons that fire when we think form a pattern similar to the neurons that fire when we move - exercise can strengthen neural networks used for thinking and other cognitive activity.

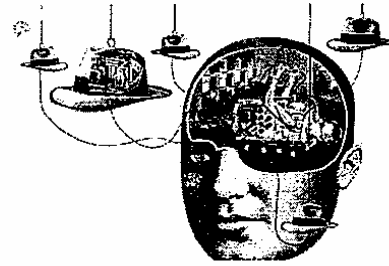
- There is a growing awareness that exercise increases the neuro transmitters, which help with mood regulation, anxiety control and the ability to handle stress and aggression and to become more attentive and social.



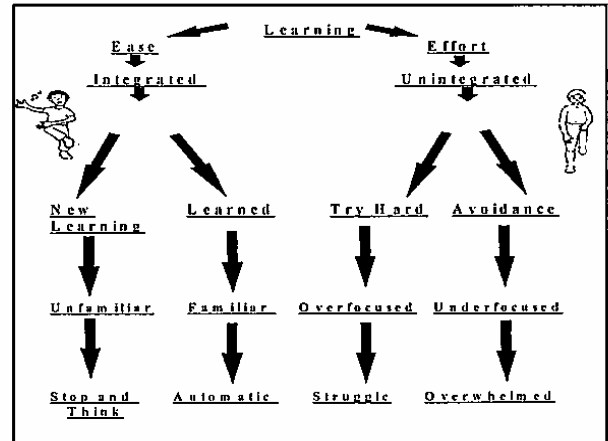
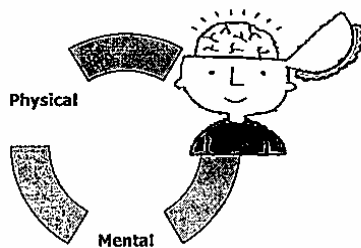
The brain accounts for less than 3% of the body's weight but takes over 20% of its oxygen when at rest. It has been called an 'oxygen guzzler'. Standing up and moving around can increase the flow of blood to the brain by up to 15% - 20%: our brains do not work best when we are sitting for long periods

## Brain Re-wires Itself

Adolescent Brain is a golden window of opportunity to re-wire again the cables for whole brain and body learning



**Learning has a physical as well as a mental competent.**

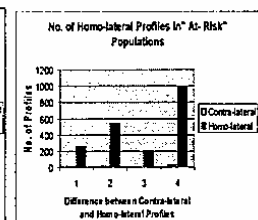
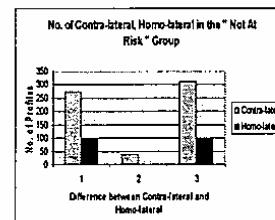


## The Impact on Learning if we are 'Stuck' in mainly Left or Right Brain

Learning becomes hard work. We can lose sight of the whole picture or perspective, generalise what is learned, understand parts only and find it difficult to understand concepts. Movement becomes uncoordinated, slowed down or speeded up.

### UNINTEGRATED- HOMOLATERAL BEHAVIOURS

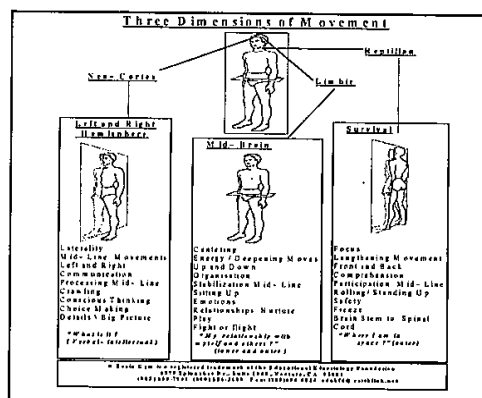
Left	Right
<ul style="list-style-type: none"> <li>overfocused</li> <li>obsessive 'try hard'</li> <li>worries about making mistakes</li> <li>serious- unfeeling</li> <li>no new ideas- facts only</li> <li>poor memory</li> <li>lacks imagination</li> <li>clumsy- lacks rhythm</li> <li>on time</li> <li>word by word slow reader</li> </ul>	<ul style="list-style-type: none"> <li>day dreams</li> <li>procrastinates- has difficulty getting started</li> <li>lacks organization</li> <li>difficulty expressing ideas</li> <li>poor short term memory</li> <li>wiggles a lot</li> <li>super sensitive- easily upset</li> <li>guesses at words when reading &amp; 'sings' the words</li> <li>irrational- glibble</li> <li>messy large handwriting</li> <li>no sense of time...late time</li> </ul>
Difficulty Learning	Difficulty Learning



Out of a group of one thousand and twenty-six students who were "at risk" nine hundred and ninety of them were homolateral in comparison four hundred and seven that were not defined "at risk" only thirty-eight were homolateral

## Brain Gym®

Brain Gym® uses simple movements to establish new neural pathways for left-right hemispheric integration. These movements and positions help integrate the flow of information within the brain, restoring innate ability to learn and function at top efficiency. Brain Gym® can also be used to energize and keep learning channels open.



## Action-Focus- Lengthening-Comprehension

**SWITCHED-OFF**  
Holds back- Withdraw  
Loses Self in tasks  
Puts others' needs before self

**SWITCHED-ON**  
Participates-Comprehends  
Able to do multi-tasking  
Has clear sense of self



## Thinking – Laterality - Communication

**SWITCHED-OFF**  
Struggles Poor co-ordination  
Difficulty with self expression  
Reverses letter, Poor listen

**SWITCHED-ON**  
Acts, moves effortlessly, Graceful  
Articulate Reads Writes easily  
Hears accurately



## Feeling- Centred- Organisation

**SWITCHED-OFF**  
Off centre, unstable Confused  
Scattered Gets thrown off track  
Disorganised, stuck  
Cries easily Overwhelmed

**SWITCHED-ON**  
Centred, Clear, Concentrates well  
Follows through easily  
Productive  
Has sense of well-being



**PACE**  
Positive  
Active  
Clear  
Energetic

**PACE** is a three minute exercise in Brain Gym to energize and open neural networks.

It has 4 components which are done in the reverse order of the letters.

My goal is for participants to stay calm and focused while having fun as they learn.



## E - Energy

- The body's energy is conducted through water.
- The first step is to drink plenty of water.



## Clear

- Place your left hand over your navel.
- Place the thumb and middle finger of your right hand on the indentations just below your collar bone and gently massage while breathing slowly. This area is just over the carotid arteries which supply oxygen to the brain.
- After 30 seconds reverse your hands and continue another 30 seconds.



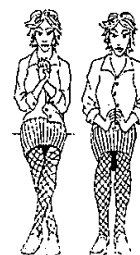
## Activate

- Activate the neural networks by cross walking.
- As you lift your left knee swing your right arm over the midline and touch the left knee.
- Then lift your right knee and swing your left arm over to touch the knee.
- Do for 30 Seconds



## Positive

- A) Place your hands in front of you, hands back to back, thumbs down and cross them with the palms of the hands facing each other. As you clasp them together, bring them under and toward your chest. Cross your right foot over your left. Breathe on the count of 8 as you imagine the goal you wish to accomplish.
- B) Uncross legs and put fingertips together, breathing deeply, bring your attention to your fingers when each one of them tingling, take your hands apart.



### Ready to Learn

**1** Drink Water

**2** Head Rest Hold Head With Hands

**3** Rub and Look

**4** Rub Ears

**5** Zip Ups

**6** Cross Crawl- Puppet- Cross Crawl

Left-Right

Up-Down

Scare-Far

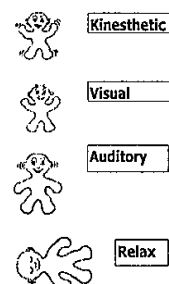
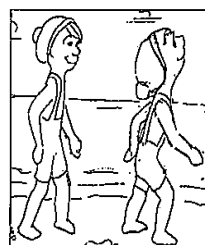
Hum

Hum

Hum

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## Assessment Post - Activity




Kinesthetic

Visual

Auditory

Relax

## Daily Movement



- Each morning from 8.55 am to 9.05, a teacher and students stand in a circle, outside the classroom.

Pre-activity.

- Stand on one leg for as long as you can. Stand on the other leg for as long as you can. Notice Balance.
- Go around the circle twice, with each person picking an exercise.
- Remember stretch exercise, needs to last for at least 8 seconds.
- Teacher models exercises over time.

Post-activity.

- Stand on one leg, stand on the other leg. Notice Balance.

"Is there are change?"  
"What do you notice?"

