Development of a Site Specific DMT Clinical Model for Children with ADHD Symptoms in Costa Rica: A Literature Review

A Thesis

Submitted to the Faculty

of the Creative Arts in Therapy Program

Drexel University

by

Ivania Quesada Chaverri

in partial fulfillment of the

requirements for the degree

of

Master of Arts

Dance/Movement Therapy

May, 2008

Dedications:

Two years ago,
I finally had enough courage to jump into what seemed turbulent waters,
with the hope of reaping the benefit of personal growth.
After two years of study and hard work I have reached the “other side”.

I dedicate this thesis to Billy and Vicky who served as warm and relaxing islands in the unknown waters for me to stop and take a breather. I also dedicate this work to Iko who taught me that no matter how much you need to persevere by swimming even in strong currents, you can always reach the other side, where you might come out wet, but stronger in character and knowledge.

Acknowledgements

I would like to thank the committee members of this Thesis. Gayle Gates for her support and confidence in my capacity. Dianne Dulicai for gently guiding me throughout the process. And Adriana Cortez for her unconditional support in helping me reach my personal and professional development.

I also wish to thank Ellen, the CAT program coordinators and the International Institute of Education for believing in me and giving me the opportunity to move and dance over the mysteries of the body and mind. Without them this thesis would never have been possible.

I would not have been able to move so far without the support of many people that indirectly, from far away and close-by, accompanied, helped, encouraged and supported me in this exciting and exhausting journey. Thanks to: Ana Maria, Miss Amy, Naty, Iko, Billy, Vicky, Feli, Tracy, Raakhi, and of course all my DMT friends Jill, Tara, Iry, Diana, Natalie, Megan, Paige, Lysa Monique, and especially Gillian, who adopted me as part of the family in unfamiliar surroundings.

Finally, I need to recognize one more person who, even far away, is always close; transferring her wisdom, passion, strength. She has taught me to believe in my dreams and to follow them until they become real. It is time to close my eyes and begin dreaming again. Thanks MOM!

Table of Contents

List of Tables……..…… vi

Abstract ……. vii

1. INTRODUCTION……..…….……. 1

2. LITERATURE REVIEW……..…..…….. 5

2.1 Attention Deficit and Hyperactivity Disorder (ADHD).……..... 5

2.1.1 Definition and Clinical Features…….…… 5

2.1.2 Etiology……..…..…… 14

2.1.3 Treatment of ADHD…….. 14

2.2 Dance Movement Therapy (DMT)……...…….…….. 32

2.2.1 Definition……..……32

2.2.2 Dance/Movement Therapy with children……...…….…….. 34

2.2.3 Dance/Movement Therapy treatment for ADHD…….. 45

2.3 Health Services System in Costa Rica…….……. 50

2.3.1 Clinica Clorito Picado and ADHD Team…….…...….. 52

3. METHODOLOGY……..…..…….…… 56

3.1 Design…….…….…….…… 56

3.2 Subjects…….…..……..….. 56

3.3 Procedures of Data Collection…….…...…… 57

3.4 Data Analysis……..…….. 57

3.5 Outcome……..…… 58

4. RESULTS…….…. 59

4.1 Information from the online interview to the ADHD Team…… ….. 59

4.2 Categorization of the Literature Review…….……..…..… 66

5. DISCUSSION……...…..... 88

6. SUMMARY AND CONCLUSSIONS…….……119

LIST OF REFERENCES……..……..…..… 122

Appendix A: Online consultation, Internet Interview……..…..… 130

Appendix B: Movement Data Record…….…….……..…..…132

Appendix C: Worksheet of Children's Non Verbal Cues……..…… 133

Appendix D: Rules of Communication Handout……..……..…… 134

Appendix E: Miscommunication at Home ……...…..……...… 135

Appendix F: Activities Schedule at Home ……..……..… 136

Appendix G: Weekly Activity Record ...……..…….……..… 137

Appendix H: Self Portrait...……..…….…..…… 138

Appendix I: Evaluation Form……..……..…..… 139

Appendix J: Certificates for Children……..……..…….…… 140

List of Tables:

Table 1: ADHD symptoms or difficulties …….. 68

Table 2: Treatment models for children with ADHD symptoms…… 72

Table 3: Dance/Movement Therapy with children ……. 80

Table 4: Week by week view of the DMT treatment model……117

Development of a site specific DMT Clinical Model for children with ADHD symptoms in Costa Rica: a literature review

Abstract

The present research is a systematic literature based study with online consultation. It intended to design a site specific DMT clinical model designed for addressing the needs of school age children with Attention Deficit and Hyperactivity Disorder (ADHD) symptoms treated by the ADHD Team at the Clinica Clorito Picado in San Jose, Costa Rica.

ADHD is described as a persistent pattern of inattention and/or hyperactive and impulsive behavior that appears as the most commonly diagnosed behavioral disorder of childhood. In Costa Rica, the "ADHD Team" of the Clinica Clorito Picado, a major public clinic for outpatient medical services, provides assessment and bio-psycho-social intervention for children and adolescents with ADHD and their families. However, the treatment found in this Clinic is based on the intake of medication for the children, and emotional support and education for parents. There is not a direct psycho-social treatment for the children. The ADHD Team has identified a need to deploy short-term therapeutic interventions to help these children develop the skills needed to better adapt to their environment.

Since Dance/Movement Therapy (DMT) incorporates interpersonal interactions, verbal and non-verbal communication, and the integration and expression of emotional conflicts in motion, it serves as a possible and effective approach to ADHD symptoms interventions. By being able to adapt techniques and interventions for specific cultural and clinical needs of this population; DMT can provide individuals the opportunity to perform and learn from the therapeutic process.

The research question was stated as: which specific goals and interventions should be taken into account when developing a DMT treatment model for children with ADHD symptoms that are treated in this Clinic? The data collection was compiled by a systematic literature review and online consultation with the ADHD Team. Data was then analyzed using Garrard's Matrix Method, which was implemented to organize and synthesize the information in order to deliver the outcome of the study.

A ten-week model is designed with the overall goal contributing to improvement in insight, self control, verbal and non-verbal communication, interpersonal interactions and parenting skills of school age children with ADHD symptoms and their families. Specific goals and interventions are described for each session, providing the reader with a rational for their used according with DMT theory.

CHAPTER 1: INTRODUCTION

The purpose of this study was to create a Dance/Movement Therapy (DMT) treatment model specifically designed for addressing the needs of school age children with Attention Deficit and Hyperactivity Disorder (ADHD) symptoms treated by the ADHD Team at the Clinica Clorito Picado in San Jose, Costa Rica. First a systematic review of the general and DMT literature that addresses treatment and intervention for ADHD symptoms and children was done. Secondly the study pursued an internet consultation with the Clinica Clorito Picado ADHD Team in order to assess site specific clinical needs identified by the team. Thirdly, the information gathered from the literature review and the consultation was synthesized to create a site specific DMT treatment model.

Attention Deficit and Hyperactivity Disorder (ADHD) is described as a persistent pattern of inattention and/or hyperactive and impulsive behavior that is more severe than what is expected of the age and level of development of the child (Sadock and Sadock, 2003, Barkely, 1997). It appears as the most commonly diagnosed behavioral disorder of childhood, with an estimated world-wide prevalence between 3% and 7% of the children in school-age, nevertheless the numbers vary greatly between countries as well as research, and diagnostic criteria used (Dulicai, 1999). Specific data has not been found for the prevalence of the symptoms in Costa Rica however, it is known that during the month of May in the year, 2002 ADHD was the first cause of consultation in the unit of child and adolescent psychiatry in the Psychiatric National Hospital; with a 49.8% of the cases (Organización Panamericana de la Salud, 2004; Solis, 2006). Specifically, in the Clinica Clorito Picado the ADHD Team treated 214 children during the first semester of 2006, which 138 of them were first time consultations. School age children represent approximately the 65% of the total ADHD consultation in this Clinic during 2007.

According to Virginia Rosabal Jamarillo, coordinator of the National Mental Health Program for the Child in Costa Rica, new strategies need to be implemented in the mental health services for the children. She states that ADHD and other mental problems contribute to educational and social problems such as high school attrition rate, behavioral and emotional problems as well as low school performance (Solis, 2006).

The Clinica Clorito Picado is a major public clinic for outpatient medical services which aims to prevent, promote, maintain, treat and rehabilitate health in their community. This Clinic created an "ADHD Team", an interdisciplinary team conformed by a psychologist, a social worker and a physician with the primary goal of providing assessment and biopsychosocial intervention for children and adolescents with ADHD and their families. However, the treatment for ADHD symptoms found in this Clinic is based on the intake of medication for the children and emotional support and education for parents, there is not a direct psycho-social treatment for the children. Therefore, the ADHD Team has identified a need to develop workshops or short-term therapeutic interventions that does not depend on medication but depends on helping the children to develop the skills needed to better adapt to their environment.

Individuals who suffer from ADHD usually have difficulty performing regular tasks such as inattention, impulsivity, and hyperactivity but, they could also have problems related to the cognitive and academic development, language, adaptive functioning, self regulation of emotions and behaviors, biases in self awareness, and difficulties in motor development (Barkley, 2006). Pharmacological treatments appear effective but not sufficient and psychosocial interventions can not be based on teaching new skills as they mostly are; models based on assisting the individual to perform what it is needed in space and time.

Therefore, Dance Movement Therapy rises as a possible and effective approach to ADHD symptoms interventions as it gives the individuals opportunity to perform and learn from the therapeutic process, as it incorporates: interpersonal interactions, verbal and non-verbal communication, and integration and expression of emotional conflicts in motion (Cavanagh, 2001; Gronlund, Renck, & Weibull, 2005; Rachmany, 2000; and Wegrich, 1993).

A variety of research has been conducted to ultimately address the positive implications of DMT. Meaning, preliminary data suggests that by using DMT to work through the psychological issues a child is able to develop skills to help them be active participants in society. The outcomes of these studies build the bases in which my present research will be developed. Children with ADHD can benefit from a DMT program because DMT can instill a sense of control over the body, clarity of feelings, and recognition of strengths and weaknesses by promoting self awareness which can take place on a kinesthetic and emotional level (Erwin-Grabner, Goodill, Hill, and Von Neida, 1999).

In a different research, held specifically for children with ADHD, it was stated that DMT can be used to promote an awareness of emotional release, self-control, and empowerment via progressive muscle relaxation techniques, body awareness, covert rehearsal, play enactments and DMT activities (Wegrich, 1993).

Also, according to Rachmany "DMT therapy for children with ADHD generally focuses on developing a clearer more positive sense of self including a better perception of external body boundaries as well as internal boundaries" (2000, p.4).

It is important to describe the main diagnostic characteristics of ADHD, psychosocial features of the population in scope, as well as having a broad knowledge about the main factors that contribute to the efficacy of psychosocial or combined treatments of this diagnosis and its

implications for DMT. Furthermore the research question of this study was based on the needs of the ADHD Team of the Clinica Clorito Picado, and was stated as follows: which specific goals and interventions should be taken into account when developing a DMT treatment model for children with ADHD symptoms that are treated in this Clinic?

This research was guided by two goals, the first one was to identify the needs of the ADHD Team, and based on those needs and the psychosocial characteristics of the population that is treated by them, the study explored DMT theories and practices in relation to school age children with ADHD symptoms. The second goal was to synthesize the information gathered intending to create a DMT treatment method that could be used in the Clinica Clorito Picado. This treatment method might act as a beneficial therapeutic tool for this institution, and perhaps for other mental health settings in Costa Rica, to aid children that have ADHD symptoms.

CHAPTER 2: LITERATURE REVIEW

2.1 Attention Deficit and Hyperactivity Disorder (ADHD)

2.1.1 Definition and Clinical Features:

Brown (2005) describes attention not as a single function but as "a name for the integrated operation of the executive functions of the brain" (p.21). According to this author, attention is a multifaceted function of the mind that plays a crucial role in what we perceive, remember, think, feel, and do. More than a specific function, he describes it as a continuous process that involves organizing and setting priorities, focusing and shifting focus, regulating alertness, sustaining effort, and regulating the mind's processing speed and output. Also it involves managing frustration and other emotions, recalling facts, using short-term memory and monitoring and self regulating action.

This process of attention is developed as a cognitive function during the first stages of life; however, deficits have been found in some children which would be seen as a persistent pattern of inattention (also referred to as distractibility) and/or hyperactive and impulsive behavior that is more severe than what is expected of the age and level of development of the child (Barkley, 2006; Silver, 2004; Sadock and Sadock, 2003). This characterization concurs with the diagnostic criteria for the ADHD proposed by the American Psychiatric Association (2000).

Despite progress in the assessment, diagnosis, and treatment of ADHD, this disorder and its treatment have remained controversial; an independent diagnostic test for ADHD does not exist, although, there is evidence supporting the validity of the disorder. (NIH Consens Statement Online, 1998). The following paragraphs will describe main characteristics, features and comorbidities of ADHD across the literature. Children with ADHD are usually characterized by

an inability to delay gratification and irritability, they may get upset by relatively minor stimuli (Sadock and Sadock, 2003). Infants with the disorder are unduly sensitive to stimuli and are easily upset by noise, light, temperature, and other environmental changes. The child's behavior in school is impulsive, meaning that they may be unable to wait to be called on and may impulsively respond before everyone else.

On the other hand, according to Barkley (1997), the understanding of the nature of self-control, the process of developmental internalization of behavior, and the process of directing behavior toward the future; are critical to comprehend the nature of the cognitive and social impairments of ADHD.

Attention is a capacity that involves different executive functions itself, these functions need to be defined in order to understand its process, and consequently, be able to comprehend the nature of ADHD. It is important to notice that these executive functions are not single qualities but related cognitive functions that depend on and interact continuously with the others sharing a common purpose: "to permit self-control so as to anticipate change and the future, thereby maximizing the long-term outcomes or benefits for the individual" (Barkley, 1997, p. 154).

The different deficits involved in ADHD will be discussed next, integrating the data collected from the literature review.

a) Inattention:

Brown (2005) divides the executive functions involved in the nature of inattention and impulsiveness in six different clusters. These clusters were created to define the deficits experienced by individuals with ADHD symptoms. The first one, relates directly with inattention, it is referred to as *utilizing working memory and accessing recall*: working memory

is defined by Brown (2005) as the ability to hold information actively while working with another data; it is essential for receptive and expressive aspects of communication between individuals and within groups, for academic work and for every day life's tasks and routines. In addition, Barkley (1997) states that working memory provides the individual with the capacity to recall information in responding during delays and manipulating information into sequences of events. Also, it provides the capacity to have a sense of the past, which allows anticipation of probable future events and the preparation for them. As a result, some of the characteristics seen in ADHD as a consequence of poor working memory skills are difficulty anticipating consequences, diminished sense of time, impaired imitation of complex sequences and limited self awareness.

Brown's second cluster is referred to as *focusing, sustaining and shifting attention to tasks*: seen in ADHD as a difficulty focusing the attention on a task and keeping that focus as long as necessary. This problem could possibly be in the selection of the specific stimulus that they should be focus on. Also, it can also be influenced by distractibility, which is defined as not being able to block out distractions in order to do what needs to be done (Brown, 2005). Barkely (2006) describes the symptom of inattention in children with ADHD as having difficulties with "vigilance" which is related to persistence of effort or sustaining the individual's attention to tasks. These difficulties with persistence are sometimes evident by short durations of play with a specific toy or game and frequent shifts in play across various toys. Distractibility is another problem which the author describes as the likelihood that a child will respond to the occurrence of extraneous events unrelated to the task.

Silver (2004), describes inattention as one of the main three symptoms (with impulsivity and hyperactivity) of the diagnosis. He differentiates three possible types of distractibility,

external distractibility which is referred to as auditory or visual distractibility, depending on whether the difficulty is in screening out unimportant sounds or sights, respectively. Also, internal distractibility is, according to the author, not fully understood yet, but relates to the ability to block out all thoughts except those one wants to focus on when working on a specific task.

Related to the concept of focusing, internalization of speech (verbal working memory) is an executive function described by Barkley (1997) as the capacity to talk to oneself in order to self direct behavior, as speech provides means for description, reflection, self-questioning, solving problems and generating rules. The interaction of internalization of speech with working memory contributes to the ability to delay performance of a current instruction, reading comprehension and moral reasoning. In relation to this, Corkum, Humphries, Mullane & Theriault (2007) developed a study that compared private speech of children with ADHD and normal controls during problem solving and inhibition tasks. Thirty-two children (16 children with ADHD and 16 matched controls) aged 6–11 years participated. There was found that children with ADHD produced more task-irrelevant and task-relevant external private speech than control children during problem-solving tasks, but did not differ in their use of task-relevant internal private speech. During the inhibition/attention task (Continuous Performance Test-II), children with ADHD produced more task-relevant external and more task-relevant internal private speech, suggesting that they may have employed a less mature strategy to aid in self-regulation.

Furthermore, Brown's third cluster is *regulating alertness, sustaining effort and processing speed,* which is distinguished by individuals with ADHD becoming drowsy when engaging in passive activities, and slow processing speed when completing certain tasks (Brown,

2005). On the other hand, Barkley (1997) integrates the ability of regulating one's own drives and motivational states with the self regulation of arousal and affect (which Browns defines separately), and the capacity for objectivity and social perspective, as an essential ability to carry out goal directed actions.