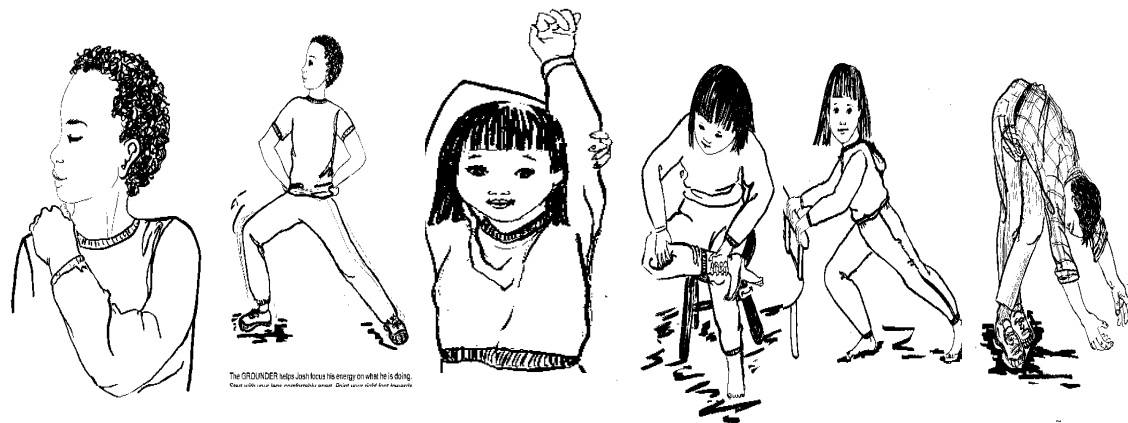
**Brain Gym© Checklist**

- 1. Teacher calls students and form circle**
- 2. Teacher completes Pre-Activity of Noticing**
- 3. Teacher chooses at least 2 exercises from each Section**
- 4. Teacher completes Post-Activity of Noticing**
- 5. Ask for students comments “What has changed?”**

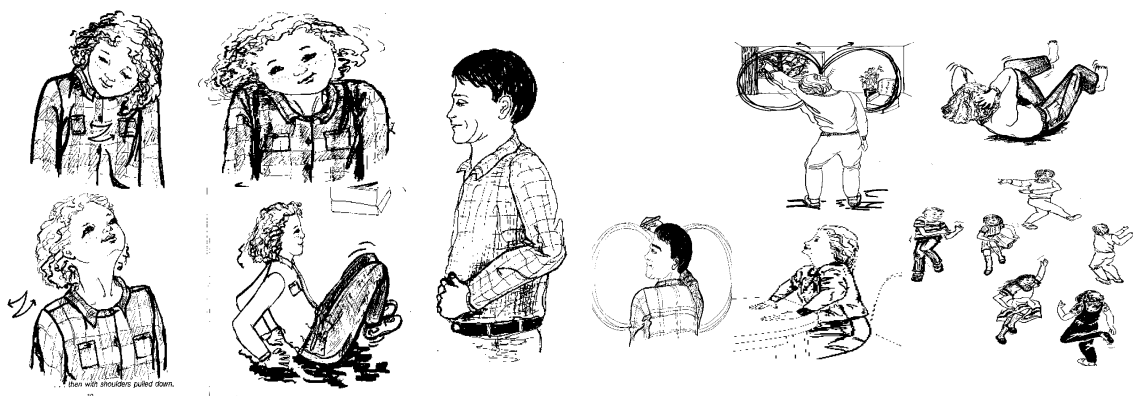
## Centering-Organization



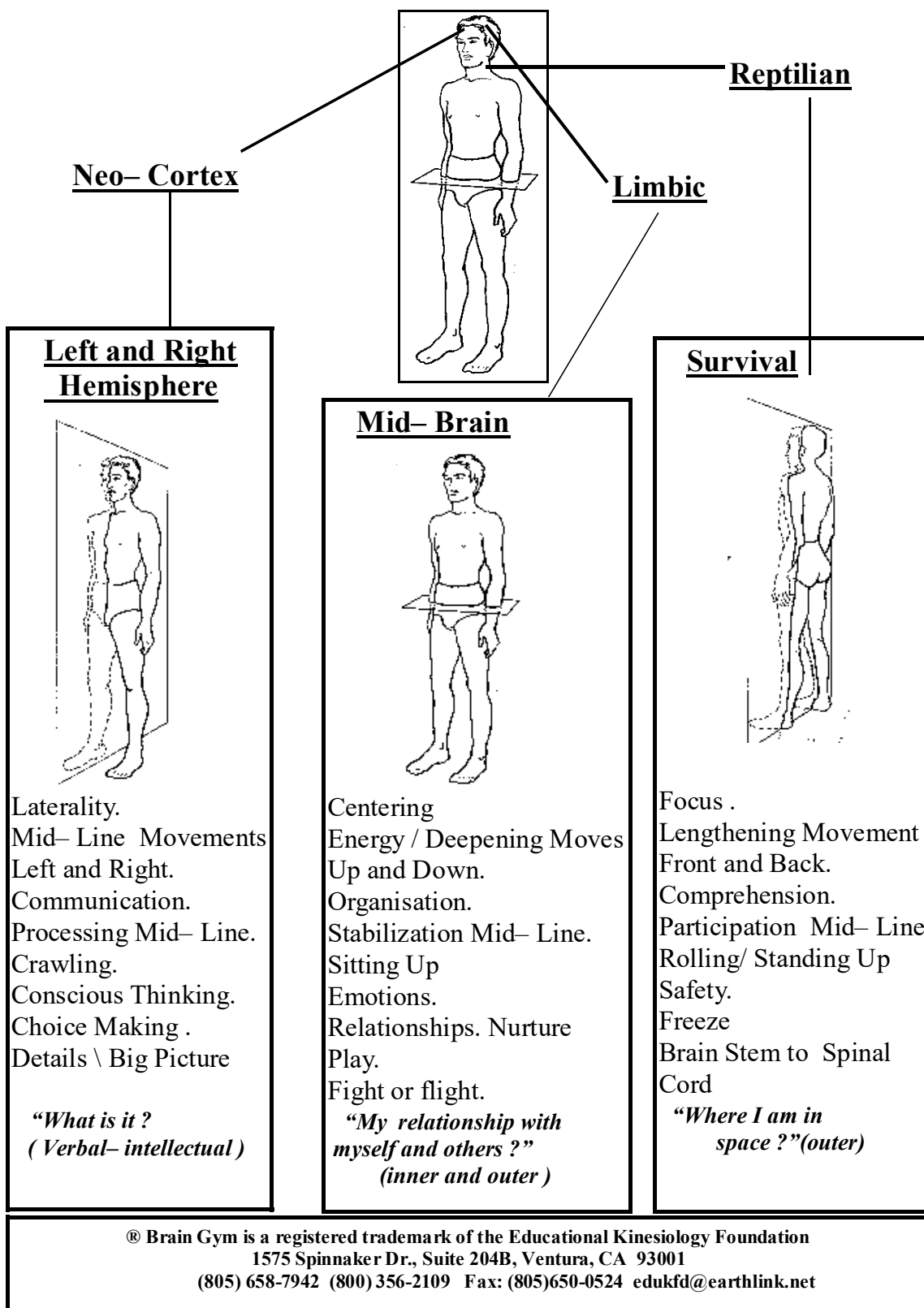
## Focus-Comprehension



## Laterality-Communication



## Three Dimensions of Movement



Dr Paul Dennison, Ph.D., is the creator of Brain Gym®, he developed his knowledge of the relationship of movement to perception, and the impact of motor- activity on academic skills learned during his work in his reading clinics in California . His experience as training as a marathon runner, his study of vision training, his study of Jin Shin Jitsu (a form of acupressure), and his study of Applied Kinesiology (taught to the public as the Touch for Health synthesis) helped him develop his programs. The educational program is distinctive in that it prepares learners to learn. The emphasis is on a learning readiness; it enhances, rather than replaces other programs or curricula. This program is distinctive because it addresses the physical (rather than mental) components of learning. He discovered that these skills depend upon an innate understanding of our bodies and how they move in space. It works by facilitating optimal achievement of mental potential through specific movement experiences. All acts of speech, hearing, vision, and coordination are learned through a complex repertoire of movements that promotes efficient communication among the many nerve cells and functional centres located throughout the brain and sensory motor system.

Brain Gym® uses simple movements to establish new neural pathways for left-right hemispheric integration. These movements and positions help integrate the flow of information within the brain, restoring innate ability to learn and function at peak efficiency. Brain Gym© is based on Educational Kinesiology, the study of movement of the human body, as it relates to learning and expressing skills. In a normal brain the areas of laterality, focus and organization require efficient communication between the many functional centres throughout the brain. Learning and functional disabilities occur when information cannot flow freely between these centres of the brain due to neurological blocks. (Dennison & Dennison, 1994; Hannaford, 1996)

Learning, thinking and motor-implementation are inter-related; laterality of the body pertains to the relationship between the two sides of the brain and body, especially in the mid-field where the two sides integrate. The physical skills that are fundamental to reading, writing, listening or speaking include the ability to use the eyes together, to move the eyes smoothly and efficiently, and to stop the eyes and take in the information.



They also include the ability to keep the neck relaxed for ease of listening and feedback of thought processes. Pathways between the brain and sensory systems help us input, store and express what we know. Stress free connections between the brain and the ears, the eyes and ears, the eyes and hands, both sides of the body, the sensory system and the whole body are all necessary for successful learning (Dennison, 2006).