Nevertheless, in relation to these executive functions associated with ADHD, it is important to take into account not only individual differences but also different subtypes within the disorder (predominantly inatentive type, combined type and predominantly hyperactive-impulsive type). Capdevila-Brophy , Artigas-Pallarés , Ramírez-Mallafré , López-Rosendo, Real, and Obiols-Llandrich (2005) developed a study aiming to determine the differences and similarities between subtypes in its associate symptomatology, specifically in the neuropsychological phenotype of executive dysfunction. Their results show significant differences between the subtypes in measures of non verbal working memory, hindsight, foresight, and motor control. Both groups, inattentive and combined type, share a deficit in response output speed and verbal working memory.

b) Impulsivity/Hyperactivity:

Brown's next two clusters would be seen in individuals with ADHD as limited self-regulation of affect, and poor self-regulation of arousal in the service of goal directed actions. The fourth cluster is stated as *monitoring and self-regulating action.* Many persons identified with ADHD tend to act without sufficient forethought, or are chronically restless and hyperactive, finding it very difficult to slow down and adequately control their actions. This factor includes the ability to monitor and decide how and when to act, executing the appropriate actions when needed and monitoring one's self and the current situation while acting (Brown, 2005, Silver, 2004).

Consecutively, the fifth cluster is o*rganizing, prioritizing, and activating for tasks*: even when people with ADHD may be impulsive in some domains of activity, procrastination is also a major problem, particularly when they are faced with tasks that are not interesting for them. This factor has to do with motivation, setting and maintaining priorities, analyzing and synthesizing behavior that serves to guide the formation of complex goal-directed behavioral structures.

All these different deficits in executive functions lead to a set of difficulties related mainly with inattention and/or impulsivity-hyperactivity. Barkely (2006) includes impulsivity and hyperactivity as the major symptoms related to ADHD. Impulsivity is also related to executive control, which affects delay of gratification, inhibition of dominant responses and sustained inhibition. Hyperactivity, on the other hand is related to the difficulties with impulse control, presenting excessive or developmentally inappropriate levels of activity, whether motor or vocal. In every day basis, such children are observed to move around the classroom without permission in school, restlessly moving their arms and legs while working, playing with objects not related to the task they are working on, interrupting or talking out of turn, and making unusual vocal noises.

c) Regulation of emotions and other comorbid symptoms:

Even though inattention, impulsivity and hyperactivity are the symptoms that define the disorder, researchers have found that associate problems frequently coexistent with ADHD (Barkely, 2006; Brown, 2005; Silver, 2004; Sadock and Sadock, 2003). Poor rule-governed behavior, mild to moderate difficulties in verbal thinking and a delay in the internalization or privatization of speech are other problems commonly present. For instance, Brown's final cluster is related to managing *frustration and modulating emotions* which is seen as disproportionate emotional reactions to frustration, a short fuse or low threshold for irritability, and difficulty

modulating feelings of sadness, discouragement, or depression. Also, the immediacy of the emotion has influence on thought and action, causing acting out or impulsive behaviors that might have a negative influence on interpersonal relationships (Brown, 2005).

Difficulties with emotion regulation, particularly the management of frustration, lead to the display of high levels of aggression, anger, and sadness while possibly showing lower levels of empathy than their peers. Silver (2004) relates this problem with regulatory dysfunction; through the new imaging methods available to study the brain, problems have been found in areas of the brain that regulate emotions and facilitate maintenance of emotional equilibrium. These areas maintain an emotional balance, avoiding extremes, consequently anxiety, mood, and tics disorders are often comorbid with ADHD.

As referred to Barkely (2006), children with ADHD have a higher likelihood of having other cognitive, developmental, academic and even medical or health-related difficulties. Silver (2004) reviews a series of neuropsychological and neurochemical studies which associate these coexistent problems with a continuum of neurologically based disorders including cortical dysfunction and regulatory dysfunction. For instance, cortical dysfunction would be related to a modest reduction in intelligence, moderate or greater deficiencies in domains of adaptive functioning and academic achievement skills, and a considerably higher risk for learning disabilities. In fact, in another study, ADHD is associated with poor grades, poor reading and math standardized test scores, and increased grade retention; in general, ADHD symptoms is being associated with poor academic and educational outcomes (Loe, & Feldman, 2007).

In addition, other common comorbidities of ADHD are: language deficiencies (story recall, verbal fluency and verbal problem solving), as well as difficulties in motor development (poorer motor coordination, reduced physical fitness, and a greater occurrence of DCD (Barkley,

2006; Silver, 2004). In fact, in relation to motor difficulties, Poeta and Rosa-Neto (2007) developed a study in which they evaluated the motor development of school-age children with ADHD indicators. Motor function was evaluated using the Motor Development Scale (EDM). Findings showed that 44% of the participants had a motor development that was considered to be 'low average.

Other studies suggest that children with ADHD have poorer movement ability than the control children. However, findings in different studies are controversial in terms of specific qualities of movement difficulties in accordance with subtypes or symptoms of the disorder. Most of the studies coincide in relating inattention to poor motor coordination, gross motor, and fine motor skills (Fliers, Rommelse, Vermeulen, Altink, Buschgens, Faraone, Sergeant, Franke, & Buitelaar, 2007; Piek, Pitcher, & Hay, 1999; Pitcher, Piek, & Hay, 2003; Tseng, Henderson, Chow, & Yao, 2004); whereas only the first study mentioned associated impulsivity/ hyperactivity with difficulty only with fine motor. Hyperactivity was associated differently in each study, either not related to with any motor deficiencies (Pitcher, et.al., 2003), associated only with gross motor skills (Piek, et.al., 1999; Tseng, et.al., 2004) or only with fine motor skills (Fliers, et.al., 2007). On the other hand, according to Kroes, Kessels, Kalff, Feron, Vissers, Jolles, & Vles, (2002) qualitative domains of movement such as Dynamic Balance, Diadochokinesia and Manual Dexterity, and the Total Qualitative Score showed significant values as predictive of ADHD. However, none of the quantitative domains showed significant results in differentiating children with ADHD and control.

On the other hand, self-awareness of children with ADHD appears to be characterized by a positive illusory bias, in that their self-reports of their competence are less accurate (particularly in areas in which they are most deficient) than is the case in nondisabled children

(Barkely, 2006; Hoza, Gerdes, Hinshaw, Arnold, Pelham, Molina, Abikoff, Epstein, Greenhill, Hechtman, Odbert, Swanson, & Wigal, 2004; Sadock & Sadock, 2003). In this behalf, Hoza, et.al. (2004) pursued a study in which self-perceptions of children with ADHD were compared with those of children in a local normative comparison group, relative to teacher- and parent-rated perceptions of their competence. This study found that children with ADHD were much more likely than comparison children to overestimate their competence relative to adult report, regardless of who was used as the criterion rater (teacher, mother, or father). Examination by comorbidity subgroups revealed that children with ADHD inflated their self-perceptions the most in domains of greatest deficit.

In a different study, self-perceptions of children diagnosed with attention deficit/hyperactivity disorder (ADHD) were evaluated in six different domains: (a) scholastic competence; (b) social acceptance; (c) athletic competence; (d) physical appearance; (e) behavioral conduct; and (f) global self-worth and then compared them with those of children not diagnosed with ADHD. There was a statistically significant difference found between ADHD children and the control group for behavioral conduct, with the ADHD group scoring lower than the non-ADHD group. The ADHD group also had a lower mean score on four of five of the other subscales (scholastic, social, physical, and global self-worth), although the difference was not statistically significant (Barber, Grubbs, & Cottrell, 2005).

Finally, adaptive functioning which is referred to as “the performance of the daily activities required for personal and social sufficiency” (Sparrow, Balla & Cicchetti, 1984 cited by Barkely, 2006, p.123) appears to be diminished. Children with ADHD often function in the low-average to borderline range of adaptive functioning despite having generally average intelligence. Adaptive functioning includes self-help skills, independence, self-knowledge,

motor skills, social knowledge and communication skills. Studies focus on social dysfunctioning and peer interaction of children with ADHD have found that they often have conflicts with adults and peers, and suffer from unpopularity, rejection by peers, and a lack of friendships (Hoza, 2007; Nijmeijer, Minderaa, Buitelaar, Mulligan, Hartman, & Hoekstra, 2007; Van der Oorda, Van der Meulenb, Prinsa, Oosterlaanc, Buitelaard, & Emmelkamp, 2005).

2.1.2 Etiology

In terms of the etiology of the disorder, all authors agree that the factors that cause ADHD are still unknown (Barkley, 2006, Spencer, Biederman, & Mick, 2007; Dulcai, 1999, Sadock & Sadock, 2003; Silver, 2004; Rickel & Brown, 2007). Most children with ADHD have no evidence of gross structural damage in the central nervous system. However, different hypotheses suggest diverse aspects involved in the etiology of the disorder, such as genetics, neurological developmental, neurochemical, neurophysiological and psychosocial factors.

2.1.3 Treatment of ADHD:

Once the disorder has been defined, the focus will be placed in how to address the symptoms of ADHD in terms of treatment in order to increase the quality of life of individuals with this disorder. At present, though there is no cure of ADHD, there are pharmacological treatments that have been demonstrated to be safe and effective in decreasing symptoms of this disorder. However, most of the literature agrees that psychosocial treatments including, behavioral interventions at school and at home, parent training, social skills training with generalization components, intensive summer treatment programs, and educational interventions of the patient and family appear promising in the treatment of ADHD (Barkley, 2006; Brown, 2005; Chronis, Jones, & Raggi, 2006; Edwards, 2002; Rickel & Brown, 2007; Silver, 2004; Sadock & Sadock, 2003). Therefore, treatment of ADHD must involve a multimodal approach

that includes the individual and family education, individual and family counseling, appropriate behavioral management programs and appropriate medication (Edwards, 2002; Silver, 2004).

a) Pharmacological treatment.

A wide range of different interventions have been tried in order to improve a better adjustment of these children to their environment. The treatment of children with ADHD requires combined and sustained interventions in order to have a long-term impact on the quality of life and developmental outcomes of these children (Gillberg, Harrington, & Stinhausen, 2006). Pharmacological therapy appears to be the most efficient treatment; two classes of psychotropic drugs have proven useful in the management of the symptoms: stimulants and antidepressants. (Barkely, 1989; Barkely, 2006; Silver, 2004).

It is important to note that, according to Silver (2004), ADHD is caused by a deficiency of a specific neurotransmitter, norepinephrine or dopamine. The goal of medication is then, to increase the level of this neurotransmitter at the nerve interfaces in the area of the brain involved. Currently, two different mechanisms accomplish this increase. One mechanism for increasing the level of norepinephrine, or one of its precursors, is to produce more of it; stimulants appear to work by stimulating the nerve endings to produce more norepinephrine. The other mechanism, works like a dam, decreasing the breakdown or reuptake of the neurotransmitter, causing that what is being already produced would stay around longer; tricyclic antidepressant (and antihypertensive medication) is used to inhibit the uptake of norepinephrine, resulting in an increase in the amount at the nerve interface.

When treating ADHD Silver (2004) recommends a model in which stimulant medication would be the first option. If these medications do not help or, if the side effects create problems

that cannot be resolved clinically, tricyclic antidepressants would be the option. If these medications do not help either, a combination of both should be tried.

Stimulants are helpful in treating age-inappropriate and impairing symptoms of inattention to task, impulsive behavior, and motor hyperactivity that are not due to another cause such as depression, anxiety disorders, or other psychiatric disturbances (Barkley, 2006). There are three primary stimulant medications: Ritalin, Dexedrine, Adderall, and Strattera and Concerta. Even when some differences can be found, they mostly share characteristics, effects and side effects. The release mechanism for these medications works either in 4 or 8 hours, beginning to work 45-60 minutes after the intake. The most common side effects are loss of appetite, sleep difficulties, stomachache, headache, tics, and emotional lability or spacey behavior.

Greater understanding of ADHD treatment has led clinicians to a change in the goals of stimulant therapy in the treatment of ADHD. According to Barkley (2006), the new goal is to treat the individual with continuing ADHD symptoms throughout the life span, stimulant treatment should not stop even if hyperactivity has decrease because of maturity during puberty. Also, stimulant coverage for ADHD now emphasizes extended treatment of symptoms through out the day. The new clinical goal is then, to lessen the symptoms of ADHD in multiple areas of the patient's daily life not only during school or work hours.

Up to 70-80% of children with carefully diagnosed ADHD appear to demonstrate a positive response to stimulants. Effects can be expected on improvement of attention span, reduction of impulsive behavior, including aggression, social interactions and compliance with authority figures commands and academic improvements in work productivity and accuracy may occur (Barkley, 2006).

Even when stimulants are very effective in the treatment of ADHD, the non-adequately-respondents to this therapy is estimated to a 30% of affected individuals (Barkley, 2006). The tricyclic antidepressants would then be the option. The most used medications in this group are Imipramine, Bupropion, they have a wide range of neurochemical effects on neurotransmitters; however, it is assumed that their activity in ADHD stems form their action on norepinephrine and dopamine reuptake. According to Silver (2004) tricyclic medications should not be the first option because they do not cover all of the symptoms for ADHD, they seem to help with the hyperactivity and distractibility, however for some reason they do not address the impulsivity.

Nevertheless, Barkley (2006) recognizes some advantages of trycyclic medication such as their relatively long half-life, their lack of abuse potential; and their putative positive effects on mood and anxiety, sleep and tics. Disadvantages would include side effects such as dry mouth or anorexia, as well as potentially more serious cardiac effects.

Because of unsatisfactory clinical response to stimulants or antidepressants, inability to tolerate treatment-emergent side effects, development of tolerance to the drug or other special features in the diagnosis, other medications could be considered. The largest group in this case would be antihypertensive medications such as Clonidine and Guanfancine. Because of its ability to down-regulate noradrenergic output from the CNS, this medication appears partially effective in decreasing the frequency, intensity, and severity of impulsivity-hyperactivity and improving frustration tolerance in children and adolescents with ADHD (Barkley, 2006).

b) Psychosocial interventions:

Most of the researchers concur that medication alone is often not enough to satisfy the comprehensive therapeutic needs of children with ADHD (Barkley, 2006; Brown, 2006; Chronis, Jones, & Raggi, 2006; Greydanus, Pratt, & Patel, 2007; Silver, 2004). A large evidence based

literature proves that behavioral interventions at school and at home, parent training, social skills training with generalization components, intensive summer treatment programs, and educational interventions appear promising in the treatment of ADHD. Also, combined treatment may allow for lower doses of medication to be used in conjunction with behavior management in the home and school settings, resulting in increased satisfaction with treatment (Barkley, 2006; Brown, 2006, Chronis, Jones, and Raggi, 2006; Edwards, 2002; Ralph, Oman, & Forney, 2001; Silver, 2004).

Conversely, two studies were found in the literature that found no advantage on combination treatment over methylphenidate alone. One of them, measured academic performance or emotional status for the combination treatment over methylphenidate alone and over methylphenidate plus attention control. In this study, Hechtman, Abikoff, Klein, Weiss, Respitz, Kouri, Blum, Greenfield, Etcovitch, Fleiss, & Pollack, (2004) conclude that in stimulant responsive young children with ADHD without learning and conduct disorders, there is no need for support for academic assistance and psychotherapy to enhance academic achievement or emotional adjustment. The second study, investigated the additional value of a short-term (10-weeks), multimodal behavior therapy consisted of a child and parent behavioral therapy and a teacher behavioral training to optimally titrated methylphenidate in children with ADHD. Founding no significant differences between both treatments (VanDer Oord, Prins, Oosterlaan, & Emmelkamp, 2007).

Despite the studies mentioned above, most of the psychosocial interventions will be discussed as they appear to be effective in most of the literature about ADHD.

- Family interventions and parent training:

Families of ADHD children usually display more directive, commanding behavior, more disapproval, less rewards that are contingent on the child's prosocial and compliant behaviors, and more overall negative behavior than the parents of normal children. Parenting stress and a decreased sense of parenting self-competence are also characteristics of these families (Wells, 2005). Therefore, family intervention is one of the psychosocial treatments suggested. The priority for family intervention when treating ADHD should be establishing or restoring parental controls, "principles and techniques from behavioral parent management training and behavioral family therapy can be used to help the parents gain immediate control" (Wells, 2005, p. 54).

Moreover, most of the literature emphasizes the importance of education about ADHD (Barkley, 2006; Brown, 2006; Edwards, 2002; Silver, 2004; Wells, 2005; Wolraich, 2006). In a parent training program specifically developed for "ADHD families", Barkely (2006), begins the intervention with an overview of ADHD, associated features, causes, information about the developmental course of the disorder and a treatment discussion.

According to Edwards (2002) the psychoeducational approach aims to help parents manage their child's behavior difficulties and to manage their own reactions to their child's behavior. Stating that aim as the general baseline, specifics goals address parent management skills, cognitive strategies for changing their own maladaptive beliefs related to parenting a child with ADHD, as well as the parents' experience of stress, anger, irritability and decreased sense of parenting self-competence compared to other parents (Wells, 2005). Also, Ghanizadeh (2007) emphasize the importance on educating and counseling parents toward the disorder as a biological problem with concerns about its course; in order to improve the insight of the parents,

their conception of the problem, its cause, its effect on behavior and education, its impact on social relationships and its outcomes.

Other goals that have been stated in the literature referring to parent training developed by Barkley are: understanding parent-child relations, improving parental-attending skills and understanding their value to children, increasing compliance using a more "formal" reinforcement system (home token/point system) which involves making privileges contingent on compliance and introducing forms of punishment including removal of tokens/points (response cost) and time out procedures. It continues with teaching how to apply the skills learned to managing the children's behavior in public places and the use of the “daily school-home behavior report card”, which involves having the teacher send home an evaluation of the child’s behavior in school that day, which can be used to give or take away rewards available at home. These cards have been shown to be effective in modifying a wide range of problems with children at school (Barkley & Murphy, 2006, Fabiano, Pelham, Manos, Gnagy, Chronis, Onyango, Lopez-Williams, Burrows-MacLean, Coles, Meichenbaum, Caserta, & Swain, 2004).

The final phase of the parent management training focuses on preventing behaviors that the child might exhibit in the future, a sort of a relapse prevention session, except that the behaviors have not yet occurred, and a one month booster session (Barkley, 2006, Edwards, 2002, Wells, 2005).

Moreover, outcome from the study of Danforth, Harvey, Ulaszek, & McKee (2006) show that parent training reduced children’s hyperactive, defiant, and aggressive behavior, improved parenting behavior, and reduced parent stress. This study consisted on a group parent training that presents features and etiology of ADHD and ODD, training on basic social learning principles and the implications of coercive processes to child noncompliance. Results from this

pre-test/post-test design study showed that training reduced children's hyperactive, defiant, and aggressive behavior, improved parenting behavior, and reduced parent stress.

In fact, in order to rate the acceptability and effectiveness of behavioral parent training and stimulant medication as possible treatment for children with ADHD; Johnston, Hommersen, & Seipp (2007) pursued a study in which one-hundred nine mothers of 5- to 12-year-old boys with ADHD participated. Mothers rated behavioral parent training as more acceptable than medication. Even when there was no difference in ratings of the effectiveness of the two treatments in the scenarios, and, according to the participants, medication was more effective than behavioral strategies with their own children.

- School based interventions:

In addition, a multi-disciplinary approach with clear instructions for parents and teachers when treating patients with ADHD was evaluated in a study developed by Miranda, García, and Presentación (2002). Their study analyzed the efficacy of a psychosocial program with multiple components (education about the disorder, cognitive-behavioral techniques, behavior modification and instruction training) in 50 children with ADHD using the methodology of significant clinical change analysis.

The authors found that a significant proportion of the participants improved after following the hyperactivity/impulsivity program; however, the changes fluctuated within a range of 7,7% for parents opinion about their children's inattention behaviors to 61% for estimation of hyperactive and impulsive behavior according to the children's teachers. Secondly, it defines the variables which may modulate cognition and behavior and possibly affect the results and success or failure of the program. Regarding this second objective, the results show that the variables

which may modulate the efficacy of treatment are deficits in inhibitory control, anxiety, disobedience, isolation and social inadaptation.

In addition, Habboushe, Daniel-Crotty, Karustis, Leff, Costigan, Goldstein, Eiraldi, & Power (2001) describe a brief family-school training program that addresses the homework problems of children with ADHD; the Homework Success Program (HSP). It involves group parent training in cognitive and behavioral principles and strategies, aiming to increase parent understanding of their child's behavior and training in behavioral techniques to improve academic productivity and behavioral functioning. In addition, it emphasizes goal-setting skills and parent-teacher collaboration to address homework problems.

These studies introduce the idea of school based interventions which, according to Barkley (2006) should be focus on two basic goals: improve basic knowledge among educators about the nature, causes, course and treatments for ADHD and increase home and school collaboration, so as to produce a more uniform, consistent and effective plan of management that incorporates major caregivers. On the other hand, Silver (2004) promotes the idea that creating the best classroom environment possible and to clarify the services or accommodations that the children with ADHD need as students is the basic goal when working with the school system.

Silver (2004) refers to general guidelines to take into account when working in the school. These guidelines are stated as follows: establish the best learning environment, give consistent daily instructions and assignments, modify unacceptable behaviors by using rules and having pre-established responses or consequences for inappropriate behaviors, and reward more than punish to enhance self-esteem. In addition, other examples of academic adjustments include: (a) matching tasks to the child's abilities; (b) increasing the stimulation qualities of a task; (c) using a variety of presentation formats and materials related to the task; (d) making

academic assignments brief by reducing longer tasks into smaller steps and providing more immediate feedback after task completion; (e) allowing for brief physical exercise after academic periods; and (f) scheduling the majority if not all academic subjects for the morning (Edwards, 2002).

In this behalf, Bulut (2005), refers to need of the teacher to be educated in relation to the needs of a child with ADHD, and proposes some interventions to take into account when accomplishing the educational needs of children with ADHD symptoms. These interventions are: making physical accommodations in the classroom, for instance, placing the child near the teacher and should not be isolated; using self-monitoring techniques, in which the student monitors his/her own inappropriate behavior, having the rules of the classroom clearly defined and posted, as well as the schedules and activities to provide structure to the child; also, he propose the use of response cost system which, as opposed to other token programs, involves giving reinforcements at the beginning, so the child's goal is to end with a pre-specified minimum number of points in order to earn the reward.

Furthermore, Barkley (2006) suggests other helpful interventions that can be pursued in school settings: increasing computer-assisted instruction programs for engaging students with motivational deficits, teacher-administered consequences which involve strategic teacher attention (the practice of purposefully using attention to help students remain on task and redirect those who are off task), tangible rewards and token programs, and negative consequences such as reprimands, response cost (loss of a reinforcer contingent upon inappropriate behavior), time out, and suspension.

- Peer interventions and social skills training:

Other interventions that have been shown to be effective with children with ADHD are peer interventions, and social skills programs. Peer interventions refer to the involvement of peers in modifying the disruptive and intrusive behavior of children with ADHD by teaching the child's peers to refrain from reinforcing their classmate's inappropriate behavior and to encourage their attention to the classmate's positive, prosocial behavior instead (Barkley, 2006).

Then again, social skills training has shown some positive results for helping children in their social adjustment (Barkley, 2006, de Boo, & Prins, 2007, Hoza 2007). Also, Sadock and Sadock, (2003) state that group therapy aimed at both refining social skills and increasing self-esteem and a sense of success may be very useful for children with ADHD who have great difficulty functioning in group settings, especially in school. Because interpersonal difficulties are one of the most complicated characteristics of children with ADHD, social skills interventions focus on developing and reinforcing the use of appropriate social, communicational and interpersonal skills (Chronis, Jones, & Raggi, 2006). Moreover, Gol, & Jarus (2005) present a study in which they evaluate the effectiveness of an Occupational Therapy social skills training group intervention for children with ADHD. They used a pre-test / post-test design with two control groups. Twenty-seven children with ADHD and 24 children without ADHD performed the Assessment of Motor and Process Skills (AMPS). Nine of the total group with ADHD were randomly selected to attend the OT group. Children were evaluated at the beginning of group treatment and after 10 sessions. Ten children without ADHD were evaluated at similar intervals. The intervention focused on improvement social skills through meaningful occupations such as games, arts and crafts, and cooking, while organizing a familiar context and instruction of parents, encouraging them to change their demands upon the children based on the individual

child's abilities. All meetings had the same structure: relaxation exercises at the beginning of the session, different activities (arts, games, cooking), and finally, cleaning up the room together. Each meeting had a social theme, with the goal of acquiring social skills such as listening, waiting in turn, and learning how to behave when irritated by another child.

In comparison with children without ADHD, children with ADHD had significantly lower scores on the AMPS in the pre-test. However, the OT intervention appears to be effective, as they significantly improved from the first to the second evaluation and no longer differed from the children without ADHD after treatment.

Also, some success for combined medication and self-evaluation procedures was reported when social skills, such as cooperation, were targets of intervention. Yet when these same investigators attempted to teach anger control strategies to children with ADHD to enhance self-control during peer interactions, no benefits of combined intervention were found beyond those achieved by self-control training alone. "The self-control techniques were the most successful in teaching these children specific coping strategies to employ in the sorts of provocative interactions with peers that usually lead to angry reactions from the children with ADHD" (Barkley, 2006, p.679).

- Self control interventions:

On the other hand, the understanding of ADHD as a deficit in self regulation and executive functions gives the clinicians a new direction in which to address the symptoms and therefore, psychotherapeutic approaches have to be revised. In this regard, Barkley (1997) states that:

"If ADHD results in a disability of behavioral performance rather than a deficit in knowledge or skill, then methods of effective management will prove to be those that assist individuals with

performing what they know when it should be performed and not simply with giving them more knowledge or skill" (p.338).

For this reason, self-management interventions and self-control are proposed. Self management interventions include self monitoring, self reinforcement, and more comprehensive self instruction and problem solving approaches. This intervention address mainly impulsive, disorganized and non-reflective manner in which children with ADHD approach academic tasks and social interactions (Barkley, 2006).

- Other interventions:

All the interventions described were integrated in what Barkley (2006) considers the most well-known and well regarded multimodality intervention program, the summer treatment programs developed by William Pelham and colleagues and conducted at Western Psychiatric Instituted in Pittsburgh. These programs rely on four major components of treatment; 1. parent training in child behavior management, 2. classroom implementation of behavior modification techniques, 3. social skills training and 4. stimulant medication.

Other therapies have been proposed to address ADHD symptoms. Hansen, Meissler, and Ovens (2000) present a group play therapy model designed for youth (aged 5-16 years old) that present ADHD symptomatology. This model is based in a play therapy, process-oriented framework, and was created in response to one community's need to develop an effective program for the increasing number of children who presented ADHD at the local mental health clinic. This program attempted to provide a structured environment as well as promote both positive and social learning. This learning process focuses on enhancing skills and supporting positive relationships in an attempt to improve the youth's self-concept and to also, support the expansion of her social support network.

In this study, each session provides the youth with an opportunity to improve in both skill enhancement and practical social experience. This structured curriculum was created by focusing on the here-and-now interactions within the group process. Hansen, Meissler, and Ovens (2000) citing Yalom (1985) emphasize the work in the here-and-now as:

"the heart of the group therapeutic process—the power that energizes the therapy group. The here-and-now focus helps patients learn many invaluable interpersonal skills: to communicate more clearly, to get closer to others, to express positive feelings, to become aware of personal mannerisms that push other people away, to listen, to offer support, to reveal oneself, to form friendships" (p. 472).

- Creative Arts Therapy interventions:

In turn, Creative Arts Therapies (CAT) refer to an intervention style that uses art, movement, and music as a metaphor in encouraging spontaneous problem solving of social emotional conflicts. Creative arts therapies unite the cognitive aspect of creativity with the therapeutic aspect of behavioral and personality changes (Harvey, 1989).

Different techniques can be used to address behavioral, emotional and social change of children through CATs. For instance, Harvey (1989) in a study that investigates the use of creative arts therapies to effect cognition, academic achievement, motivation and self-concept in elementary school students uses techniques of music therapy such as the development of pupil-generated chants and songs, musical and vocal expressions of affect, and the use of listening to affectively oriented recorded or live music. The art therapist in this study utilized techniques which included spontaneous graphic representations of emotions, self-portraiture, mask-making and student-generated group murals. The dance therapist facilitated gestural, postural, and facial

expressions of affect, dyadic and group mirroring, physical sculpturing, and the development of individual and group dances expressing feelings.

In this section, music therapy and art therapy will be discussed; DMT will be left aside as there is an independent section where DMT interventions with ADHD will be discussed. Even when music therapists often work with preschool and school-age children, which increases the possibilities for these professionals to deal with ADHD symptoms; there is little in the music therapy literature about music therapy treatment for ADHD (Jackson, 2003). In an attempt to recognize techniques that most of the music therapists use when dealing with this kind of population, Jackson (2003) pursued a survey study that suggests music and movement, instrumental improvisation, musical play and group singing as the most used methods to address multiple types (behavioral, psychosocial and cognitive) of goals for children with ADHD symptoms. The interventions are structured in groups and individuals and the professionals perceive the treatment outcome to be favorable.

Rickson and Watkins (2003) state that children and adolescents with ADHD are often unable to inhibit their motor responses to the sights and sounds around them, are not guided by internal instructions, and therefore find it difficult to independently restrict their inappropriate behaviors. It has been suggested that rhythmic activities can facilitate internal organization, the coordination of mind and body, and, by providing a sense of internal security, can help with the control of impulses. Under this rationale, Rickson (2006) compared the impact of instructional and improvisational music therapy approaches on the level of motor impulsivity displayed by adolescent boys who have ADHD. No statistical difference was found between the impact of the contrasting approaches however, there are indications that the instructional approach may have contributed to a reduction of impulsive and restless behaviors in the classroom.

Furthermore, in a previous study undertaken to investigate whether music therapy is effective in promoting prosocial behaviors in aggressive adolescent boys who have social, emotional, and learning difficulties in a special residential school in New Zealand; Rickson and Watkins (2003), detected no definite treatment effects on prosocial measurements, but the authors suggest that a music therapy program promoted autonomy and creativity, which may help adolescents to interact more appropriately with others in a residential villa setting. The trends found in this research suggest that rhythm activities may facilitate internal organization and help with impulse control, in boys who are able to attend to the stimuli. However, the within session observations and outcomes as measured by teachers, also suggest that adolescents who have ADHD may become over aroused in a creative music therapy group setting. Therefore, highly structured program and small group numbers are recommend to be advantageous for boys who have ADHD.

On the other hand, art therapy has also been used not only as treatment intervention, but also as an assessment modality. Art assessment conducted by an art therapist may offer a broad based method of evaluating children through their art communication by analyzing the child's ability to organize and use space, ability to plan and sequence the steps required in the drawing, the way the child handles the material, among others (McGovern, 1995; Safran, n.d.). Also, art therapy as a treatment modality is an advantageous modality as it is a child-appropriate activity, it uses visual learning and it gives children a way to express (Safran, n.d.).

In a comprehensive literature review, McGovern (1995) examined differences in artwork of children diagnosed with ADHD and children diagnosed with childhood depression; finding emotional (shading on the face or body parts, poor integration, lack of ground line and small figures) and organic (poor spatial/organizational relationships, distortion, poor integration,

rotation of form/figure, impaired ability to reproduce geometric forms, perseveration and poor of immature body image) indicators as differentiators of the depression or ADHD diagnosis, respectively.

Continuing with the use of art as a diagnostic tool for ADHD, LaQuay (1997) hypothesized that the artwork of children diagnosed with ADHD would differ from the artwork of children who are not diagnosed with ADHD. She utilized the Kinetic Human Figure Drawing (KHFD) which includes a kinetic directive in the task instructions to investigate whether action solicited in the task would promote control or would evoke impulsivity and disorganization. The hypothesis was supported by the findings as the drawings of the participants who were diagnosed with ADHD contained more indicators than the drawings of the non-ADHD participants. The indicators that were considered significant were: perseveration, long arms, shading of the face, incorrect number of digits and omission of eyes.

In terms of treatment, Safran (2002) proposes a group intervention when working with an art therapy approach. The group's general goal is to provide an opportunity for children to meet their peers in a safe, controlled environment where they can achieve a successful social and educational experience. The sessions are proposed to have a three-part structure, beginning with reviewing the rules and recapping the last session, art work based on a new concept regarding ADHD diagnoses in the children's life and then sharing drawings through observation and discussion as a closure and review of the process of the session (Safran, n.d.).

Safran (2002) gives special emphasis to education as an essential aspect of the intervention, both with the children and their parents. The author proposes an eight-week art therapy intervention in which the children can work on improving self-awareness and social skills as well as educating them selves about their diagnose (Safran, n.d.). Furthermore, the same

author, states that parents and siblings need to receive education as well, therefore, she suggests interventions where the family members of the children with ADHD participate in the process. Family art therapy sessions give parents a chance to learn, through the therapist's and peer's observations, how to set ground rules, practice being more assertive and setting clear limits for their children and work on their own expectations of their child's behavior (Safran, 2002; Safran, n.d.).

More specifically, Boylan, (2001) examines the use of two-dimensional and three-dimensional art media for increasing attentional abilities in children diagnosed with ADHD. Based on the literature review, the author hypothesized that tasks that are colorful and stimulating as well as to tasks requiring an active, motoric response as opposed to a passive response may also help children with ADHD channel their behaviors. After a mixed methodology study utilizing a quantitative measure of time and a qualitative analysis of art content and observed behavior with five subjects with a diagnosis of ADHD combined type, suggest that

"three-dimensional art media in the form of clay increased attentional abilities when compared to two-dimensional media in the form of markers. The stimulating and kinesthetic qualities of clay, as well as its capacity for continual change, may have helped to sustain attention" (p. 88).

Finally, Henley (1998) reports on an on-going therapeutic and socialization program for young children, up to latency age, with ADHD. The multi-modal program features the expressive therapies in concert with group, behavioral, cognitive, psychodynamic and medical approaches. The program seeks to address long-standing problems with regard to peer, school, and family relationships. The socialization expressive therapy program met twice a week for two hours. Each session involved free play and socialization, group discussion and art therapy. The art

therapy component often utilized drawings to address behavioral problems by encouraging a child to draw a picture about a behavioral incident. In addition, the art making was utilized do displace anxiety, aggression, libido and attachment through the creative process (Boylan, 2001; Henley, 1998). Henley (1998) believes that incorporating art therapy into a multimodal approach to ADHD treatment has proved to be beneficial in this program in addressing one of the mayor deficits of these children, their socialization skills.

2.2 Dance Movement Therapy

2.2.1 Definition

Dance/Movement Therapy (DMT) is defined by The American Dance Therapy Association (2007), as “the psychotherapeutic use of movement as a process which furthers the emotional, social, cognitive, and physical integration of the individual". It is based in the idea that body and mind are inseparable and so, body movement reflects inner emotional status and, changes in movement behavior can lead to psychological changes (Levy, 1988). It is employed in psychiatric hospitals, clinics, day care, community mental health centers, developmental centers, correctional facilities, special schools and rehabilitation facilities. Dance/Movement therapists work with individuals who have social, emotional, cognitive and/or physical problems in order to move towards a healthier functioning.