Laterality is the informational intelligence and is formed by the way we process spoken and written language .In order to process this effectively there must be a clear bridge across the midline that allows the hemispheres to work together. Dennison emphasizes that in order to have full performance involving both eyes, both ears, and both hands working together, other dimensions of brain balance are involved, including centring and focus.

Dennison discusses the second dimension, which he calls the centring dimension. This dimension of the mid brain relates to the fight or flight pattern. It unites the rational thought and abstract abilities of cortex with the irrational instinctual behaviour of the midbrain.

The third dimension is focus, which he refers to as the attention dimension. It involves the relationship of the frontal lobe, which contains information of the sense of self as a social being with purpose, with the hind brain, which is our most primitive survival brain and when under stress causes us to hold back, to freeze and to lose focus.

In each of these areas Dennison developed specific movements that allow the individual to use the right-left, top-bottom, and back to front areas of brain balance. These are known as the Brain Gym movements, which with several types of patterning movements form the core of Educational Kinesiology.

### **What Do the Brain Gym ® Exercises offer Participants?**

Educational Kinesiology (Edu- K ) is a movement-based program that offers the individual many specific tools to enhance learning, including the following:

- an innovative approach to goal setting
- a process for learning which distinguishes learned from unlearned skills

- specific steps to complete the learning process for any new skill
- mastery of thinking skills through movement
- the integration of abstract concepts into kinaesthetic (concrete) skills
- an approach to learning that acknowledges the mind/body connection
- specific processes for releasing tension and stress.

**Edu-K is a purely educational model** (although not a traditional educational model).

The philosophy most closely aligns with such examples as:

1. The Montessori method of allowing learners to make their own choices
2. Howard Gardner's work on multiple intelligences (in which differing learning styles are honoured)
3. The developmental optometry approach that considers the internalization of developmental skills as basic to postural integration and a central reference for all motions of directionality
4. The sensory integration model developed by Jean Ayers.
5. Rudolf Steiner with his educational philosophy that movement and rhythm are essential for learning.

**The emphasis is on drawing out learning through movement experiences (not stamping it in), and on anchoring those experiences through the noticing of kinaesthetic (muscle movement) sensations.**

**Appendix7 Copies of Questionnaires/Surveys/ Handouts****Behaviour Management System Implementation Assessment**

**1. How long have been a staff member implementing the behaviour management at the Centre?**

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**2. Do you think you have the skills to implement the Behaviour Management System?**

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**3. Do you believe the Behaviour Management System is an effective tool to assess the frequency of challenging behaviour in the Centre?**

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**4. Have you any comments.**

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**Workshop Feedback Form****Name:****Group:****Date:**

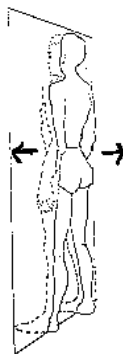
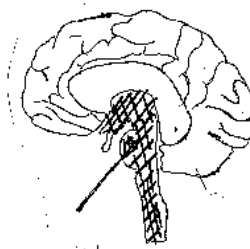
1. Did the planning for the workshop meet your needs?
2. What feedback could you give about the physical layout of the workshop?
3. Did you feel the workshop achieved its broad aims? How well?
4. What did you feel the participants gained from the workshop?
5. What were the best components of the workshop? Why?
6. What feedback could you give about the group dynamics of the workshop?
7. What could be improved from the workshop? How?
8. What feedback could you give to the facilitators for their personal improvement ?
9. Any other comments?

## Workshop Handout

# 1. Action

## Focus

## Comprehension



Notice	Before			After		
Action	Locked	Locked		Locked	Locked	
	On <input checked="" type="checkbox"/>	Off	×	On <input checked="" type="checkbox"/>	Off	×
Muscle Check						
	Forward	Middle	Back	Forward	Middle	Back
Body Direction <input checked="" type="checkbox"/>						
	Poor	Good	Great	Poor	Good	Great
Reading						
Comprehension <input checked="" type="checkbox"/>						

Extract from "Sink the Gizmo" by Robin Klein

My mouth freezes in horror. My heart seems to stop beating. The ocean stretches out endlessly. We are alone on the empty sea. I don't have the faintest idea where the land is. In panic I grab the one remaining oar and start to row. But the dinghy just spins around helplessly. You can't row with one oar.

Extract from "Hating Alison Ashley" by Robin Klein

I will never forgive my mother for calling me Erica with a surname like Yurken.

When an emergency teacher was taking our grade (we got a lot of emergency teachers at our school because the ordinary ones were often away with nervous problems), the emergency teacher would say something like, 'Girl in the end row with the dark hair, what's your name?' But before I could answer, kids would screech out 'Erk!' Or 'Yuk!' Or 'Gherkin!' Except Barry Hollis who always yelled out something worse, but emergency teachers were given a counselling session by the Principal before they came into our room, so they knew enough to pretend not to hear Barry Hollis.



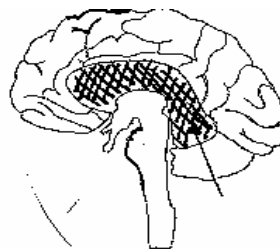
### SWITCHED-OFF

Holds-back. Withdrawn. Loses self in task. Puts others' needs before self.

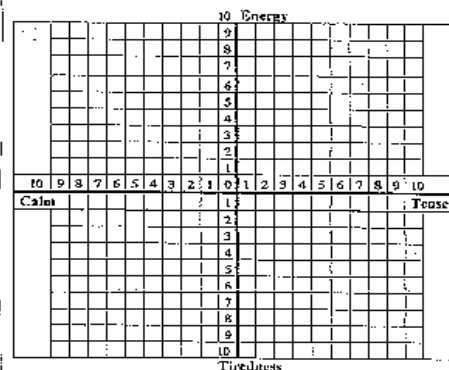
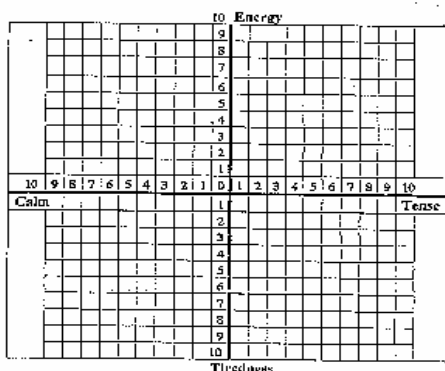
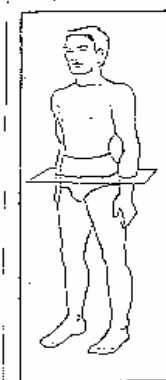
### SWITCHED-ON

Participates. Comprehends externals. Able to do multi-tasking. Has clear sense of self.

## 2. Feeling Centered Organisation



Notice	Before			After		
<b>Feeling</b>	Locked	Locked		Locked	Locked	
	On <input checked="" type="checkbox"/>	Off <input type="checkbox"/>		On <input checked="" type="checkbox"/>	Off <input type="checkbox"/>	
<b>Muscle Check</b>						
	High	Standing	Low	High	Standing	Low
<b>Body Direction</b> <input checked="" type="checkbox"/>						
<b>Complete Chart Rating</b>						



Wired



Brain Buttons



Earth Buttons



Space Buttons



Hunk-up



Balance Buttons



The Energy Yawn



The Thinking Gap



Practice Points

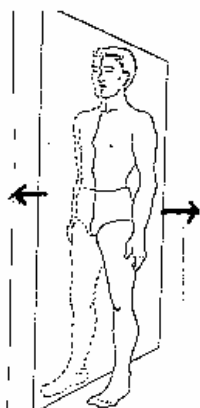
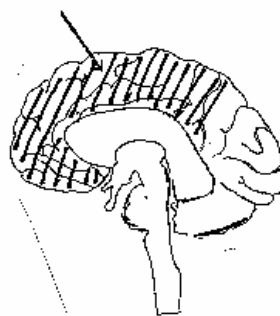
**SWITCHED-OFF**  
Off-centre, unstable. Confused.  
Scattered. Gets thrown off track.  
Disorganised, stuck.  
Overwhelmed.

**SWITCHED-ON**  
Centred. Clear. Productive.  
Concentrates well.  
Follows through easily.  
Has sense of well-being

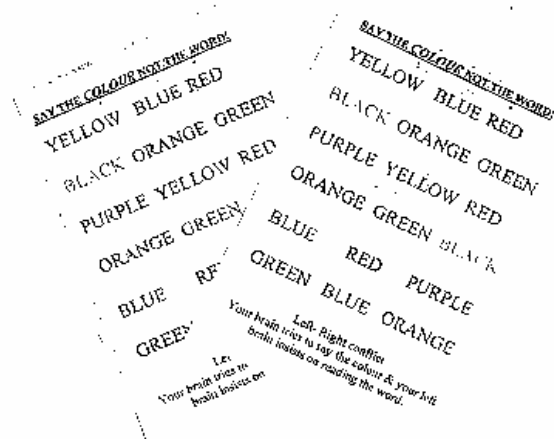
# 3. Thinking

## Laterality

## Communication



Thinking	Locked On <input checked="" type="checkbox"/>		Locked Off ✕		Locked On <input checked="" type="checkbox"/>		Locked Off ✕	
Muscle Check								
	Left	Right	Both		Left	Right	Both	
Body Direction <input checked="" type="checkbox"/>								
	Poor	Good	Great		Poor	Good	Great	
Words and Colours <input checked="" type="checkbox"/>								



Neck Rolls



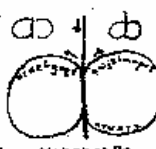
Cross Crawl sit-ups



Lazy 8s



The Rockers



Alphabet 8s



Cross Crawl



The Energizer



Belly Breathing

### SWITCHED-OFF

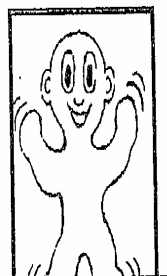
Struggles.  
Poor coordination.  
Difficulty with  
Self-expression.  
Reverses letters.  
Poor listener.