According to Schmais (1974), there are three major assumptions guiding the practice of dance therapy: a) movement reflects personality, b) the relationship established between the therapist and patient through movement supports and enables behavioral change, and c) significant changes occur on the movement level that can affect total functioning on the individual.

Techniques of intervention used by dance/movement therapists include:

- Empathic Reflection: Empathic reflection involves participating in another's total movement experience. It is employed by dance therapists in order to gather information, engage in an interaction and build a sense of mutuality and trust. "By using empathic reflection, the therapist may respond with an action pattern, image or sound which is similar to the patient's but with the goal of developing or extending it beyond what the patient has initially presented" (Sandel, 2000a, p.105).
- Imagery: Image is an externalization, in symbolic form of thoughts and feelings. Decoding and explicating the symbol facilitates the process of identifying and labeling the feelings that are being expressed nonverbally, often unconsciously (Sandel, 2000b). Images serve as vehicles of meaning that transform kinesthetic experience into cognitive awareness, the development of images helps people deepen their emotional awareness and access deeply held parts of themselves.
- Sensory and perceptual stimulation: according to Erfer (1995), the use of props or materials enhances sensorimotor stimulation which combines full-body movement and the sensory input that such movement provides. Perception also, refers to the meaning the brain gives to sensory input, though the process of organizing or interpreting the raw data obtained through the senses. Thus, these activities facilitate the organization and integration of the raw data obtained through various sensory channels of perception allowing the individual to work towards developing an integrated body image.
- Verbalization: According to Stark & Lohn (1989), although movement is the primary modality in sessions, verbalization can support the process in order to clarify and give

meaning to the emotional and symbolic content of the movement as well as helping to work though issues and areas of difficulty.

All these techniques help the person or group to build on body awareness and empathy towards others, which can take place on a kinesthetic and emotional level by promoting sense of control over the body, clarity of feelings, and recognition of strengths and weaknesses (Erwin-Grabner, Goodill, Hill, and Von Neida,1999; Leventhal, 1980). DMT also facilitates structure and recognize the individual's verbal and nonverbal expression and communication, modulate their behaviors, enhance expressive competence, and reduce stress.

2.2.2 Dance/Movement Therapy with children:

According to the ADTA (1999), every human being during their childhood learns about the world through body experiences that integrate their emotional, social, physical, communicative, and cognitive development. Because the emphasis of dance/movement therapy relies on nonverbal body-level communication makes it an ideal treatment choice for a wide variety of young populations. DMT works with a variety of approaches: expressive movement, creative dance, role-playing, gross motor and perceptual motor activities, and a combination of structured and improvised movement experiences, providing children a structure to develop and strengthen new skills while working in a recreational, non-threatening model that assesses their needs in their own language: language of movement and play (Erfer, and Ziv, 2006; Sandel, Chaiklin, & Lohn, 1993; Stanon-Jones, 1992).

In order to understand why DMT is a suitable approach for children, it is important to recognize the characteristics of this specific stage of life. In terms of psychosocial development, non dance/movement therapists researchers, Newman and Newman (2006) refer to the normal developmental tasks for school age- children, who are the target of this study, as: friendship, skill

learning, self evaluation and team play. The first one is defined as the need to form meaningful dyadic and group relationships, participate in larger peer networks and experience peer acceptance or rejection. It is through friendship that the children are able to see the world differently than they do, they begin to understand the limits of their own points of view, and at the same time, they learn to develop and follow social norms and resolve conflicts.

Also, skill learning is another important developmental task to be strengthened during the middle childhood. It refers to the acquisition of knowledge and practice of skills that are the basis of intellectual competence, and can be achieved through four different principles:

- The combination of sensory, motor, perceptual, cognitive, linguistic, emotional and social processes.
- The simultaneous integration of many levels of the component behavior.
- The limits of human system place constraints on the individual's capacity to learn the skilled behavior and
- Skilled behavior requires the use of strategies, meaning, that a skillful child would operate with purpose and continuously monitor their performance.

In DMT, the movement experience allows the child to integrate all of the principles mentioned above while building meaningful relationships. Motivation for learning is intrinsic because of the inherent pleasure in movement. The concreteness and immediacy of movement make it an ideal medium to interact, learn basic concepts, and to develop the motor skills necessary for self-care and work. Dance/movement therapy encourage the expansion of the children’s developmental tasks as it can be provided in group and in individual sessions, it is a pleasurable process that enables children to engage in meaningful exploration of the self, the

environment, and others, as well as the acquisition and transfer of skills in many different areas (ADTA, 1999).

Continuing with Newman and Newman's (2006) developmental tasks, self evaluation refers to the children's strive to match their achievements to internalized goals and external standards. Simultaneously, they receive feedback from others about the quality of their performance. Finally, team play provides a context for practicing the skills and orientations that will apply to the world of work and to functioning in the family group. In fact, referring to the process of kinetic psychotherapy, Schachter (1986), explains how dynamic games are used in psychotherapy as they resemble real-life situations, they allow observe characteristic responses, and to help the child learn alternatives by means of a structured experiential situation. "The child can be helped to function more effectively in the world by being helped to become aware of his or her feelings and learn a range of responses more adaptive than those he or she presently uses" (p. 96)

In addition, DMT can also use cooperative games, which are structured activities in which the group works together to overcome a common problem or to obtain a difficult goal. They promote inclusion, assertive interactions, self control and long periods of attention span in a safe social, emotional, and physical environment. Verbal discussion around the game dynamics and performances after it is finished allow children to gain insight over their achievements and goals and recognize skills used to facilitate effective team work.

Children, during DMT sessions may experiment with generalized motor patterns and movement dynamics and learn to adapt them to a variety of situations. During the sessions, children are able to communicate and foster creative self-expression, as well as practice effective options to relate to others and cope with the environment in a safe atmosphere in which the child

is fully accepted (ADTA,1999; Leventhal, 1980). Therefore, the child is able to learn that by being able to control himself he can gain some control over the world (Downes, 1980).

It is through movement observation and interaction that dance/movement therapists address the children's issues of adequacy and self worth. This interaction is pursued on a primary, nonverbal level, which helps the child to develop a positive and realistic self-image. Upon entering the child's symbolic movement world, the therapist helps to expand communication skills, creating pathways from nonverbal to verbal dialogues. As a result of this process, self-awareness, awareness of others, coping skills, and the ability to form relationships can all be improved (ADTA,1999).

The ADTA (1999) states that movement assessments and evaluations yield important information about abilities and difficulties in many areas, including:

- Perceptual motor development and fine and gross motor coordination
- Verbal and nonverbal communication
- Impulse control
- Body image
- Socialization skills
- Emotional expression
- Ability to maintain boundaries
- Attention span and on-task behavior
- Critical thinking skills, problem solving, and creativity

Cruz (2006) states that dance/movement therapists observe individuals' movements and body postures to evaluate the individuals's relationship between the self and the external environment. When assessing the body-mental status of an individual, North (1975) places

significant importance in the used of the body in actions, the use of motion factors or efforts (weight, time, space, and flow), and the use of shape and space in relation to one's own body. "As the child grows, greater differentiation of movement is achieved" (North, 1975, p.39); therefore, children can be assess through movement in order to gain information about developmental problem's areas, coping skills, strengths and weaknesses.

Furthermore, according to Kestenberg, Loman, Lewis, and Sossin, (1999), physical and emotional experiences leave long-term traces upon the way people hold themselves and move; therefore the study of movement gives significant information about patterns of early development, coping strategies and personality configurations. They describe system, known as the Kestenberg Movement Profile (KMP), provides an organized framework for psychological assessment through the observation and analysis of movement.

KMP's theoretical framework is based on the work of Laban and Bartenieff; its movement theory guide the interpretation of movement repertoires in developmental terms. Both approaches, Kestenberg's based her work on the idea that during early development, the child learns and interacts by exploring the environment approaching elements of space, weight and time. The motion factor of space, direct and indirect movements, occurs in relation to inner attitudes of paying attention; mental activities of thinking, cognition and the ability for patterning and organization; weight (light or strong movements) can be associated with intentionality, will-power and sensation; and time is associated with decision making qualities and intuition, alternating appearances of suddenness and sustainment in movement phrases is rhythmical, indicating some intuitive and decisive quality (Hastie, 2006; Kestenberg, et.al 1999).

North's, another dance/movement therapist, in addition to the above motion factors, gives importance to the motion factor of flow is associated with precision, emotional feeling and

relationships. The alternating appearance of bound and free flow in movement phrases has some connection with a well-balanced emotional life and ease of relationships (North, 1975).

Patterns of movement mature and build on top of one another with development and environmental influences, so that the child is able to use a broad movement repertoire according with his or her needs in different situations (Hastie, 2006). Efforts are used to help individuals develop more effective approaches to their tasks; the more effort combinations are used the better the individual is able to assertively cope with different life situations. Effort movement qualities and the combinations used describe individuals' coping style, ego strength, problem solving ability, and creative intelligence. Consequently, they can be used as tools of psychological assessment to identify the way in which certain individuals cope with the external environment in specific ways (Hastie, 2006; Kestenberg, et.al 1999).

A dance/movement therapist can work in a very broad variety of interventions. For instance, Leventhal (1980) states that, when working with children in a movement level, the problem focus can be placed towards any of three following areas:

- Self differentiation and individuation: including the related constructs of body boundaries, self discrimination, impulse control, and self concept.
- Space which includes laterality, shape and object discrimination, and
- Group relatedness and social behavior: flow and rhythmicity are key components of difficulty affecting personal contact, interrelatedness and differentiation from others.

On the other hand, Erfer and Ziv (2006) described the use of DMT with children ages 5-8 on a short-term inpatient psychiatric unit in a major hospital when intending to reduce problematic behaviors, provide more effective coping skills, learn and improve cognitive and

social skills, develop self awareness, and discover and express emotions through actual practice.

According to the authors, the development of body image, self-awareness, and awareness of others are important components of DMT sessions. Changes in behavior that could be observed in DMT groups include improved impulse control, frustration tolerance, gratification delay, and ability to get along with others (Erfer and Ziv, 2006).

In addition, Tortora (2006) describes the use of the body as a tool to encourage and enable the child's self-expression. Eye contact, responses to music, rhythm and sound, breath and muscular tension, touch, improvisation and mirroring and attunement; are some of the body tools emphasized by her to create a complete assessment, intervention, and educational approach for infants, children, and their families.

Moreover, Payne (1992) addresses how movement, body therapy approaches and DMT have been used with young populations as a vehicle for the therapeutic relationship, to work on body image and self-concept, for promotion of self awareness, to reduce acting out behaviors and increase emotional responsiveness and to relieve anxiety.

DMT programs have also been used to reduce aggressive behavior. Koshland, Wittaker, and Wilson (2004) for example, evaluated a 12-week dance/movement therapy-based violence prevention program with 54 multicultural elementary school children, entitled PEACE through Dance/Movement. In this case, DMT is being used to foster social interactions and expression of feelings, at the same time, that helps to gain a sense of self-control. The program used a DMT group process that focused on increasing the children's spatial awareness to facilitate impulse control, communication, and management of disruptive behaviors. Movement was introduced through the socialization and engagement of the children in a creative problem solving experience, pro-social behaviors and methods of self-control.

Furthermore, "disarming the playground" a school-based violence prevention curriculum through movement and pro social skills uses non verbal and verbal communication skills and the

body-mind connection to work through twelve core movement skills: spatial awareness, assertion, proactive strategies, energy modulation, relaxation, grounding, early warning, ignoring skills, refocusing, attunement or empathy and body awareness (Kornblum, 2002; Hervey & Kornblum, 2006).

On the other hand, Sandel, Chaiklin, and Lohn, in relation to the therapeutic and educational goals of dance when working with adults, state that "each dance session brings new awareness of body coordination, sensitivity to musical tones and rhythms, and alertness to new ways of using the body" (1993, p.314). Also, they refer to the importance of building sufficient awareness of self through expressive movement in order to work for creative expression and a feeling of wellbeing, as well as improved coordinated body action; which can also applicable to the children population.

Finally, Stanon-Jones (1992) clearly state that there are three major goals when working with children through DMT, first of all, to use movement as the symbolic language of the child's current emotional difficulties, this, would help the child to reduce anxiety and behavioral disturbances. Secondly, to reflect, mirror and label the child's behavior to encourage more appropriate interaction, and to begin to repair damaged parent-child or child-peers relationships. Lastly, DMT with children with psychiatric disturbances focuses on movement experiences as a way to repair body image and body ego in relation to developmental body movement.

During the DMT session, the therapist tends to assess strengths in order to build self-esteem, to reflect to the child what is productive at the moment about him, and generally to support, in whatever small way, the notion of worthiness (Downes, 1980). During the intervention lost or distorted body-image may be re-established, affecting the strengthening of the self-concept at a pre-verbal level. Verbalizations are used by the therapist to bring the pre-

verbal communication to levels of more symbolic awareness via language and movement (Puder, & Marx, 1980). DMT has been shown to have the potential to focus the hyperactive and to calm the distraught and fearful child, allowing growth exchange to occur on a basic body/developmental level (Leventhal, 1980).

According with Leventhal (1980), full range of motion creates a matrix for full perceptual readiness which, combined with the use of parts, space, and energy dynamics creates the foundation for gross and fine motor skill development, which at the same time, heightens interpersonal communications and self-esteem; as one of the main precepts of DMT is that change in movement expression will result in a personality or behavioral change.

The therapist's role is active, influencing both the expression of the experience and the experience itself and therefore themes arise and are selected in relation to therapeutic aims and objectives. According to Payne (1992), in the movement the therapist can:

- Influence the form and content of the movement in the direction of the therapeutic aims and objectives
- Model the many possibilities in movement
- Open a path to communication at a pre-verbal level
- Engage the client in movement by showing that movement is desirable and important.

Different therapeutic strategies that are used during DMT sessions are joining the child actively by reflecting his movement (shadowing, echoing, mirroring) verbalizing the movement (taking into account tone and pace), leading to expression and communication to convey to the child the message that he is being seen and accepted as he is (Erfer, 1995; Payne, 1992; Puder, & Marx, 1980).

Also, the need of having a consistent space (room) for DMT sessions is emphasized throughout the literature, hopefully that is used just for these sessions. Privacy is essential and interruptions should be restrained (Payne, 1992; Sandel, Chaiklin, & Lohn, 1993). In addition to this, Downes, (1980) states that the movement space itself needs to afford enough room for the child's full range of expression and yet not be so large that the child feels overwhelmed; it is helpful to create a warm but not over stimulating space for the children to explore.

Ground rules, defined by Payne (1992) as firm boundaries, are particularly important with young populations. These rules include time, no physical violence against self, others or equipment, no smoking, commitment to sessions and confidentiality. Movement interventions may set limits within which children can learn to control impulsive behavior, and to increase their ability to focus and sustain attention, which are essential in developing cognitive potential (ADTA, 1990).

As part of these firm boundaries, the structure of the session should be clear for the participants, and provide a holding environment. This structure should contain a clear warm-up, middle and closure in order to allow the children to anticipate, provide the development of trust and to encourage risk-taking in movement exploration and growth (Erfer, 1995; Leventhal, 1980; Puder, & Marx, 1980).

Because education is always a main concern when working with children and adolescents, it is very important to take into account that any kind of therapeutic intervention involves withdrawal from classroom. Payne (1992) refers to this as a therapeutic strategy that involves balancing pros and cons in terms of academic and emotional development, as well as facilitating a schedule for the child that eases the adaptation when merging back into the classroom before and after the sessions.

Finally, it is important to take into account the importance of the family as the main support system for the child; therefore, interventions involving the family are recommended (Harvey, 1990, 2006, Tortora, 2006). For example, according to Stern (1974), in dyadic relationship, both mother and infant learn to control and regulate their level of arousal by attending or rejecting the interaction established between each other. As every contact stimulate the other, the level of arousal increases and with it the interest in the interaction; when the stimulation is too high, then we tend to avoid it in order to maintain an optimal range of attention, all of this happens in a movement, non-verbal level.

Kestenberg (1975) refers to mother-infant interaction as either attunement, -when both, mother and child are able to mutually empathizes responses creating a synchronic rhythm in their relationship; or clash, -when the relation between the caregiver and the child leads to frustration as the needs and interests of both of them do not harmonize.

In order to create spaces for parent-child interaction, Harvey (2006) describes the "dynamic family play" a movement intervention style in which family members are helped to engage in mutual interactions using movement, dramatic, storytelling and artistic expressions together to address child- and family-related concerns. The authors define the main goal of this intervention as helping the family to develop attunement and creative responses to better adapt to their current conflicts with more flexibility and emotional responsiveness. In addition, Tortora (2006) emphasizes the importance of nonverbal interaction between parent and infant as a way to discern the quality of the attachment relationship. DMT can deal with parent-child interactions by focusing on different variables such as sensitivity to cues, reciprocity of interaction, regulation of arousal, affect, flexibility, proximity and distance and cultural influences.