### SWITCHED-ON

Acts, moves effortlessly.  
Graceful, Articulate.  
Reads, writes easily.  
Hears accurately.

Assessment-Pre and Post Workshop Name:

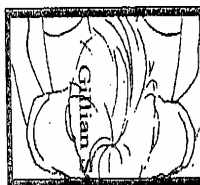
Describe in 3 words how you feel.	
Before	After
1.	1.
2.	2.
3.	3.



Juggling

Before - O After - X

1 2 3 4 5 6 7 8 9 10



Draw in the part  
of the brain you are  
most aware of.



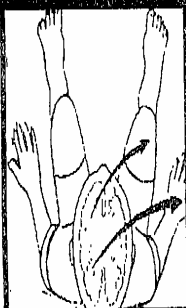
Seeing

1 2 3 4 5 6 7 8 9 10

Turn in a circle. Mark the box  
that shows which way you turned



Turned Left.  
See's Similarities.  
'Journey'.

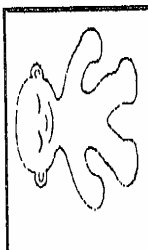


Turned Right.  
See's Differences.  
'Destination'.



Listening

1 2 3 4 5 6 7 8 9 10



Relaxing

1 2 3 4 5 6 7 8 9 10



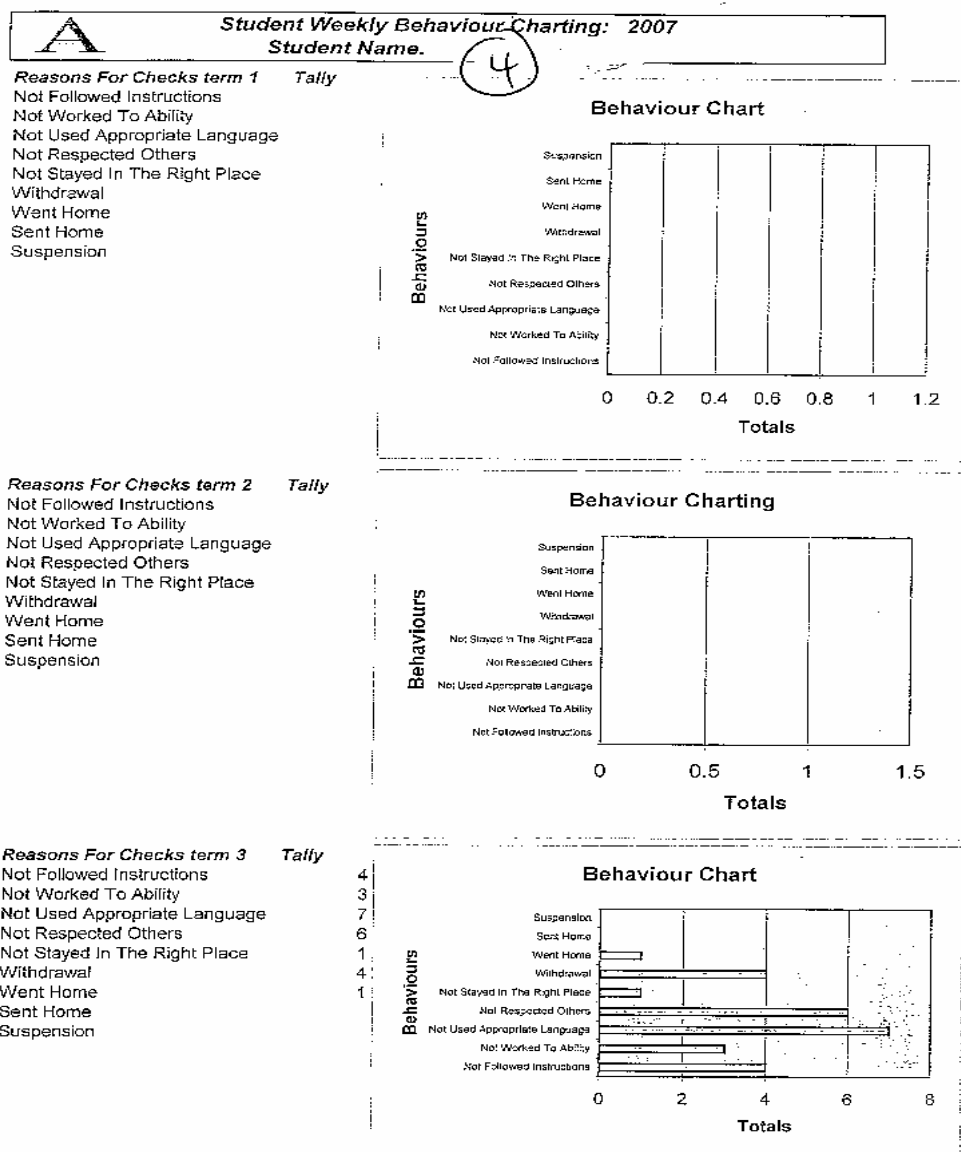
Pre- Program

Student	Contralateral	Homolateral
1	✓	
2		✓
3		✓
4		✓
5		✓
6	✓	
7		✓
8		✓
9		✓
10		✓

Contralateral-Homolateral MovementPost- Program

Student	Contralateral	Homolateral
1	✓	
2	✓	
3	✓	
4	✓	
5	✓	
6	✓	
7	✓	
8	✓	
9	✓	
10	✓	

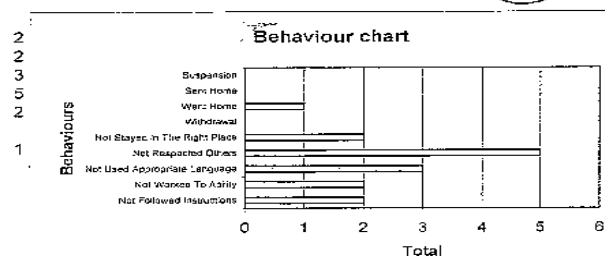
## Appendix 8 Student/Staff Samples of Data



4

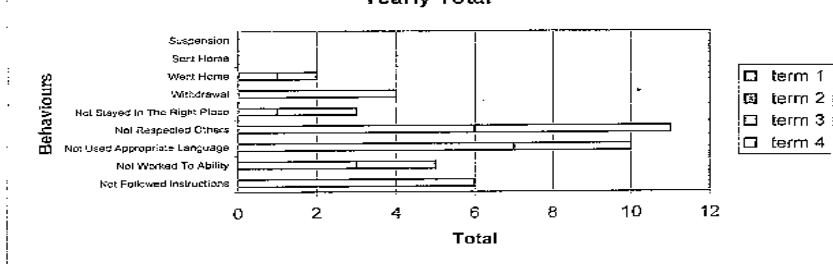
**Reasons For Checks term 4 Tally**

Not Followed Instructions  
 Not Worked To Ability  
 Not Used Appropriate Language  
 Not Respected Others  
 Not Stayed In The Right Place  
 Withdrawal  
 Went Home  
 Sent Home  
 Suspension

**Reasons For Checks total**

Not Followed Instructions  
 Not Worked To Ability  
 Not Used Appropriate Language  
 Not Respected Others  
 Not Stayed In The Right Place  
 Withdrawal  
 Went Home  
 Sent Home  
 Suspension

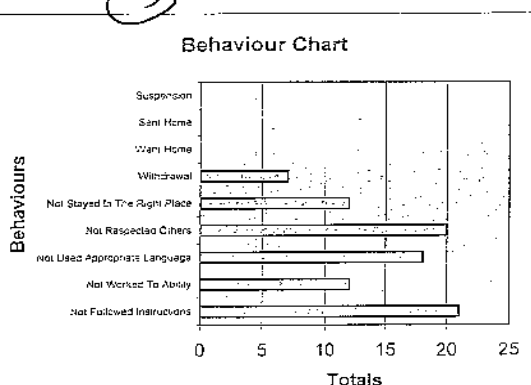
	term 1	term 2	term 3	term 4
Not Followed Instructions			4	2
Not Worked To Ability			3	2
Not Used Appropriate Language			7	3
Not Respected Others			6	5
Not Stayed In The Right Place			1	2
Withdrawal			4	
Went Home			1	1
Sent Home			25	14
Suspension				