2.2.3 Dance/Movement Therapy treatment for ADHD:

The literature available on DMT interventions with children with ADHD symptoms will be reviewed in this section. Although it is limited it helps to create a broad picture of the goals, interventions and achievements of DMT when treating ADHD (Cavanagh, 2001). Different approaches have been used by dance/movement therapists to achieve positive outcomes and changes with children diagnosed as ADHD. Body boundaries, self-esteem, awareness of emotional release, self-control, and empowerment are key DMT goals addressed through relaxation techniques, use of space, reflection of effort movement qualities, body awareness, covert rehearsal, and play enactments in different DMT programs in order to increase the quality of life of children with ADHD symptoms (Gronlund, Renck, & Weibull, 2005; Rachmany, 2000; Van Wagnen, 1999; Wegrich, 1993).

For instance, Rachmany (2000) bases her work on the idea that it is possible to help children who suffer from difficulties in concentration and hyperactivity through working with body boundaries; in order to increase the individual's body organization, lower the level of impulsiveness, develop their body-image, feel their own bodies move, calm down, and thereby improve their general self image and their ability to express emotions and relate to their surroundings.

Through a literature review, the author examines the emotional and kinetic aspects linked to the development of body boundaries and body image by clarifying the psychological developmental aspects as well as a view of the physical-sensory aspects connected to these terms. Body boundary image incorporates within it concrete aspects, which include reference to the body's physical boundaries that physically separate the person from his surroundings, as well as abstract aspects, which refer to body boundaries as an expression of the ego's boundaries.

DMT focuses on the experience of movement as a correction of body image and body ego, since it focuses directly on the senso-motoric level and the development of perception. According to Rachmany (2000) through simple concrete kinetic experiences with boundaries and simple rules, the child can create boundaries for his energy and develop self-control.

> "Creating a structure and energy in time and space will create kinetic experiences with boundaries to the child, and thereby pave the way to communication, touch and focus. The experience serves to create boundaries for the energy and develops the ability to internalize by means to the child's internal control" (Rachmany, 2000 p.3).

Therefore, the modality has the potential to focus hyperactivity, to calm anxieties and urges and to allow growth as an alternative to the event whose base is in the level of bodily development.

In addition to body boundaries, self-esteem was also the target of study. Van Wagnen (1999) examined the hypothesis that group DMT would simultaneously increase self-esteem scores and decrease ADHD symptoms in latency aged children over a two-month course of DMT group sessions that utilize Sharf-Razin's Model. This model was proposed to enhance self-esteem in children with learning disabilities through DMT sessions; based on a combination of Erikson's and Kestenberg's developmental stages. During eight sessions, once a week, this model works on mastering body movements as they relate to the mastery of self and environment relating it to the first four psychosocial stages of development.

A three case study design was used, the subjects' ages range was from nine to ten, the three of them were boys, two Caucasian and one African American. All subjects notably increased in the Coopersmith School Short Form Self-Esteem (SEI) scores, which was the scale used as pre/post-test to assess self-esteem over the two-month period. However, the author

recognizes some limitations and implications to validity of the study, such as assumptions, inconsistencies, and lack of generalizability (Van Wagnen, 1999).

A different DMT intervention for ADHD was evaluated in the pilot study that was lead by Gronlund, Renck, & Weibull, (2005) concerning a short-term DMT intervention for two young boys (5 and7 years old) with symptoms related to ADHD. The aim was to investigate the effect and value of DMT as an alternative treatment and to describe the process. The DMT process was set in short-term duration period, in a supportive, goal directed and planned activity setting.

The DMT process was divided in three phases: the initial phase, which was designed, to create a secure and trustful environment, emphasized the boys' strengths, countering the potential for revealing weaknesses and shame. During this phase the dance therapists issued directiveness to maintain boundaries and to engage in mirroring and movement empathy, to build trust and the therapeutic relationship. During the middle phase the therapists followed a non-directive role following the boy's creative ideas and improvisations, to help the boys to explore their movement potential and develop, in which allowed them to engage in fantasy play. The focus was set on improving the body awareness and image to ultimately, allow the boys to feel a sense of wholeness. In the final phase, issues of separation highlighted the boys' growth and development. Cooperation between the boys continued to develop and it was now obvious that they had learned to share their conflicts and fears.

The quantitative data showed a non significant decrease of the behavioral and emotional symptoms of the boys, however, it had a positive effect on the motor functions of both boys. But in the qualitative analysis of the parents' interviews, the authors relate that:

"by stimulating the joy of movement and creative playing, the study showed that DMT

could give the two boys, perhaps for the first time, the pleasure of playing and dancing together with a peer. By focusing on the boys' strengths and inner resources their self esteem and quality of life improved."(Gronlund, Renck, & Weibull, 2005, p. 82)

Another example of the literature that exists regarding DMT interventions for ADHD is Wegrich (1993) clinical case study. A nine year old Caucasian boy diagnosed with ADHD was the participant in this individual client study conducted for a period of five moths (22 DMT sessions). During this period, the behavioral and clinical effects of treatment were monitored in part by use of two different questionnaires completed by four classroom teachers and one educational therapist and by using Effort Factors observations during his sessions, in the classroom and in the playground.

The therapeutic approach used and described incorporates interventions that promote an awareness of emotional release, self-control, and empowerment by means of progressive muscle relaxation techniques, body awareness, covert rehearsal, play enactments and DMT activities. Results showed that during the beginning of the observations the child mostly used fighting efforts such as high intensity, bound flow, indirect use of space, strong weight and quick, abrupt time. It was seen that by the end of the study, he was able to stay with one activity for a longer period of time because he was using more indulging time effort, he initiated movement patterns and rhythms with out being prompted, he was able to design movements to music or beat out his own rhythms that were slower, expressing his feelings through the DMT experience (Wegrich, 1993).

This study did not obtain significant consistent linear correlations, therefore it did not confirm the hypothesis that DMT would decrease hyperactive behavior in a child diagnosed as ADHD. However, while observing the child in different settings during different days of the

study, the researcher found that, “as time went on, he retained the same hyperactive behaviors but to lesser degrees, in different contextual environments. (…) His behavioral change was not always consistent, but clinically speaking, his attention span and ability to focus did increase over the time” (Wegrich, 1993, p. 110).

The researcher also concludes that behavioral limits, concrete visual safety props, enhancement of the therapeutic dynamic, consistently acknowledgement of the boy’s accomplishments, and supervision on developing the content and theoretical base of what the therapist is doing with the child are the techniques that worked best during this treatment.

The most recent study about the use of DMT as a possible intervention for ADHD found in the literature is the work of Redman (2007). The purpose of this study was to evaluate the effectiveness of DMT in reducing hyperactivity, impulsivity and distractibility, considered the main symptoms of ADHD in children diagnosed with this disorder who were not receiving medication for the symptoms. Five boys participated in this study, two of which participated in an eight-week DMT intervention (30min weekly sessions) and three of which were in a control group. The data was collected in the form of field notes and two behavioral checklists completed by the teachers; both of them were then compared with each other. The sessions were divided into three phases: a warm-up exercise/greeting (5 min) to greet each child and welcome them to the group; the group process (20min), in which the researcher instructed the group members to decide on a game or activity together, it was through this activity that the researcher worked the participants goals, related to increasing their frustration tolerance and increasing positive interaction with peers.Finally, the closure (5min) consisted of relaxation on a mat. The results of this study, synthesized from the behavioral checklists, movement considerations, and field notes demonstrated that “students in the treatment group improved or remained the same in terms of

their behavior. Students in the control group experienced improvement, no change, as well as decreases in desired behavior" (Redman, 2007, p. 104). The conclusion drawn from this study is that DMT can be associated with decrease of behaviors associated with ADHD symptoms.

Finally, DMT theoretical background has also been used as an assessment tool for ADHD. Goodman (1991) lead a study aiming to explore the qualitative features of movement that might distinguish hyperactive children. To accomplish her goal, the author developed two studies in which she compared the qualitative features quick, strong, intense, and unexpected transition between hyperactive and comparison boys, and decrements in these features when the hyperactive boys were medicated in contrast to when they were given placebo.

The study indicates that hyperactive children showed a greater incident of strength, intensity, and unexpected transitions in comparison with their normal peers. However, in contrast with what was expected, quickness was just seen more often in hyperactive children in the first study. Goodman's study does not uses DMT as a treatment intervention, however, her study is relevant to the field in terms of diagnosis, assessment and goal setting when working with children with ADHD in movement or action based programs.

2.3 Health Services System in Costa Rica

The Ministry of Health in Costa Rica (MH) is part of the Executive Branch, its function is to monitor the performance of essential public health functions and exercises the steering role in the country. However, since the 1990's the MH transferred health prevention and promotion programs to the Costa Rican Social Security Fund or its name in Spanish Caja Costarricense de Seguro Social (CCSS), which is a non-concentrated autonomous entity with its own statutes and resources. The national healthcare system prides itself on its aim of providing health insurance (including comprehensive health care and financial and social benefits) to everyone within the

borders of Costa Rica. In fact, according to the Pan American Health Organization (2002), ninety percent of the population belongs to this health insurance system and the remaining 10% can use it if necessary for emergency services.

By constitutional mandate, the CCSS is the institution that must provide public services that cover health insurance and maternity care for the entire population. In order to accomplish its goal, it has adapted a health care model that integrates promotion and prevention activities with treatment and rehabilitation (Pan American Health Organization, 2002). The mission of this institution, as it was stated in September, 2007 is to provide integral health services for the individual, the family and the community, and to provide social protection to the Costa Rican population, in agreement with the effective legislation. The mission will be pursued by means of:

- Respecting the people and the philosophical principles of Universality Solidarity, Equality, and Social Benefit.
- Directing services to the satisfaction of the clients.
- Continuing education and the motivation of the civil employees.
- Innovating management, with opening to the change, to obtain greater efficiency and quality in the benefit of services.
- Ensuring the financial sustainability, by means of an effective system of collection.
- Promoting research and the development of sciences of the health and the administrative management.

Planning for these services is carried out through six central offices, seven health regions, and 93 health areas, while their delivery is the responsibility of facilities organized into three levels of care, linked through patient referral mechanisms. The first level provides five

comprehensive care programs for children, adolescents, women, adults, and the elderly, through a network of 93 health areas with 783 Basic Comprehensive Health Care Teams (EBAIS) each of which serves an average of 3,500 people; and some peripheral clinics. The second level of care provides specialized consultations, hospitalization, and medical and surgical treatment for the four basic specialties (internal medicine, pediatrics, outpatient surgery, and gynecology). These services are provided by 10 health centers, as well as 13 peripheral and seven regional hospitals. The third level provides hospitalization and high-tech medical and surgical services through three general and five specialized national hospitals (for women, children, geriatric care, psychiatry, and rehabilitation).

2.3.1 Clinica Clorito Picado and the ADHD Team

The Clinica Clorito Picado is part of the second level of care provision, it is a major public clinic exclusively for outpatient medical services, which aims to prevent, promote, maintain, recuperate and rehabilitate health to the population in their community. It provides services for diagnosis, laboratory X-rays and treatment, as well as support services for minor clinics around and odontological services for scholars.

To specifically address the problem of ADHD, professionals in the Clinica Clorito Picado created an “ADHD Team”, which is an interdisciplinary team formed by a psychologist (who has a title of General Licenciada, which is an intermediate Degree between the Bachelor´s and the Master´s, but does not imply any specialty in the psychology field), a social worker (with a General Licenciatura title as well) and a general physician. The primary goal of this team is to provide assessment and biopsychosocial intervention for children and adolescents with ADHD and their families (Clinica Clorito Picado, 2007a).

Children and adolescents are referred to this team by their primary physician, who, either

recognized the need during their appointment, or received a referral from the child's school. Once the children are referred to the ADHD Team, the protocol of intervention is stated in a document issued by this team (Carballo & Vásquez, 2006) as follows:

1. Diagnosis:
    a. Clinical Interview with children and their care giver.
    b. Completion of the EDAH, Evaluacion del Trastorno por Deficit de Atencion con Hiperactividad (Farre and Narvara, 1997) which is a 20-question scale based on the DSM-IV criteria of ADHD; aimed to be completed by the children's primary caregiver and their teachers.
2. Biopsychosocial Treatment:
    a. Emotional support: the team uses its regular appointments to provide support about family dynamics, emphasize the importance of treatment adherence, to give counseling about discipline techniques and school management. This support is given by the Team in follow up sessions, every 3 months.
    b. Medication: there are three different options of pharmaceutical treatment that the Team provides, Imipramine, Amitriptyline and Ritalin. Ritalin is also an external option for the patients, however, the physician in the Team is not allowed to prescribe this medication (only psychiatrists are); therefore, for the patients that are currently needing this medication (10%), the Team would either refer him/her to the psychiatrist (2%) or give them a prescription to individually buy it (8%). Presently, 70% of the patients are taking Imipramine and 20% are not taking any medication (Clinica Clorito Picado, 2006).

c. Psycho-education for families: this consists of a 5-session workshop that addresses themes such as definition of the disorder, medication, emotional support, curricular adjustments and study techniques. Parents of children with ADHD are also invited to attend a workshop called “School for parents” that addresses emotional, social and behavioral development of pre-school and school age children.

d. The Team gives a “Medical Report”, informing the school about the diagnosis and emphasizing the need of special adjustments in the classroom.

e. Follow up: after the first appointment, the children have follow-ups once a month until the medication is stabilized, or until the decision of not needing a medication is made. After that, the children are required to attend every 3 months.

f. Referrals to other units in the Clinics are done if needed.

On two different occasions during the year 2006 and 2007, the Team provided a self-control workshop for the patients. This workshop’s goal was “to contribute to increased quality of life of children with ADHD and their families by teaching them how to develop better self control, as well as positive changes in family dynamics” (Carballo & Vasquez, 2006, p.3). During the first semester of 2006, this workshop was structured in 4 weekly sessions that involved both children and parents. This workshop was further expanded a year after, when the number of sessions were increased to 11, 5 of them were just with the parents and 6 of them worked with parents and children. During the evaluation of this workshop, the mothers who participated stated that the program facilitated better communication among them and their children, allowed them to acquire greater control over their children and to improve discipline. All the participants recommended the workshop, even if the children had to miss classes

(Quesada, 2007). In a personal communication with the facilitator of this workshop, she emphasized the importance of working with the parents, parallel or together with the children, as she considers that parenting skills is one of the main factors that is causing problems in the children participating (N.C. Quesada, personal communication, March 4, 2008).

It is important to recognize that the treatment of ADHD crosses a very thin line as it can be defined as both an educational and a health problem. In Costa Rica, the educational needs of children with ADHD are managed by the Ministry of Education. In most of the cases, the educational management of children with ADHD requires the application of curricular accommodations which can be either significant or non significant (Pena,2003). Curricular accommodation are strategies used by teachers so that they are able to adjust the curriculum to meet the child's characteristics and needs for him/her to learn. "Significant accommodations" represent major modification in terms of goals and contents of the curriculum, which has repercussions in the evaluation process. On the other hand, "non-significant accommodations", which is what most of the children with ADHD need, are adjustments done in class that do not interfere with goals and contents of the educative curriculum. For instance, allowing them more time to finish their assignments or presenting material with a different sensory input –visual or auditory-, etc. (Fundacion DA, n.d.).

The ADHD Team, as the unit representative of the Health Ministry in the community, is responsible for the diagnosis of the disorder and its treatment. However, the educational domain of this disorder is out of its control.

CHAPTER 3: METHODOLOGY

3.1 Design

The present study is a systematic literature based study with online consultation that provided the basis for designing a site specific DMT clinical model as the product of the research. This design was chosen because according to Mertens (2005) the literature review as an end in it self can be chosen to improve professional practice. The literature review consisted of searching, obtaining and analyzing the bibliography existent on the topic of study, for the purpose of gathering relevant information for the specific research problem (Hernández, Fernández & Baptista, 1991). Parallel to the literature review, online consultation was conducted with the ADHD Team of the Clinica Clorito Picado. The information given by this team facilitated the inquiry by offering information needed to meet the needs of the population and the scope of the setting (Denzin and Lincoln, 1998). Finally, based on the data from both the consultation and the literature review, a DMT treatment model was developed, in order to improve and expand the therapeutic intervention provided for school age children with ADHD symptoms who attend the Clinica Clorito Picado and potentially other public clinical institutions in Costa Rica.

3.2 Subjects

There were no human subjects used for this study. However, the ADHD Team in the Clinica Clorito Picado voluntarily participated of this research as online consultants, they helped defined and identified data required to develop the DMT program for that specific setting. The team was constituted by a psychologist (who has a title of General Licenciada, which is an intermediate Degree between the Bachelor´s and the Master´s), a social worker (with a General

Licenciatura title as well) and a general physician; the three of them are Latin-American adult women working in the Clinic and being part of the ADHD Team for more than 4 years. They represented the needs, interests and characteristics of both the Clinic and the population in scope.

3.3 Procedures for data collection

The data collection was done via two main sources: a systematic literature review and online consultation with the ADHD Team of the Clinica Clorito Picado. The literature search strategy looked for primary sources, which according to Hernandez, Fernandez y Baptista (1991) constitute the body of the literature review as they provide reliable information about the specific domain: ADHD symptoms, diagnosis and treatment, as well as theory and practice of DMT. Also, secondary sources were used as a guide for searching and gathering the primary sources and it was based on Drexel's Library Catalog, databases (such as MEDLINE, PsycINFO ProQuest Digital Dissertations, Ovid, and ERIC) and the Master and Doctoral thesis from "Dance/Movement Therapy Abstracts: Doctoral Dissertations, Masters' Theses, and Special Projects" edited by the Marian Chace Foundation. Along with the information gathered from the literature review, the ADHD Team from the Clinica Clorito Picado in Costa Rica was consulted to confirm and disconfirm their needs, according with the demographic characteristics of the population and the Clinic (see appendix A).

3.4 Data Analysis

The data was analyzed using Garrard's Matrix Method, which, according to the author, is both a structure and a process for systematically reviewing the literature (1999, p.17). The matrices were used to both, organize and analyze, as they provided a means for synthesize the data in a consistent way in a single place.

The Matrix Method is based on a 4-step task in which the first two tasks involves keeping a record of the search process used to identify relevant materials and organize them. The third task is building the "Review Matrix" which supports summarization of each text reviewed, this matrix is a box with rows and columns, the rows are for documents such as journal articles and the columns are for the topics that were chosen accordingly with the literature review.

3.5 Outcome

The last task is the synthesis, which provides the outcome of the study, in this case it is a DMT treatment model for school age children with ADHD symptoms that are treated in the Clinica Clorito Picado in San Jose, Costa Rica.

CHAPTER 4: RESULTS

4.1 Information from the online interview to the ADHD Team

The ADHD Team of the Clinica Clorito Picado completed an online interview in order to identify the needs of the ADHD Team and the psychosocial characteristics of the population treated. The data provided, synthesized with the information gathered in the literature review, will set basis for the development of a DMT treatment method that might act as a beneficial therapeutic tool for the Clinica Clorito Picado, and perhaps for other mental health settings in Costa Rica, to aid children diagnosed with ADHD symptoms.

I. In relation to the **symptoms** presented in the population referred to the ADHD Team:

a. Could you describe the major problems of the children that assist this Team?

a. **Academic Achievement:** Most of the children that are treated have been referred mainly because of difficulties related to their academic performances, such as: low academic achievement, inability to finish their works during class, inability to complete their tests or exams during allowed time, difficulties understanding and following instructions, and problems following the educational goals established by the curriculum.

b. **Social Development:** Difficulties with interpersonal relationships within the family, as in community and primary groups such as church, neighbors, and peer relationships, both in school and in the family. In addition, they present family dynamics difficulties, which have its impact in communication, boundaries, and life development throughout the different stages. Except for the School, the patients lack social network to provide support and containment to children and their families with this disorder.

c. **Cognitive Development:** Children that attend the ADHD Team present difficulties in school and are later diagnosed with learning disabilities, in addition to ADHD. These children usually have had to repeat one or more times an academic grade and generally they have received little attention and support from their school setting. The Team offers psychodiagnostic assessment that provides guidelines about the children's cognitive functioning, contributing with their educational development as it leads to the understanding of the child's unique learning process, which allows the application of significant curricula adjustments. However, it is the School's responsibility to follow the process in the Ministry of Public Education to request and apply the needed adjustments.

d. **Emotional issues:** Most of the children that attend the Team's consultation belong to families that have economical, educational, and social difficulties. Therefore, many of them display emotional disturbances in addition to their ADHD problems. Some of these children' are under the care of other children, some of them face constant physical punishments, verbal aggressions, negligence, sexual abuse, among other problems. Consequently, an interdisciplinary approach is needed, in order to provide integral attention, contributing with the family in an educational, social and psychological level.

e. **Behavioral problems**: Patients also have behavioral difficulties related to their hyperactivity, impulsivity and inattention. Probably, most of the families have behavioral management troubles because they are not aware of the disorder. Therefore, it is hard for parents to set clear and efficient boundaries and rules that benefit the children's and adolescent's development.

Also, it is hard for teachers to manage some behavioral situations because of their ignorance sometimes, but also because of the amount of work, ratio of kids per adult in the classroom, and little institutional support to address difficult cases.

f. What are the major impairments or consequences of these symptoms?

ADHD symptoms impact every area of functioning in their lives. They develop a sense of hopelessness and lack of success that is reflected in their self-esteem.

II. In terms of **treatment**:

a. What are the therapeutic strategies used, once they attend to their first appointment?

The ADHD Team meets every Tuesday from 7am to 12md. Appointments are given from 7am to 10am, four patients per hour are assigned each Tuesday if they are follow-up, or two per hour if they are coming for the first time. After the sessions, the Team meets for two hours to discuss relevant cases, prepare material and plan trainings, however, the schedule is often altered because of the amount of patients, reducing the time for the Team meetings.

The Team emphasizes three fundamental aspects of the treatment: family involvement, School support and pharmacological treatment if necessary. The process starts with the diagnosis based on clinic history, DSM criteria and the EDAH test completed by teachers. Once the diagnosis is given, pharmacological treatment is provided, and family training is the basis of the psychosocial intervention.

Family training involves 5 sessions divided in:

i. What is Attention Deficit/Hyperactivity disorder?

ii. Pharmacological Treatment,

iii. Emotional support and discipline,

iv. Curricular Arrangements and

v. Study techniques.

The Team follows up each case in three-month bases, except when the medication is prescribed the first time, follow up is given in a month until the patient is stable and side effects (if any) are controlled.

b. How is the follow up of the treatment?

New patients get an appointment one month after they are seen for the first time, to follow up the medication's effect. Appointments are set every three months for follow-ups. Once a month parents attend the training offered by the Team during the first semester of their treatment.

c. How would you describe the adherence to treatment is?

90% very good; 5% good; 5% regular to bad (low).

d. Do they attend to the appointments issued by the Team?

i. Appointments for children: 95%

ii. Educational Groups for parents: 85%

e. Do they have economical, educational and social support needed to fulfill their treatment requirements?

It depends on their place of residence, economical and social conditions and treatment adherence.

f. What have you found is the most effective intervention?/ Which results have you observed when using the different therapeutic strategies?

Effective intervention is achieved when three basic conditions are present: family support, school/educational support and follow up by the ADHD Team.

Changes can be reflected in their academic performance, family dynamics and peer and interpersonal relationships of the child; also parenting performance increase.

g. Could you think of a gap in the current intervention that would be beneficial for your patients?

Yes, specific group interventions according with subtype of ADHD

III. **Demographic characteristic of the population** treated by this Team:

a. In terms of nationality, age, and gender how could you describe the population?

Patients are mostly Costa Ricans, followed by emigrants from Nicaragua, Dominican Republic and Colombia. Children are mainly boys under 10 years .

b. What do you think are the most predominant problems for the patients to follow up the treatment requirements?

A little bit of absences in treatment, but it is low. Vacations periods, doctor-patient relationship, parents' jobs schedules and economic problems are other issues that might affect absences or early termination of treatment (A. Cortes, personal communication, March 7th, 2008).

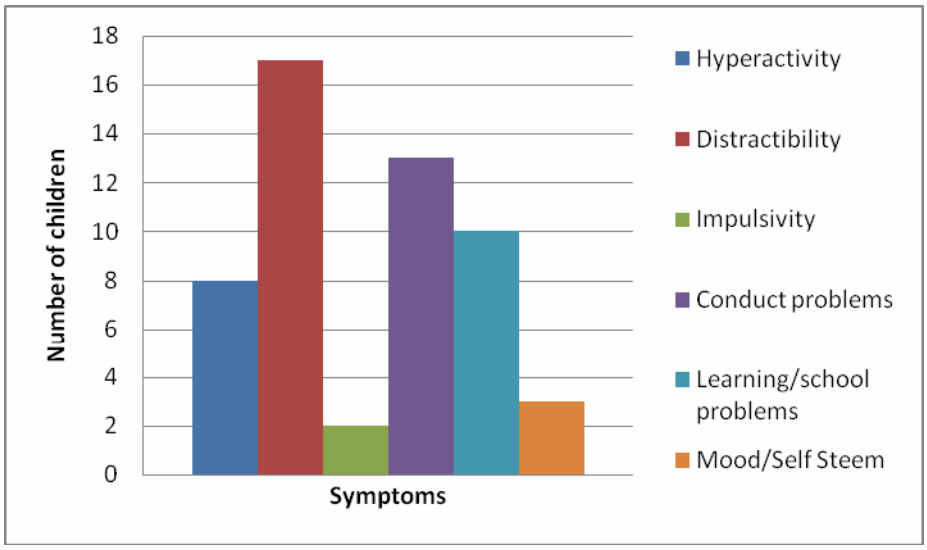
c. According with your experience, do you think the patients would be willing to participate in other groups, different from what you already offer? How often and how many sessions do you think they should attend to those groups?

Yes, the patients would be willing to participate in other groups, but they have schedules difficulties, as the Clinic schedules clash with their school schedules. The Team would suggest weekly sessions of two hours during a 6-week period.

In addition to the interview, the ADHD Team, provide other documents that they considered significant to the research. These documents crystallize some important information about the patient's characteristics.

Aiming to recognize some of the needs of the population they work with, during the third trimester of 2007, the Team pursued a survey in which 39 patients participated (40 patients represent 10% of the total population that attended the Team consultation in 2007) (Clinica Clorito Picado, 2007b). In this survey, caregivers recognized distractibility as the major difficulty of their children, followed by conduct problems, difficulties related to school and learning process and hyperactivity (see Figure 1).

Figure 1. Major symptoms/problems registered by caregivers

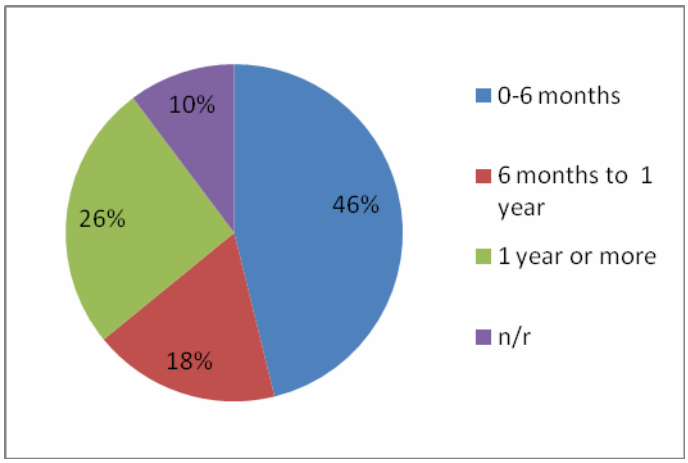


From: Clinica Clorito Picado (2007b)

In addition, the survey identifies that only 25% of the respondents have been in treatment for more than 1 year (see figure 2). This information can be compared with the statistics given

by the team during the year 2007, in which, out of 433 patients, 137 are coming for the first time, and 296 are attending for follow-ups, however, in this statistics there is no information about for how long have these patients been in treatment.

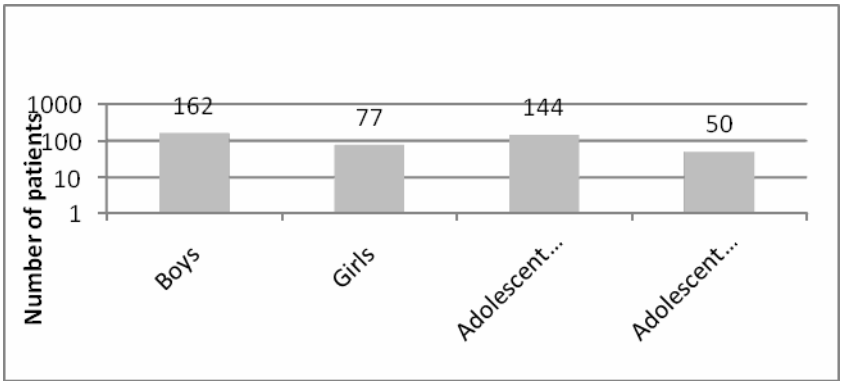
Figure 2. Time the children have been in treatment in the ADHD Team



From: Clinica Clorito Picado (2007b)

Moreover, in terms of age and gender, males prevail over girls and children prevail over adolescence (children are considered adolescence over the age of 12). Figure 3 shows the distribution of the total of patients seen in 2007 (Clinica Clorito Picado, 2008).

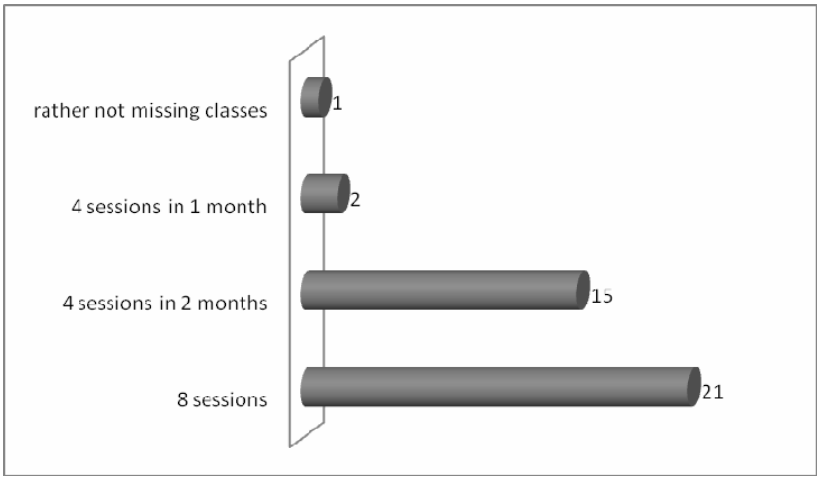
Figure 3. Distribution of age and gender among patients treated by the ADHD Team in 2007



Finally, the caregivers participating in the survey, gave important information in relation to new interventions for their children, in terms of willingness to attend new treatments and

amount of sessions that they would take their kids (see figure 4). Ninety five percent of the caregivers affirm that they are interested in participating in any other training that the Clinic would provide, but, if their children have to be present, some of them (18 out of 39) would prefer no more than 4 sessions so that the children don't have to miss their classes (Clinica Clorito Picado, 2007b).

Figure 4. Amount of sessions that caregivers are willing to take their children for group treatment



From: Clinica Clorito Picado (2007b)

4.2 Categorization of the Literature Review

In order to develop a treatment model, literature from different fields was reviewed, information was collected in matrices that organized the data according with topics that were chosen accordingly with the literature review. The matrices provided a means for synthesize the data in a consistent way in a single place.

Findings from the literature were categorized in three different broad themes: ADHD symptoms, ADHD treatments, and uses of DMT with children. Each of these themes constitute the main topic of each matrix. Table 1 consists on the symptoms that are considered important

when treating children with ADHD. These symptoms might by the main difficulties of the disorder, which match with the diagnostic criteria of the disorder, or they might be common difficulties or comorbilites with ADHD.

Table 2 summarizes different treatment approaches and interventions that have been tried to address ADHD symptoms with children. Data shows that parent training, school interventions, social skills and self control are the most recommended interventions. In addition, group therapy (average ten participants) appears to be the modality of choice, with an range of 8 to 15 sessions.

Table 3 outlines goals, interventions, activities and outcome from different studies in which DMT is used to address psychological and emotional difficulties in children. A variety of different approaches and techniques are used in DMT sessions, such as: relaxation, expressive movement, role-playing, gross motor and perceptual motor activities, use of space, time, rhythms and props, and a combination of structured and improvised movement experiences; that provide children a structure to develop and strengthen new skills while working in a recreational, non-threatening model.

Table 1
ADHD symptoms or difficulties

Author	Major Symptoms of ADHD
1. Barber, S., Grubbs, L., & Cottrell, B. (2005).Self-Perception in Children with Attention Deficit/Hyperactivity Disorder. *Journal of Pediatric Nursing*.	Self perception of school-age children was evaluated in six different domains: (a) scholastic competence; (b) social acceptance; (c) athletic competence; (d) physical appearance; (e) behavioral conduct; and (f) global self-worth. There was a statistically significant difference found between ADHD children and the control group for behavioral conduct, with the ADHD group scoring lower than the non-ADHD group. The ADHD group also had a lower mean score on four of five of the other subscales (scholastic, social, physical, and global self-worth), although the difference was not statistically significant.
2. Barkley, Russell A. (2003). Issues in the diagnosis of attention-deficit/hyperactivity disorder in children. *Brain & Development*.	Two components characterizes ADHD: 1. Inatention: inability to sustain responding to tasks or other activities, to remember and follow through on rules and instructions, and to resist distractions while doing so. (p.78). 2. Hyperactive-impulsive behavior (disinhibition): The problems with inhibition seen in ADHD involve voluntary or executive inhibition of prepotent responses rather than impulsiveness that may be more motivationally controlled, as in a heightened sensitivity to available reward (reward seeking) or to excessive fear p.78 Children with ADHD often demonstrate deficiencies in many other cognitive abilities: • physical fitness, gross and fine motor coordination, and motor sequencing; • speed of color naming; • verbal and nonverbal working memory; • planning and anticipation; • verbal fluency and confrontational communication; • developing, applying, and self-monitoring organizational strategies; • the internalization of self-directed speech; • adhering to restrictive instructions; and • self-regulation of emotion.
3. Barkley, R. (2006). *Attention-deficit hyperactivity disorder: A handbook for diagnosis and treatment*. (3rd ed.). New York: Guilford Press.	1. *Inattention*: the construct of attention as studied in neuropsychology is multidimensional and can refer to alertness, arousal, selectivity or focus-execution, encoding, sustained attention, distractibility, or span of apprehension, among others. Distractibility is another problems which is described as the likelihood that a child will respond to the occurrence of extraneous events unrelated to the task. 2. *Impulsivity*: it is also multidimensional in nature.. Those forms of impulsivity often associated with ADHD involve the under control of behavior, poor sustained inhibition, the inability to delay a response or defer gratification, or the inability to inhibit dominant or prepotent responses. 3. *Hyperactivity*: it is related to the difficulties with impulse control in those with ADHD are symptoms o excessive or developmentally inappropriate levels of activity, whether motor or vocal.