**Yearly Total**

**A** **Student Weekly Behaviour Charting: 2007**  
**Student Name:** S

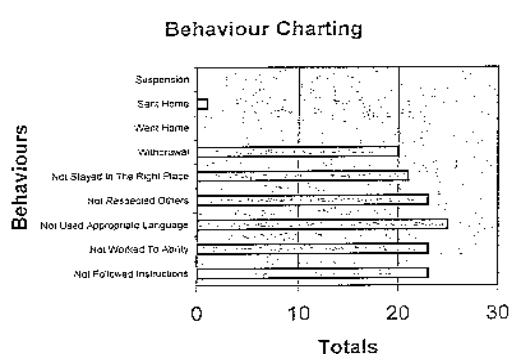
**Reasons For Checks term 1 Tally**

Not Followed Instructions 21  
 Not Worked To Ability 12  
 Not Used Appropriate Language 18  
 Not Respected Others 20  
 Not Stayed In The Right Place 12  
 Withdrawal 7  
 Went Home  
 Sent Home  
 Suspension



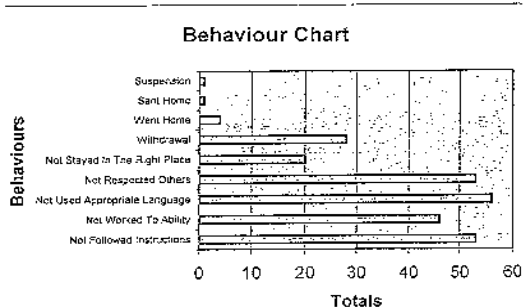
**Reasons For Checks term 2 Tally**

Not Followed Instructions 23  
 Not Worked To Ability 23  
 Not Used Appropriate Language 25  
 Not Respected Others 23  
 Not Stayed In The Right Place 21  
 Withdrawal 20  
 Went Home  
 Sent Home  
 Suspension



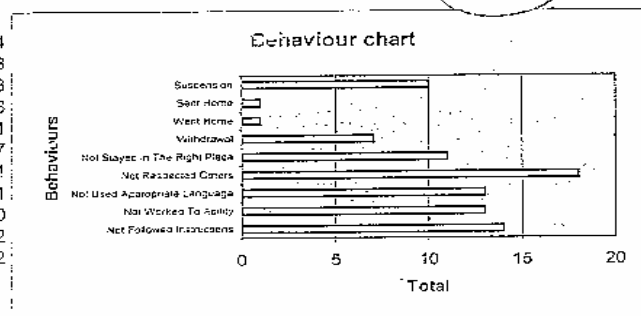
**Reasons For Checks term 3 Tally**

Not Followed Instructions 53  
 Not Worked To Ability 46  
 Not Used Appropriate Language 56  
 Not Respected Others 53  
 Not Stayed In The Right Place 20  
 Withdrawal 28  
 Went Home 4  
 Sent Home 1  
 Suspension 1

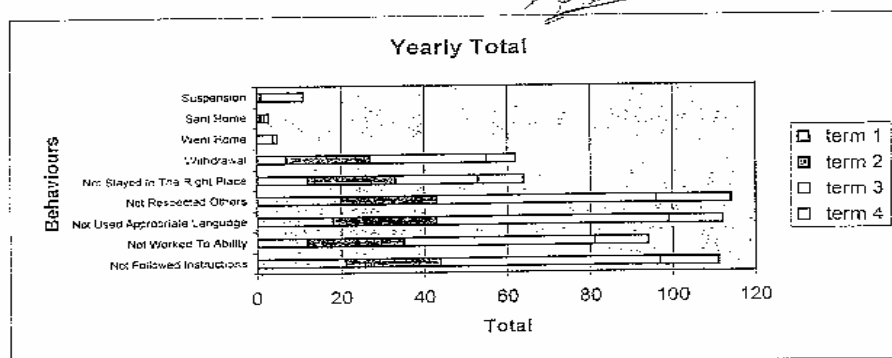


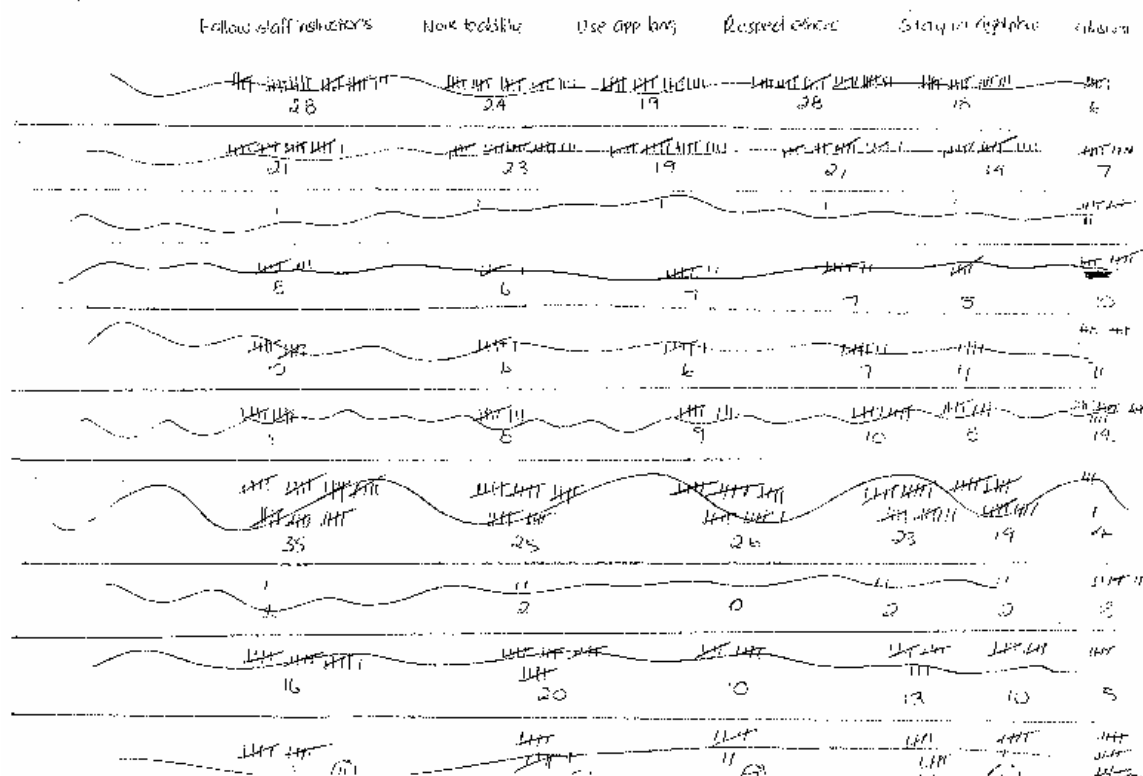
**Reasons For Checks term 4 Tally**

Not Followed Instructions	14
Not Worked To Ability	13
Not Used Appropriate Language	13
Not Respected Others	18
Not Stayed In The Right Place	11
Withdrawal	7
Went Home	1
Sent Home	1
Suspension	10
In school suspension	2
Absent	2

**Reasons For Checks total**

	term 1	term 2	term 3	term 4
Not Followed Instructions	21	23	53	14
Not Worked To Ability	12	23	46	13
Not Used Appropriate Language	18	25	56	13
Not Respected Others	20	23	53	18
Not Stayed In The Right Place	12	21	20	11
Withdrawal	7	20	28	7
Went Home			4	1
Sent Home			1	1
Suspension			1	10
In-school Suspension				2
Absent				2
<b>TOTAL</b>	<b>90</b>	<b>135</b>	<b>256</b>	<b>69</b>





Oct 07 - Survey 1.