	Associated problems frequently coexistent to ADHD are: • Cognitive and academic development: modest reduction in intelligence; moderate or greater deficiencies in domains of adaptive functioning and academic achievement skills, and a considerably higher risk for learning disabilities. • Language: deficiencies in speech pragmatics, story recall, verbal fluency and verbal problem solving; poor rule-governed behavior' mild to moderate difficulties in verbal thinking and a delay in the internalization or privatization of speech. • Adaptive functioning: refers to as: 'performance of the daily activities required for personal and social sufficiency" (p.123). It includes self-help skills, independence, self-knowledge, motor skills, social knowledge and communication skills. • Self-regulation of emotions: management of frustration, higher levels of aggression, anger, and sadness while possibly showing lower levels of empathy. • The self-awareness of children with ADHD appears to be characterized by a positive illusory bias, in that their self-reports of their competence are less accurate (particularly in areas in which they are most deficient) than s the case in nondisabled children. • Difficulties in motor development: poorer motor coordination, reduced physical fitness, and a greater occurrence of DCD.
4. Brown, T. (2005). *Attention deficit disorder: The unfocused mind in children and adult.* USA: Yale University Press Health & Wellness.	1. Organizing, prioritizing, and activating for tasks, 2. Focusing, sustaining and shifting attention to tasks, 3. Regulating alertness, sustaining effort and processing speed, 4. Managing frustration and modulating emotions, 5. Utilizing working memory and accessing recall, and 6. Monitoring and self-regulating action.
5. Fliers, E., Rommelse, N., Vermeulen, S., Altink, M., Buschgens, C., Faraone, S., Sergeant, J., Franke, B., & Buitelaar, J. (2007). Motor coordination problems in children and adolescents with ADHD rated by parents and teachers: effects of age and gender. *Journal of Neural Transmission*.	Children with ADHD have significantly more motor coordination problems in daily life. Problems of fine motor/handwriting, gross motor, coordination skills and motor control were all related to inattention, while hyperactive-impulsive symptoms only related to fine motor/handwriting and coordination problems. Boys and girls with ADHD were comparably affected, but motor performance in controls was better in girls than in boys.
6.Goodman, L. (1991). Movement behavior of hyperactive children: a qualitative analysis. In: *American Journal of Dance Therapy.*	Hyperactive children can be distinguished by a greater incident of specific movement qualities such as strength (impression of power or forcefulness in the use of the body), intensity (unusual amount of energy apparent in a movement or in a tonic state), and unexpected transitions (impression of surprise or unexpected movement) in comparison with their normal peers. Quickness, which is the impression of speed or immediacy, was just seen more often in hyperactive children in one out of two studies.
7.Hoza B. (2007). Peer Functioning in Children With ADHD. *Ambulatory Pediatrics: Measuring Outcomes in Attention Deficit Hyperactivity.*	Social difficulties are present in both boys and girls with ADHD, according to the author, problems with inattention likely limit opportunities to acquire social skills through observational learning, as well as to attend to social cues necessary to effective social interaction. In addition, hyperactive and

	impulsive behaviors contribute to generally unrestrained and overbearing social behavior that makes children with ADHD highly aversive to peers.
8. Hoza, B.; Gerdes, A.; Hinshaw, S.; Arnold, L.; Pelham, W.; Molina, B.; Abikoff, H.; Epstein, J.; Greenhill, L.; Hechtman, L.; Odbert, C.; Swanson, J.; Wigal, T. (2004) Self-Perceptions of Competence in Children with ADHD and Comparison Children. *Journal of Consulting and Clinical Psychology*.	Self-perceptions of children with ADHD are characterized by positive illusions. Meaning, they overestimate their competence relative to adult report, regardless of who that adult is (teacher, mother, or father). It is also important to note, that examination by comorbidity subgroups in the study revealed that children with ADHD inflated their self-perceptions the most in domains of greatest deficit (conduct disorders, academic achievement).
9..Kroes, M., Kessels, A.K., Kalff, A.C., Feron, F.J., Vissers, Y.L., Jolles, J., & Vles, J.S. (2002). Quality of movement as predictor of ADHD: results from a prospective population study in 5- and 6-year-old children. *Developmental Medicine & Child Neurology*.	The researchers used the Maastricht Motor Test, which is a test that evaluates quantitative and qualitative motor performance to examine the predictive value of quantitative and qualitative aspects of several movement domains for the development of ADHD. Quantitive aspects of movement are compatible with countable units; for instance the number of seconds a child can stand on one leg (for static balance) or the number of times a child can hop on one leg (dynamic balance), as well as the speed of tapping the hand (Diadochokinesia and Manual Dexterity). On the other hand movement quality reflect the pattern of a movement, such as associated movements, coordination, and stability. For ADHD, the qualitative domains of Dynamic Balance, Diadochokinesia and Manual Dexterity, and the Total Qualitative Score showed significant values as predictive of ADHD. None of the quantitative domains, however, showed significant results. These results can also be interpreted in terms of Barkley's theory concerning a deficit in response inhibition. Deficits in inhibition may result in difficulties with varied, complex, and hierarchically organized patterns of motor responses (Barkley 1997).
10.Loe, I.M. & Feldman. H.M. (2007). Academic and Educational Outcomes of Children With ADHD. *Ambulatory Pediatrics: Measuring Outcomes in Attention Deficit Hyperactivity* .	ADHD is associated with poor grades, poor reading and math standardized test scores, and increased grade retention. It is also associated with increased use of school-based services, increased rates of detention and expulsion. Children with ADHD symptoms show poor academic and educational outcomes.
11.Nijmeijer, J.S., Minderaa, R.B., Buitelaar, J.K., Mulligan, A., Hartman, C.A., & Hoekstra, P.J. (2007). Attention-deficit/hyperactivity disorder and social dysfunctioning. Clinical Psychology Review.	Children with ADHD often have conflicts with adults and peers, and suffer from unpopularity, rejection by peers, and a lack of friendships. As opposed to other PDD, they do not lack interest in interpersonal interaction; but often have difficulties in attuning their behavior to other people. The two behavioral elements that are associated with the social impairments are the negative, aggressive nature of their interactions and, their hyperactive/impulsive behavior.
12. Piek, J.P., Pitcher, T.M., & Hay, D.A. (1999). Motor coordination and kinesthesis in boys with attention deficit–hyperactivity disorder. *Developmental Medicine & Child Neurology*.	Children with ADHD have significantly poorer movement ability than the control children. A high percentage of children with ADHD display movement difficulties consistent with developmental coordination disorder. In addition, type and degree of movement difficulty differed between subtypes, children with the predominantly inattentive ADHD have significantly poorer fine motor skills, whereas

	children with ADHD-Combine type experience significantly greater difficulty with the gross motor.
13.Pitcher, T.M., Piek, J.P., & Hay, D.A. (2003). Fine and gross motor ability in males with ADHD. *Developmental Medicine & Child Neurology*.	Findings demonstrated that the children with ADHD had significantly poorer movement ability than control children. A high percentage of these children displayed movement difficulties consistent with developmental coordination disorder. In addition, the current study found that the type and degree of movement difficulty differed between subtypes. Predominantly inattentive and combine type had significantly poorer fine motor ability than control group, whereas the hyperactivity/impulsivity group did not differ significantly from any other groups.
14. Poeta, L.S. & Rosa-Neto, F. (2007).Evaluación motora en escolares con indicadores del trastorno por déficit de atención/hiperactividad.[Motor evaluation of school-age children with ADHD inticators] *Revista de Neurologia.*	Their study confirms the literature findings which suggest the existence of alterations in the motor coordination of children with ADHD. Findings in this study showed a "low average" motor development. The greatest difficulties were found in temporal organization ('very inferior'), spatial organization ('inferior') and balance ('inferior'). Fine motor control, general motor control and body schema were classified as 'low average'.
15. Silver, L. (2004). *Attention-Deficit/Hyperactivity Disorder: A Clinical Guide to Diagnosis and Treatment for Health and Mental Health Professionals* (3rd Ed.). Washington DC: American Psychiatric Publishing, Inc.	1. Hyperactivity: moving constantly, talking excessively,, fidgety or squirmy behavior. 2. Inattention: defined as distractibility. It could be • Internal distractibility: difficulty blocking out unimportant thoughts. • External distractibility: difficulty screening out unimportant sounds or sights. 3. Impulsivity: being unable to stop or having difficulty stopping to reflect before speaking or acting. Associated disorders: • Specific learning disability which can be related to input (visual, auditory, tactile, sensoriomotor perception) integration of input information, which requires three steps: sequencing, abstraction and organization, the disability can be in either of those phases; memory disability and output disability which include motor, language disabilities. • Regulating disorders (related either to mood or anxiety) and Tic disorders. • Emotional and social problems: could be related to stress, intimacy, identity, and anger control.
16. Tseng, M.H., Henderson, A., MK Chow, S., & Yao, G. (2004). Relationship between motor proficiency, attention, impulse, and activity in children with ADHD. *Developmental Medicine & Child Neurology*.	Aiming to investigate the relationship between motor performance, attention deficit, impulsiveness, and hyperactivity in children with ADHD, the authors assessed motor abilities, attention, impulse control, and motor activity finding a significant difference between children with and without ADHD in fine and gross motor skills, impulse control, and attention. The authors conclude that problems in both fine and gross motor skills are related to deficiencies in attention and impulse control, but parent ratings of activity level (considered as hyperactivity) was predictor for gross motor proficiency but not for fine motor tasks.

Table 2:
Treatment models for children with ADHD symptoms

Author	Goals/Interventions	Group/ Individual	Number of participants	Number of sessions
1. Barkley, R. (2006). *Attention-deficit hyperactivity disorder: A handbook for diagnosis and treatment*. (3rd ed.). New York: Guilford Press.	This exhaustive book reviews different treatment possibilities that have been studied to be effective with children with ADHD • Counseling and training parents: many variations of parent training exists, but they all share a common goal to teach parents specialized child management techniques. This book describes a program that besides that goal, it incorporates additional therapeutic components that systematically provide parents with factual information about ADHD and utilize cognitive therapy techniques to facilitate parental acceptance, understanding and management of the disorder. • School settings interventions aim to improve basic knowledge among educators about ADHD and to increase home and school collaboration. It promotes functional assessment of behavior in individual children, altering the physical classroom, modifying academic tasks, improving academic and social skills, and altering teacher-delivered consequences are the most important factors to take in consideration. • Medication: stimulants, antidepressant, or other medications such as antihypertensive, anticonvulsant and beta-blockers; are respectively, the first, second and third/line pharmacological treatments proposed. • Combined therapies that involved contingency management methods applied in classrooms, training of parents and medication have the greater empirical support in treating ADHD.			
2. Boylan, J. (2001). Exploring the use of two-dimensional and three-dimensional art media for increasing attentional abilities in the treatment of children diagnosed with attention deficit disorder. (Master's Thesis, Drexel	The results of this study suggest that three-dimensional art media in the form of clay increased attentional abilities when compared to two-dimensional media in de form of markers. The stimulating and kinesthetic qualities of clay, as well as its capacity for continual change, may have helped to sustain attention. Clay may be utilized in a group setting in which sustained attention is required for grater amounts of time. It could also be	Either both are suggested. However, the study was pursued on	5 participants	• The study had only 1 session.

University).	provided first in an art therapy session before a drawing in order for the effects of sustained attention produced by the clay to carry over into the processing time required for the drawings. Drawing could be utilized in individual sessions in which more abstraction is required to explore issues in depth or through the use of metaphor.	individual basis		
3. Bulut, S. (2005). Classroom interventions for children with attention-deficit/hyperactivity disorder. *Studia Psychologica*.	This article reviews different classrooms interventions for children with ADHD in terms of their educational needs: • Physical accommodations in the classroom: placing the child near the teacher and should not be isolated. • Self-monitoring techniques: student monitors his/her own inappropriate behavior. • Structured in the form of defined rules, schedules and planned activities and goals. • Response cost system: reinforcements are given at the beginning. The child's goal is to end with a pre-specified minimum number of points in order to earn the reward.	Individual		• Ongoing intervention
4. Chronis, A. M., Jones, H. A., & Raggi V. L. (2006). Evidence-based psychosocial treatments for children and adolescents with attention-deficit/hyperactivity disorder. *Clinical Psychology Review*.	The authors highlight the need for effective psychosocial treatments for children with ADHD to be combined with pharmacological treatments: • Stimulant medication • Family-based interventions: working directly with parents to modify their parenting behaviors in order to increase positive outcomes with their children Behavioral parent training explicitly provides parents with instruction in the implementation of behavior modification techniques that are based on social learning principles. • School-based interventions o Classroom behavior management: generally involve regular consultation with the child's teacher regarding the use of behavior modification strategies. o Academic interventions: while behaviorally–based classroom interventions typically target task engagement and disruptive behavior, academic interventions for ADHD focus primarily on manipulating antecedent conditions such as academic instruction or materials in order to improve both behavioral and academic outcomes • Peer interventions o Social skills training: focus on interpersonal difficulties,			

	developing and reinforcing the use of appropriate social skills would improve the social behavior of these children. o Summer treatment program: These treatments are implemented across recreational and academic settings in order to improve children's peer relationships, interactions with adults, academic performance, and self-efficacy.			
5.Danforth, J.S., Harvey, E., Ulaszek, W.R., & McKee, T.E. (2006). The outcome of group parent training for families of children with attention-deficit hyperactivity disorder and defiant/aggressive behavior. *Journal of Behavior Therapy and Experimental Psychiatry*, .	Group parent training on parent behavior and on the behavior of their children who had ADHD and defiant aggressive behavior. The program consisted in presenting features and etiology of ADHD and ODD, training on basic social learning principles and the implications of coercive processes to child noncompliance. Description, explanation, modeling, and role-playing with feedback were the techniques used to teach specific parenting skills. Pre-test/post-test results showed that training reduced childrens' hyperactive, defiant, and aggressive behavior, improved parenting behavior, and reduced parent stress	Group	9 to 10 families	• 75–90 min session • 8 weeks.
6. Edwards, J.H. (2002). Evidenced-based treatment for child ADHD: "real-world" practice implications. *Journal of Mental Health Counseling*.	With the purpose of discussing evidenced-based treatment for 7- to 1O-year-old children experiencing ADHD, the author suggests a family-based, behaviorally oriented, multimodal, and multisystemic approach that is structured in four components that can be adapted and integrated into individual mental health counselor practice: • PMT: organized, psychoeducational approach to helping parents manage their child's behavior difficulties and to manage their own reactions to their child's behavior. • School interventions: consult/collaborate with the child's teachers on a regular basis focused on classroom behavior management and academic interventions related to the child's functioning. • Medication: effective in addressing the core symptoms of ADHD, especially methylphenidate. • Aspects of the summer treatment program.	Individual for child Group parents		• Ongoing therapy, as long as needed for child • 10 sessions for parent training.
7.Gol, D., & Jarus, T. (2005). Effect of a social skills training group on everyday activities of children with attention-deficit–hyperactivity disorder. *Developmental Medicine & Child Neurology*.	The study proposed an effective Occupational Therapy social skills training group intervention for children with ADHD. The intervention focuses on acquiring social skills through meaningful occupations, such as games, arts and crafts, and cooking, while organizing a familiar context, including participation of the parents in the process and encouraging them to change their demands upon the children based on the individual child's abilities.	Group	9 participants	• 15 sessions 1p/week