3

## MindMatters Survey of Students

Shade Circles Like This--&gt; ●

Not Like This--&gt; ⊗

1. Are you Male or Female?	Female <input type="radio"/>	Male <input type="radio"/>
2. What year are you in?	7 <input type="radio"/>	8 <input type="radio"/>
3. How many years have you been at the school?	less than 1 <input type="radio"/>	1-2 <input type="radio"/>
4. Are you Aboriginal or Torres Strait Islander?	Yes <input type="radio"/>	No <input type="radio"/>
<b>Health and Wellbeing Questions</b>		
5. I enjoy school generally	Strongly Agree <input type="radio"/>	Agree <input checked="" type="radio"/>
6. I like my teachers	Strongly Agree <input type="radio"/>	Agree <input checked="" type="radio"/>
7. I have teachers who teach me in ways that I can understand	Strongly Agree <input type="radio"/>	Agree <input checked="" type="radio"/>
8. I learn something useful most days at school	Strongly Agree <input type="radio"/>	Agree <input checked="" type="radio"/>
9. I like my classmates	Strongly Agree <input type="radio"/>	Agree <input checked="" type="radio"/>
10. I try hard at school	Strongly Agree <input type="radio"/>	Agree <input checked="" type="radio"/>
11. I have skipped many days at this school	Strongly Agree <input type="radio"/>	Agree <input checked="" type="radio"/>
12. I find school interesting	Strongly Agree <input type="radio"/>	Agree <input checked="" type="radio"/>
13. I feel safe and secure at school	Strongly Agree <input type="radio"/>	Agree <input checked="" type="radio"/>
14. Other students seem safe and secure at school	Strongly Agree <input type="radio"/>	Agree <input checked="" type="radio"/>
15. I feel comfortable at school - like I am part of the place	Strongly Agree <input type="radio"/>	Agree <input checked="" type="radio"/>
16. I feel successful at some part of my schoolwork	Strongly Agree <input type="radio"/>	Agree <input checked="" type="radio"/>
17. I am bored with schoolwork	Strongly Agree <input type="radio"/>	Agree <input checked="" type="radio"/>
18. I find high school as enjoyable as primary school	Strongly Agree <input type="radio"/>	Agree <input checked="" type="radio"/>
19. I have friends I can talk to at school	Strongly Agree <input type="radio"/>	Agree <input checked="" type="radio"/>
20. I have been ignored by my friends at some time at school and this was a problem	Strongly Agree <input type="radio"/>	Agree <input checked="" type="radio"/>
21. I have an adult who I could go to at this school if I need help	Strongly Agree <input type="radio"/>	Agree <input checked="" type="radio"/>
22. I have a friend who listens and who understands me	Strongly Agree <input type="radio"/>	Agree <input checked="" type="radio"/>
23. I have moved schools often	Strongly Agree <input type="radio"/>	Agree <input checked="" type="radio"/>
24. My belongings are safe at school	Strongly Agree <input type="radio"/>	Agree <input checked="" type="radio"/>
25. I have been teased or bullied at school	Strongly Agree <input type="radio"/>	Agree <input checked="" type="radio"/>
26. Other students are teased and bullied at school	Strongly Agree <input type="radio"/>	Agree <input checked="" type="radio"/>
27. I have been physically intimidated and hurt at this school	Strongly Agree <input type="radio"/>	Agree <input checked="" type="radio"/>
28. Other students have been physically intimidated and hurt at this school	Strongly Agree <input type="radio"/>	Agree <input checked="" type="radio"/>
29. I think what I am learning at school will help me get a job	Strongly Agree <input type="radio"/>	Agree <input checked="" type="radio"/>
30. I think people are friendly to new people at this school	Strongly Agree <input type="radio"/>	Agree <input checked="" type="radio"/>
31. I find that there are big sections of some subjects I do not understand	Strongly Agree <input type="radio"/>	Agree <input checked="" type="radio"/>
32. I am happy that I can choose subjects that suit my goals or skills	Strongly Agree <input type="radio"/>	Agree <input checked="" type="radio"/>
33. I know what to do to stop feeling stressed out	Strongly Agree <input type="radio"/>	Agree <input checked="" type="radio"/>
34. I am proud to be part of this school	Strongly Agree <input type="radio"/>	Agree <input checked="" type="radio"/>
35. Someone at school would notice if I am feeling down	Strongly Agree <input type="radio"/>	Agree <input checked="" type="radio"/>
36. I look forward to my future once I finish school	Strongly Agree <input type="radio"/>	Agree <input checked="" type="radio"/>
37. I have a teacher or another adult in the school who listens to me	Strongly Agree <input type="radio"/>	Agree <input checked="" type="radio"/>
38. I think my parents/guardians feel comfortable with the school	Strongly Agree <input type="radio"/>	Agree <input checked="" type="radio"/>

Oct -  
Results.  
Data

3

# **MindMatters Survey of Students**

Shade Circles Like This--> ●  
Not Like This--> ○

1. Are you Male or Female?		Female	Male
2. What year are you in?		7	8
3. How many years have you been at the school?		less than 1	1-2
4. Are you Aboriginal or Torres Strait Islander		Yes	No
Health and Wellbeing Questions		Strongly Agree	Agree
5. I enjoy school generally	10 60 10 0 20		
6. I like my teachers	20 40 20 20 0		
7. I have teachers who teach me in ways that I can understand	50 50 0 0 0		
8. I learn something useful most days at school	30 60 10 0 0		
9. I like my classmates	30 70 0 0 0		
10. I try hard at school	50 10 40 0 0		
11. I have skipped many days at this school	0 20 10 30 40		
12. I find school interesting	0 40 40 0 10		
13. I feel safe and secure at school	20 60 10 10 0		
14. Other students seem safe and secure at school	10 60 20 10 0		
15. I feel comfortable at school - like I am part of the place	0 50 50 0 0		
16. I feel successful at some part of my schoolwork	20 80 0 0 0		
17. I am bored with schoolwork	20 50 10 10 10		
18. I find high school as enjoyable as primary school	40 40 0 10 10		
19. I have friends I can talk to at school	50 30 0 30 0		
20. I have been ignored by my friends at some time at school and this was a problem	0 40 0 30 30		
21. I have an adult who I could go to at this school if I need help	50 20 30 10 0		
22. I have a friend who listens and who understands me	30 10 30 30 0		
23. I have moved schools often	10 20 0 30 40		
24. My belongings are safe at school	20 30 30 20 0		
25. I have been teased or bullied at school	0 20 20 30 30		
26. Other students are teased and bullied at school	60 30 20 0 0		
27. I have been physically intimidated and hurt at this school	0 10 10 20 60		
28. Other students have been physically intimidated and hurt at this school	40 10 30 20 0		
29. I think what I am learning at school will help me get a job	50 30 20 0 0		
30. I think people are friendly to new people at this school	10 20 20 30 30		
31. I find that there are big sections of some subjects I do not understand	0 30 10 30 10		
32. I am happy that I can choose subjects that suit my goals or skills	30 30 40 0 0		
33. I know what to do to stop feeling stressed out	10 40 20 0 30		
34. I am proud to be part of this school	10 10 40 30 10		
35. Someone at school would notice if I am feeling down	30 40 10 10 10		
36. I look forward to my future once I finish school	70 10 10 0 10		
37. I have a teacher or another adult in the school who listens to me	30 40 0 20 10		
38. I think my parents/guardians feel comfortable with the school	40 50 10 0 0		



# Dec 07- Survey 2

## MindMatters Survey of Students

Shade Circles Like This--> ●  
Not Like This--> ○

1. Are you Male or Female?	Female ○	Male ●
2. What year are you in?	7 ○ 8 ○ 9 ○ 10 ● 11 ○ 12 ○	
3. How many years have you been at the school?	less than 1 ○ 1-2 ● 2-3 ○ 3-4 ○ 4-5 ○ 5-6 ○	
4. Are you Aboriginal or Torres Strait Islander	Yes ○ No ●	

**Health and Wellbeing Questions**

	Strongly Agree	Agree	Neither Agree nor Disagree	Strongly Disagree
5. I enjoy school generally	○	●	○	○
6. I like my teachers	○	○	○	○
7. I have teachers who teach me in ways that I can understand	○	○	○	○
8. I learn something useful most days at school	○	○	○	○
9. I like my classmates	○	○	○	○
10. I try hard at school	○	○	○	○
11. I have skipped many days at this school	○	○	○	○
12. I find school interesting	○	○	○	○
13. I feel safe and secure at school	○	○	○	○
14. Other students seem safe and secure at school	○	○	○	○
15. I feel comfortable at school - like I am part of the place	○	○	○	○
16. I feel successful at some part of my schoolwork	○	○	○	○
17. I am bored with schoolwork	○	○	○	○
18. I find high school as enjoyable as primary school	○	○	○	○
19. I have friends I can talk to at school	○	○	○	○
20. I have been ignored by my friends at some time at school and this was a problem	○	○	○	○
21. I have an adult who I could go to at this school if I need help	○	○	○	○
22. I have a friend who listens and who understands me	○	○	○	○
23. I have moved schools often	○	○	○	○
24. My belongings are safe at school	○	○	○	○
25. I have been teased or bullied at school	○	○	○	○
26. Other students are teased and bullied at school	○	○	○	○
27. I have been physically intimidated and hurt at this school	○	○	○	○
28. Other students have been physically intimidated and hurt at this school	○	○	○	○
29. I think what I am learning at school will help me get a job	○	○	○	○
30. I think people are friendly to new people at this school	○	○	○	○
31. I find that there are big sections of some subjects I do not understand	○	○	○	○
32. I am happy that I can choose subjects that suit my goals or skills	○	○	○	○
33. I know what to do to stop feeling stressed out	○	○	○	○
34. I am proud to be part of this school	○	○	○	○
35. Someone at school would notice if I am feeling down	○	○	○	○
36. I look forward to my future once I finish school	○	○	○	○
37. I have a teacher or another adult in the school who listens to me	○	○	○	○
38. I think my parents/guardians feel comfortable with the school	○	○	○	○

Dec '07. - (2)  
Results  
Data -

3

# MindMatters Survey of Students

Shade Circles Like This--&gt; ●

Not Like This--&gt; ○

		Female	Male	
1. Are you Male or Female?				
2. What year are you in?		7	8	9
3. How many years have you been at the school?		less than 1	1-2	2-3
4. Are you Aboriginal or Torres Strait Islander		Yes	No	
<b>Health and Wellbeing Questions</b>				
5. I enjoy school generally		Strongly Agree	Agree	Unsure/Disagree
6. I like my teachers		Strongly Disagree		
7. I have teachers who teach me in ways that I can understand	I blank			
8. I learn something useful most days at school				
9. I like my classmates				
10. I try hard at school				
11. I have skipped many days at this school				
12. I find school interesting				
13. I feel safe and secure at school				
14. Other students seem safe and secure at school				
15. I feel comfortable at school - like I am part of the place				
16. I feel successful at some part of my schoolwork				
17. I am bored with schoolwork				
18. I find high school as enjoyable as primary school				
19. I have friends I can talk to at school				
20. I have been ignored by my friends at some time at school and this was a problem				
21. I have an adult who I could go to at this school if I need help				
22. I have a friend who listens and who understands me				
23. I have moved schools often				
24. My belongings are safe at school				
25. I have been teased or bullied at school	I blank			
26. Other students are teased and bullied at school				
27. I have been physically intimidated and hurt at this school				
28. Other students have been physically intimidated and hurt at this school				
29. I think what I am learning at school will help me get a job				
30. I think people are friendly to new people at this school				
31. I find that there are big sections of some subjects I do not understand				
32. I am happy that I can choose subjects that suit my goals or skills				
33. I know what to do to stop feeling stressed out				
34. I am proud to be part of this school				
35. Someone at school would notice if I am feeling down				
36. I look forward to my future once I finish school				
37. I have a teacher or another adult in the school who listens to me				
38. I think my parents/guardians feel comfortable with the school				

No 2:

# Workshop Feedback - Student

Name: *Domon*

Group: *gs*

Date:

1. What did you learn from the workshop?

*nothing*

2. Did the workshop achieve its goal, that movement is important in learning and positive behaviour? How well?

*no not abt*

3. What did you gain from the workshop?

*nothing*

4. What were the best parts of the workshop? Why?

*none it was boring*

5. What feedback could you give about the other students in the workshop?

*nothing*

6. How have you improved since being at this school?

Learning- *nothing*

Behaviour- *more*

Emotional- *i don't know*

7. What do you like best about being at this school?

*none*

8. What is the worst thing about being at this school?

*everything*

9. Any other comments

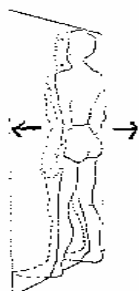
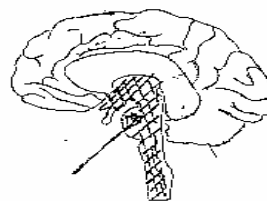
*no*

Thanks for participation

# 1. Action

## Focus

## Comprehension



Notice	Before			After		
<b>Action</b>	Locked	Locked		Locked	Locked	
	On <input checked="" type="checkbox"/>	Off <input type="checkbox"/>		On <input checked="" type="checkbox"/>	Off <input type="checkbox"/>	
Muscle Check						
	Forward	Middle	Back	Forward	Middle	Back
Body Direction <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		
Reading	Poor	Good	Great	Poor	Good	Great
Comprehension <input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>			

Extract from "Hating Alison Ashley" by Robin Klein

I will never forgive my mother for calling me Erica with a surname like Yurken.

When an emergency teacher was taking our grade (we got a lot of emergency teachers at our school because the ordinary ones were often away with nervous problems), the emergency teacher would say something like, 'Girl in the end row with the dark hair, what's your name?' But before I could answer, kids would screech out 'Erk!' Or 'Yuk!' Or 'Gherkin!' Except Barry Hollis who always yelled out something worse, but emergency teachers were given a counselling session by the Principal before they came into our room, so they knew enough to pretend not to hear Barry Hollis.

Extract from "Sink the Gizmo" by Robin Klein

My mouth freezes in horror. My heart seems to stop beating. The ocean stretches out endlessly. We are alone on the empty sea. I don't have the faintest idea where the land is. In panic I grab the one remaining oar and start to row. But the dinghy just spins around helplessly. You can't row with one oar.



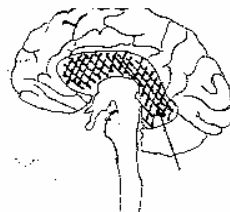
### SWITCHED-OFF

Folds-back. Withdrawn. Loses self in task. Puts others' needs before self.

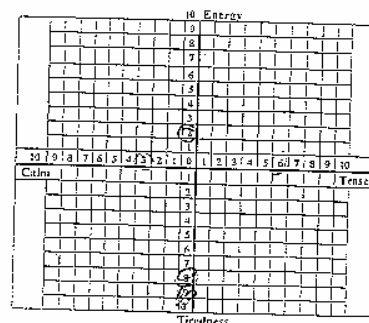
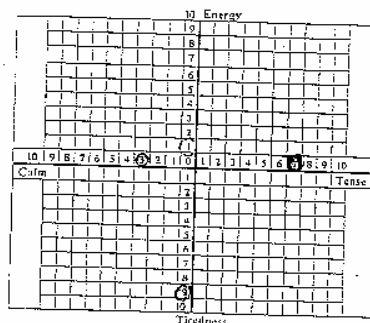
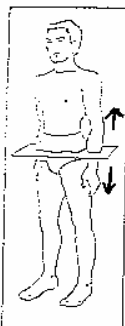
### SWITCHED-ON

Participates. Comprehends externals. Able to do multi-tasking. Has clear sense of self.

## 2. Feeling Centered Organisation



Notice	Before		After	
Feeling	Locked	Locked	Locked	Locked
	On <input checked="" type="checkbox"/>	Off <input checked="" type="checkbox"/>	On <input checked="" type="checkbox"/>	Off <input checked="" type="checkbox"/>
Muscle Check				
	High	Standing	Low	
Body Direction <input checked="" type="checkbox"/>				
Complete Chart Rating				



Water



Brain Buttons



Earb Buttons



Scare Buttons



Hook-up



Balance Buttons



The Energy Team



The Thinking Clear

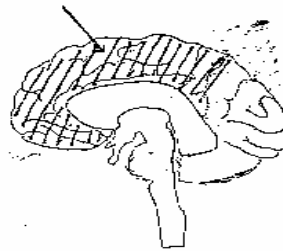


Pleasure Points

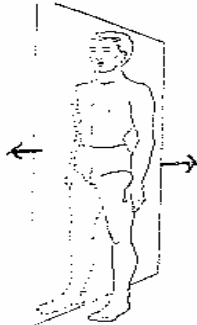
**SWITCHED-OFF**  
Off-centre, unstable, Confused.  
Scattered. Gets thrown off track.  
Disorganised, stuck.  
Overwhelmed.

**SWITCHED-ON**  
Centred, Clear, Productive.  
Concentrates well.  
Follows through easily.  
Has sense of well-being

# 3. Thinking Laterality Communication



Thinking	Locked On <input checked="" type="checkbox"/>		Locked Off <input checked="" type="checkbox"/>		Locked On <input checked="" type="checkbox"/>		Locked Off <input checked="" type="checkbox"/>	
Muscle Check								
	Left	Right	Both		Left	Right	Both	
Body Direction <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>							
Words and Colours <input checked="" type="checkbox"/>	Poor	Good	Great		Poor	Good	Great	

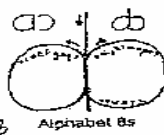


*SAY THE COLOUR NOT THE WORD*  
 YELLOW BLUE RED  
 BLACK ORANGE GREEN  
 PURPLE YELLOW RED  
 ORANGE GREEN BLUE  
 BLUE RED GREEN BLUE ORANGE  
 GREEN

*SAY THE COLOUR NOT THE WORD*  
 YELLOW BLUE RED  
 BLACK ORANGE GREEN  
 PURPLE YELLOW RED  
 ORANGE GREEN BLUE  
 BLUE RED GREEN BLUE ORANGE  
 GREEN

*Let your brain like to be switched on*  
 Your brain likes to say the colour & your left hand points on reading the word

*Let's Right ourselves*  
 Your brain likes to say the colour & your left hand points on reading the word



**SWITCHED-OFF**  
 Struggles.  
 Poor coordination.  
 Difficulty with Self-expression.  
 Reverses letters.  
 Poor listener.

**SWITCHED-ON**  
 Acts, moves effortlessly.  
 Graceful. Articulate.  
 Reads, writes easily.  
 Hears accurately.

No 4.

# Workshop Feedback - Student

Name

Group: 1

Date:

1. What did you learn from the workshop? I+I's cool to express
2. Did the workshop achieve its goal, that movement is important in learning and positive behaviour? How well? yes lollo
3. What did you gain from the workshop? I+ was fun
4. What were the best parts of the workshop? Why? sitting
5. What feedback could you give about the other students in the workshop? they did well
6. How have you improved since being at this school?
  - Learning- yes
  - Behaviour- yes
  - Emotional- yes
7. What do you like best about being at this school? I+I's fun
8. What is the worst thing about being at this school? Etna 12th
9. Any other comments  
no

Thanks for participation

Assessment-Pre and Post Workshop Name:

**Describe in 3 words how you feel.**

Before	After
1. Mean	1. h.le
2. Grumpy	2. <del>h.le</del> +yd
3. Stalk	3. Moring



Before -O After- X

1 2 3 4 5 6 7 8 9 10



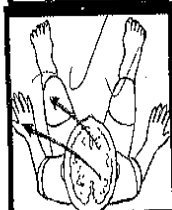
Draw in the part of the brain you are most aware of.



Seeing

1 2 3 4 5 6 7 8 9 10

Turn in a circle. Mark the box that shows which way you turned



Turned Left.  
See's Similarities.  
'Journey'.

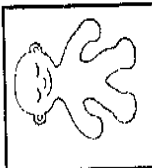


Turned Right.  
See's Differences.  
'Destination'.



Listening

1 2 3 4 5 6 7 8 9 10



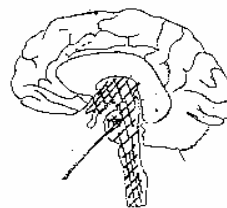
1 2 3 4 5 6 7 8 9 10



# 1. Action

## Focus

### Comprehension



Notice	Before			After		
<b>Action</b>	Locked		Locked	Locked		Locked
	On <input checked="" type="checkbox"/>		Off <input checked="" type="checkbox"/>	On <input checked="" type="checkbox"/>		Off <input checked="" type="checkbox"/>
Muscle Check						
	Forward	Middle	Back	Forward	Middle	Back
Body Direction <input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>				
	Poor	Good	Great	Poor	Good	Great
Reading <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				
Comprehension <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				



Extract from "Sink the Gizmo" by Robin Klein

My mouth freezes in horror. My heart seems to stop beating. The ocean stretches out endlessly. We are alone on the empty sea. I don't have the faintest idea where the land is. In panic I grab the one remaining oar and start to row. But the dinghy just spins around helplessly. You can't row with one oar.

Extract from "Hating Alison Ashley" by Robin Klein

I will never forgive my mother for calling me Erica with a surname like Yurken.

When an emergency teacher was taking our grade (we got a lot of emergency teachers at our school because the ordinary ones were often away with nervous problems), the emergency teacher would say something like, 'Girl in the end row with the dark hair, what's your name?' But before I could answer, kids would screech out 'Erk!' Or 'Yuk!' Or 'Gherkin!' Except Barry Hollis who always yelled out something worse, but emergency teachers were given a counselling session by the Principal before they came into our room, so they knew enough to pretend not to hear Barry Hollis.



The Spineless



The Duck Poise



The Disjunior



The Oar



Not Listening



The Grumpy Queen

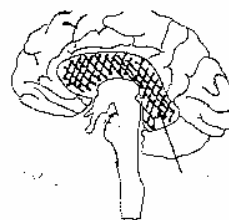
#### SWITCHED-OFF

Holds-back. Withdrawn. Loses self in task. Puts others' needs before self.

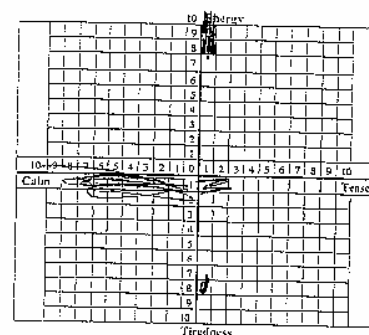
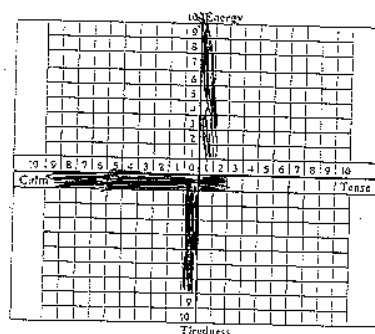
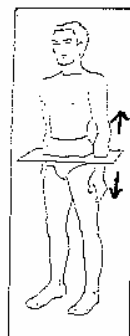
#### SWITCHED-ON

Participates. Comprehends externals. Able to do multi-tasking. Has clear sense of self.

## 2. Feeling Centered Organisation



Notice	Before			After		
Feeling	Locked		Locked	Locked		Locked
	On	Off	Off	On	Off	Off
Muscle Check						
	High	Standing	Low	High	Standing	Low
Body Direction						
Complete Chart Rating						



At Work



Brain Buttons



Earth Buttons



Space Buttons



Feeling



Balance Buttons



The Energy View



The Thinking Cap



Positive Point

**SWITCHED-OFF**  
Off-centre, unstable. Confused.  
Scattered. Gets thrown off track.  
Disorganised, stuck.  
Overwhelmed.

**SWITCHED-ON**  
Centred. Clear. Productive.  
Concentrates well.  
Follows through easily.  
Has sense of well-being

## Behaviour Management System Implementation Assessment

1. How long have you been a staff member implementing the behaviour management system at the Centre?

I've been at the Centre for 6 years and I was responsible for the initial implementation of the BMS.

2. Do you think you have the skills to implement the Behaviour Management System?

Most definitely I have an excellent understanding of the BMS and the implications that go with it.

3. Do you believe the Behaviour Management System is an effective tool to assess the frequency of challenging behaviour in the Centre?

Most definitely the use of the baseline data has added to the BMS System. This gives a clear understanding of the triggers that cause the escalation of students' behaviours.

4. Have you any other comments

The BMS is an effective tool when used consistently by all staff members. It gives students clear instructions and the consequences should they not follow the BMS.

3

en

### Behaviour Management System Implementation Assessment

1. How long have you been a staff member implementing the behaviour management system at the Centre?

4 years.

2. Do you think you have the skills to implement the Behaviour Management System?

Yes

3. Do you believe the Behaviour Management System is an effective tool to assess the frequency of challenging behaviour in the Centre?

Yes - quite comprehensive. Generally cover all contingencies

4. Have you any other comments

The behaviour system has evolved over the years to its present state, and no doubt continued refinement will occur as a result of meeting the needs of students.

There is a fine line between a system being too unwieldy (ie too detailed) and not used freely and too scant. Our current model lies somewhere in the middle.

Ms . . .

## Movement Workshop- Teachers-Feedback Form

Name:

Date:

1. Did the planning for the workshop meet your needs? *Yes.*
2. Has the workshop motivated you to implement the daily movement program? *Yes, although not all students are interested.*
3. Did you feel the workshop achieved its broad aims? How well? *Yes. Improvement in my <sup>students</sup> moods.*
4. What did you feel the students gained from the workshop? *Most had an improved attitude towards one another.*
5. What were the best components of the workshop? Why? *All exercises as it change my mood.*
6. What feedback could you give about the group dynamics of the workshop? *Improved happiness.*
7. What could be improved from the workshop? How? *---*
8. What feedback could you give to the facilitator for their personal improvement? *Explanation to new students as to why & the benefits of movement therapy.*
9. Any other comments?

Thank you for your participation, Mrs G

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Movement Workshop- Teachers -Feedback Form

Name:

Date:

1. Did the planning for the workshop meet your needs?

*Yes*

2. Has the workshop motivated you to implement the daily movement program?

*Yes.*

3. Did you feel the workshop achieved its broad aims? How well?

*Yes.*

4. What did you feel the students gained from the workshop?

*Connection between theory and relevance*

5. What were the best components of the workshop? Why?

*Good balance between theory and practical activities*

6. What feedback could you give about the group dynamics of the workshop?

*Staff to be more dispersed amongst students re seating.*

7. What could be improved from the workshop? How?

*Less dynamics of grouping.*

8. What feedback could you give to the facilitator for their personal improvement?

*Good session with difficult clientele.*

9. Any other comments?

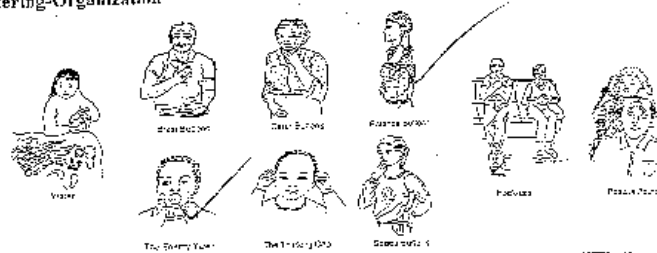
Thank- you for your participation. Ms G

Appendix 6c. Brain Gym® Checklist

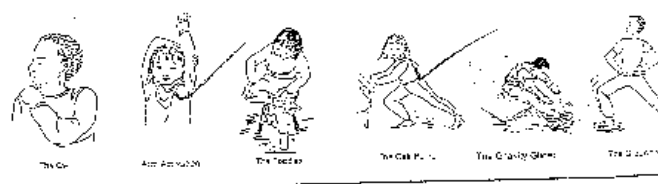
Teacher ②

1. Teacher calls students and form circle YES.
2. Teacher completes Pre-Activity of Noticing YES.
3. Teacher chooses at least 2 exercises from each Section YES.
4. Teacher completes Post -Activity of Noticing YES.
5. Ask for students comments "What has changed?" YES.

## Centering-Organization



## Focus-Comprehension



## Laterality-Communication