8.Habboushe, D.F., Daniel-Crotty, S., Karustis, J.L., Leff, S.S., Costigan, T., Goldstein, S.G., Eiraldi, R. & Power, T.J. (2001). A family-school homework intervention program for children with attention-deficit/hyperactivity disorder. *Cognitive and Behavioral Practice*.	The Homework Success Program (HSP) is a brief family-school training program that addresses the homework problems of children with ADHD. It involves group parent training in cognitive and behavioral principles and strategies. This program involves increasing parent understanding of their child's behavior and training in behavioral techniques to improve academic productivity and behavioral functioning. In addition, it emphasizes goal-setting skills and parent-teacher collaboration to address homework problems.	Group		
9. Hansen, S., Meissler, K., & Ovens, R.(2000). Kids Together: A group play therapy model for children with ADHD symptomology. *Journal of Child & Adolescent Group Therapy*.	The article describes a model "Kids Together Program" based in a play therapy, process-oriented framework. The model utilizes concepts from attribution theory as well as social learning theory to provide the youth an opportunity for both skill enhancement and practical social experience which assists in supporting skills generalizing outside of the therapeutic setting. The structured curriculum has been created out of a strong belief that a child's behavior is very much affected by the interactions that child has with children and adults in his/her life. Reciprocal interactions with peers and adults are powerful components in the developmental process as are opportunities for corrective experiences that can foster change within one's life. The program schedules two-hour bi-weekly sessions that have the basic following structure: 1. Group Opening/Question/Topic Discussion, 2. Therapeutic Activities, 3. Games, 4. Recreational Activity, and 5. Group Closing/Cool Down/Relaxation.	Group	6- 9 participants	• It was originally a 9-session program, but they expanded it to 15 sessions • Two hours • 2 p/week
10. Henley, D. (1998). Art therapy in a socialization program for children with attention deficit Hyperactivity Disorder American. *Journal of Art Therapy*.	This study reports on an on-going therapeutic and socialization multi-modal program. The program seeks to address long-standing problems with regard to peer, school, and family relationships Sessions are divided into three components: free play, group discussion, and an expressive arts activity. According to the author, incorporating art therapy has proved to be beneficial in addressing one of the mayor deficits of children with ADHD, their socialization skills.	Group		• Ongoing program • 1 p/ week • Two hours
11. Jackson, N. (2003). A survey of music therapy methods and their role in the treatment of early elementary school children with ADHD. *Journal of Music Therapy*.	In 98 responses of a survey, music therapist from 36 states from USA, currently working with early elementary school children diagnosed with ADHD replay that, in order to address behavioral, psychosocial, and cognitive goals, they use mostly music and movement, instrumental improvisation, musical play, group singing,	40% of the music therapists participating in the survey use both groups and individual sessions, 39% work		

	and instrumental instruction during their MT interventions.	only in groups and 20% of them indicate that they treat ADHD children individually.		
12.Johnston, C., Hommersen, P., & Seipp, C. (2007). Acceptability of Behavioral and Pharmacological Treatments for Attention-Deficit/Hyperactivity Disorder: Relations to Child and Parent Characteristics. *Behavior Therapy*.	One-hundred nine mothers of 5- to 12-year-old boys with ADHD participated in this study rating the acceptability and effectiveness of behavioral parent training and stimulant medication as possible treatment, in addition, they provided information on their experiences with both types of treatment. Mothers rated behavioral parent training as more acceptable than medication. Even when there was no difference in ratings of the effectiveness of the two treatments in the scenarios, and, according to the participants, medication was more effective than behavioral strategies with their own children.			
13. Miranda, A., García, R., & Presentación M.J. (2002). Factores moduladores de la eficacia de tratamiento psicosocial de niños con déficit de atención con hiperactividad [Factors modulating the efficacy of psychosocial treatment in children with attention deficit hyperactivity disorder]. *Revista de Neurologia*.	After giving a broad review of different factors to take into account during ADHD assessment, the authors in this study recommend basically 2 different treatments for pre-school children with ADHD symptoms: • Stimulant medication: this appears to be the most effective treatment, with significant results in short-term basis. • Psychosocial interventions: they describe two different approaches, recommending the first one as the one that has more empirical support. o Parent training: it provides parent behavioral modification strategies as well as techniques to reestablish positive relationships within the family. o Parent support groups: is provides parents an opportunity to share difficulties related to their children and support among each other.	Group		
14.Ortiz-Becker, M. (2004). Neurocognitive rehabilitation of children with attention deficit hyperactivity disorder: a program design. (Doctoral Thesis in psychology. Carlos Albizu University)	The author designed a neurocognitive treatment program for children with ADHD, which includes computerized neurocognitive rehabilitations treatment, EEG neurofeedback, and parental training in behavioral techniques as an alternative to medication to increase attention and concentrations and to increase compliance at home as well as at school. • The neurocognitive portion of treatment is based on the "Captain's Log Cognitive Training System, which is structured in five different modules, two modules of attention skills	Individual Group for parents		

	(aiming to increase the child's ability to concentrate on auditory and visual stimuli for extended periods of time), visual motor skills (helping the child with hand-eye coordination, visual scanning, visual tracking and fine motor control), conceptual skills (help the child to develop basic reasoning memory and perceptual discrimination), and numeric concepts/memory skills (that trains the individual to improve their memory skills for mathematical concepts, verbal and visual memory, problem solving, and organizational skills). • EEG neurofeedback: trains the child to reduce the production of Theta waves while increasing the production of Beta waves. • The parental training consist in participating in a 45 minutes of education per session in which they will learn about generalities of ADHD and then they will learn how to implement behavioral therapy to manage the behavior problems associated with the diagnosis. Parents will learn how to set realistic goals, identify an appropriate reward system and to utilize techniques to help their child increase compliance with home and school rules.			
15. Silver, L. (2004). *Attention-Deficit/Hyperactivity Disorder: A Clinical Guide to Diagnosis and Treatment for Health and Mental Health Professionals* (3rd Ed.). Washington DC: American Psychiatric Publishing, Inc.	The treatment of ADHD must involve a multimodal approach that includes the individual and family education, individual and family counseling, appropriate behavioral management programs and appropriate medication. • Educating the individual and the family: education involves helping the individual, the parents, and school professionals to understand, and accept the clinical findings about ADHD and understanding the use of medication. • Clinical interventions with the individual, parents, or family: involves helping the child meet his academic needs, individual therapy in order to internalize and accept the symptoms, social skills training, helping the parents and the family with their own feelings of inadequacy and failure. • Working with the school system: creating the best classroom environment possible and to clarify the services or accommodations that the student with ADHD might need, which means being sure that the student understands instructions and assignments, modifying unacceptable behaviors, enhancing self-esteem.	Individual/ Group		• Ongoing therapy, as long as needed for child

	• Behavioral management: aims to change unacceptable behaviors to more acceptable ones, and regain parent control and confidence in their ability to parent. • Psychopharmacology: the goal of medication is to increase the level of norepinephrine or dopamine at the nerve interfaces in the area of the brain involved. Stimulants, tricyclic antidepressant and antihypertensive, in this specific order are the drugs generally recommended.			
16. Treacy, L.; Tripp, G.; & Baird, A. (2005). Parent Stress Management Training for Attention-Deficit/Hyperactivity Disorder. *Behavior Therapy*.	The current study assessed the ability of a group administered parent stress management (PSM) program to reduce the parenting stress and to improve the mood, family functioning, parenting style, locus of control, and perceived social support of mothers and fathers of children with ADHD. The content and format of the program is designed to provide education about ADHD, rights and resources available, train the parents with problem solving skills, cognitive restructuring, communication, self-care and parenting skills. Session content focuses on the provision of accurate information to assist parents in developing realistic expectations of their children together with skill training to reduce emotional arousal and to improve communication and problem solving.	Group	63 parents, 40 mothers and 23 fathers from 42 families in which at least 1 child was diagnosed with ADHD	• 9 sessions • Two hours • 1p/ week
17. VanDer Oord, S.; Prins, P.; Oosterlaan, J.; & Emmelkamp P. (2007). Does brief, clinically based, intensive multimodal behavior therapy enhance the effects of methylphenidate in children with ADHD? *European Child & Adolescent Psychiatry*.	This study does not support the expectation that optimally dosed stimulant treated children with ADHD should routinely receive psychosocial treatment to further reduce ADHD- and related symptoms.			
18. Wells, K. (2005). Family therapy for Attention-Deficit Hyperactivity Disorder. In: Lebow, J. (Ed.) Handbook of Clinical family Therapy. New Jersey: John Wiley & Sons, Inc.	The author considers important to address the parenting stress and decreased sense of parenting self-competence. Therefore, according to the author, intervention should be focus in establishing or restoring parental controls. Principles and techniques from behavioral parent management training and behavioral family therapy can be used to help the parents gain immediate control. The authors recommend the following phases when intervening with families: • Psychoeducation about ADHD.			

	• Presentation of parent management skills: increasing positive parental attention to children as reinforcement, applying the positive attention to two critical target behaviors for ADHD children: compliance to parent instructions and independent play, and time-out procedure to use as a mild punishment. • The final stage of the parent training program, attention is paid to establishing generalization of treatment effects across settings and time. Parents are taught procedures for managing disruptive behavior in public places and in school, using the home-school Daily Report Card.			

Table 3

Dance/Movement Therapy with children

Author	Goals / Interventions	Activities	Outcome: gains and limitations
1.Cavanagh, C. (2001). Classroom behavior and social interaction among children with LD and ADHD: A Literature Review with Implications for DMT. (Master's Thesis, Drexel University).	This literature review on classroom behavior and social interaction of children with learning disabilities and children with ADHD suggests that DMT interventions may be used to promote positive social interactions, improve impulse control and decrease impulsivity, increase attention span, promote a higher frequency for appropriate social interactions, channel aggression, and promote verbal expression.	Relaxation Use of props for fine motor skills and maintaining focus. Obstacle courses for gross motor and problems solving skills. Use of appropriate touch for social interactions	
2. Erfer, T. (1995). Treating children with autism in a public school system. En: Dance and Other Expressive Art Therapies, Levy, F. Ed.; New York: Routledge.	The author emphasizes integration of physical and relational aspects of the DMT work. The primary emphasis is on developing a relationship between human being 1. the initial goals of DMT are to reach the child at the sensorimotor level, to establish a relationship and to work toward formation of a body image 2. the development of body image and body/self is enhanced through identification of body parts as well as integration of them to whole body awareness. 3. Session is structured with a clear warm-up, middle and closure to provide sense of predictable, secure to facilitate the development of trust and to encourage risk-taking in movement exploration and growth.	Mirroring is used to get information about a child and to convey to the child the message that he is being accepted as he is Naming/ labeling: body parts as they are touched and moving. Rhythmic movements such as swaying, stretching. Singing the actions as they are performed establishes a rhythm for a group. Prop is used as a bridge between therapist and child to enable the child to tolerate a relationship.	
3. Erfer, T., & Ziv, A. (2006) Moving toward cohesion: Group dance/movement therapy with children in psychiatry. *Arts in Psychotherapy*.	According to the authors, the goal of every DMT group is to address individual goals, while developing group awareness, interaction, and cohesion. They focus the therapeutic intervention on improving frustration tolerance, impulse control, and the ability to delay gratification. Also, DMT groups should also Help the children learn how to maintain appropriate interpersonal boundaries, and to increase their attention span, which may lead to more		

	effective interactions with others. The structure of a session should be predictable and secure, the children may feel safe to explore, take risks in movement and grow. Furthermore, this repeated structure can facilitate the development of trust in the therapeutic relationship.		
4. Gronlund, E.; Renck, B. & Weibull, J. (2005). Dance/Movement Therapy as an Alternative Treatment for Young Boys Diagnosed as ADHD: A Pilot Study. *American Journal of Dance Therapy.*	The DMT process was set in short-terms, supportive and goal directed and planned ahead activities. However, the dance therapists were free to leave the structure and just follow the children. The DMT process was divided in three phases: 1. The initial phase, which was design to create a secure and trustful environment, emphasized boys' strengths, countering the potential for revealing weaknesses and shame. During this phase the dance therapists were directive, followed the program to maintain boundaries and engaged mirroring and movement empathy to build trust and the therapeutic relationship. 2. During the middle phase the therapists followed a non-directive role following the boy's creative ideas and improvisations and so, helping them to explore their movement potential and develop their fantasy playing. Focus was on improving the boys' body awareness and body image to give the boys a sense of wholeness. 3. In the final phase, issues of separation highlighted the boys' growth and development. Cooperation between the boys continued to develop and it was now obvious that they had learned to share their conflicts and fears.	• The therapists made eye contact and addressed each boy by name. • Massages, relaxation, • Teaching small dances, • Use of different props (pillows, balloons and large gymnastic balls).	The study concludes that, even when DMT "only partly reduced the behavioral and emotional symptoms of the boys, it had a positive effect on the motor functions" In addition, the joyful and creative play that DMT sessions improves their self esteem and quality of life.
5. Harvey, S. (1989). Creative arts therapies in the classroom: A study of cognitive, emotional, and motivational changes. *American Journal of Dance Therapy*.	Based on the idea that the use of art, movement, and music can result in metaphor-making and problem solving of social emotional conflicts, the authors propose creative arts therapies program that utilizes movement, music, and art therapy to effect cognition, achievement, motivation, and self-concept in elementary school students. Sessions were conducted twice weekly over a three month period with normal second and fourth grade classes. The framework of the activities followed four stages , approximately three weeks were devoted to each stage: 1. The introduction of the use of each creative medium	The dance therapist facilitated: • gestural, postural, and facial expressions of affect, • dyadic and group mirroring, • physical sculpturing, • development of individual and group dances expressing feelings.	The creative arts therapies can significantly increase verbal and figural creative thinking as well as assist in positively influencing reading comprehension among young elementary age students. Creative problem-solving which extends into the highly subjective and volatile realm of a child's

	as a method of self-expression 2. The use of art, music and/or dance to express different social and affective qualities. 3. The development of group relationships through the expressive activities. 4. The use of group activities to express a group feeling or to solve social conflicts.		emotional experience can significantly increase cognitive abilities and academic achievement.
6. Hervey, L.& Kornblum, R. (2006) An evaluation of Kornblum's body-based violence prevention curriculum for children. In *Arts in Psychotherapy.*	The article evaluates the effectiveness of *Disarming the Playground* (2002), curriculum with all the students in three second grade classrooms in an elementary school in WI. During either one semester, two quarters of a year or the whole academic year, the second graders received one 45-min session per week. They each finished the school year with an intensive 3-h session, which helped to review the material.		Statistical findings indicated significant positive outcomes, and qualitative findings pointed out five most frequently depicted skills identified by children in the interviews as actually being used in situations they could recall and describe. For example, ignoring (conflict avoidance), the Four B's (use of breath, body, brain and brake), moving away or leaving the situation, slowing, soothing, calming down, and "I" statements (communication skill that requires beginning a statement that expresses one's thoughts and feelings with the first person singular "I")
7. Kornblum, R. (2002) *Violence prevention through movement and pro-social skills.* Oklahoma: Wood and Barnes Publishing.	The text provides a violence prevention program model which provides non verbal and verbal communication skills for violence prevention for children. The use of the body in relationship to the mind are prime concepts that allow individuals to work through twelve core movement skills: spatial awareness, assertion, proactive strategies, energy modulation, relaxation, grounding, early warning, ignoring skills, refocusing, attunement or empathy and body awareness.	The program describes each unit with specific goals and activities for each session. These activities are structure dynamics that involves, relaxation, breathing, body awareness, movement in one spot and around the room, mirroring,	

	The violence prevention model is divided into six units that are worked through body-based activities: • Spatial awareness: children learn to protect their on space and respect other people's spatial needs. • Self-control and stress management: children learn how to recognize their excitement or agitation level. They lear strategies for calming themselves down and controlling their impulses. • Awareness of and Response to dangerous situations: children learn to be aware of danger signals in their bodies. They also learn how to ignore provocation to avoid fights. • Pro-active interventions: children learn strategies for dealing with conflict and aggression. • Managing anger and building empathy: children learn physical cues for recognizing feelings in others, how to express support for others, positive problem-solving to get their needs met, and strategies for managing anger. • Additional supplementary topics are covered as needed.	interpersonal interactions, etc. The use of props with children allows freedom of expression, unifies a class group by giving them something fun to focus together. Some of the props suggested for DMT activities are: stretch cloth, stretch sacks, scarves, and drum (percussion instruments).	
8. Koshland, L.; Wittaker, J. and Wilson, B. (2004). PEACE through Dance/Movement: Evaluating a Violence Prevention Program. *American Journal of Dance Therapy*.	PEACE is a 12 weeks DMT program that used selected children's stories and movement activities that focused on involving school-aged children in a group process to increasing their ability to engage in pro-social behaviors and decrease peer aggression. The program focus on increasing the children's spatial awareness, develop their impulse control, emotional regulation, communication skills, and management of disruptive behaviors and problem solving. Six elements structured the sequence for each session: o group focus: for instance flamenco clapping actions to obtain the group's attention by changing the timing of the beat and actions o read a story; o personal and social space: children physically explored personal space and then social space in response to images or characters selected from the story	Use of poems with hand gestures to transfer specific prevention skills. Use of different elements of dance such as: symbol, time, energy, space, and shape combined with dance rhythms and music from the cultures of Africa, Spain, and Mexico, ballroom dance rhythms. Story telling.	• Decreases significantly aggression and problem behaviors. • Teachers are able to learn to generalizing poems for transferring skills of listening and calming down for use in different settings

	o movement problem: the children's ideas were used to build a movement challenge that inspired them to explore different speeds, shapes, movement qualities and level changes; o closure and discussion: discussion of the prevention themes and how they were experienced in the class was used to close the session.		
9. Rachmany, G. (2000). Kinetic an Emotional Aspects in the Development of Body Boundaries in Children with ADHD. (Master's Thesis, Drexel University).	According to the author, DMT therapy for children with ADHD focuses on developing a clearer more positive sense of self including a better perception of external body boundaries as well as internal boundaries. (p.4).Creating a structure and energy in time and space will create kinetic experiences with boundaries to the child, and thereby pave the way to communication, touch, focus and self control. Clinical DMT goals in treating children with ADHD (p.68): • Achieving a clear sense of body boundaries and separate sense of self. • Achieving better integration between the body's organs and the internal and external parts. • Working on regulation of urges and developing control of impulses and self control. • Improving the ability to focus and concentrate • Improving the positioning of the body through work on stability and strengthening of grounding. • Developing the ability to use strength, time, space and body weight in an efficient manner. • Developing positive body image that will influence the sense of ego. Through the development of body awareness, a change in body image will occur which will lead to a change in self-image. • Allowing space for emotional expression.	Rachmany describes DMT techniques that can help patients strengthen their sense of self and increases a sense for body boundaries: • Creation of awareness of the patient and of his bodily sensations. • Investigation of body boundaries can be worked by tapping the external skin, work with opposing movements or with a sense of a grounded balanced body in comparison to a state of a lack of balance. • Expression of aggression, which are often a result of anger and frustration also contribute to clarifying and defining the body boundaries. • Grounding and concentration by elements that activates the center of weight. • Connection with the other: distinguishing internal and external world. • Reflection provides a framework for experiencing the connection with the other. • Use of space • Leading and being led.	

10.Redman, D. (2007). The effectiveness of Dance/Movement Therapy as a Treatment for Students in a Public Alternative School Diagnosed with Attention Deficit Hyperactivity Disorder: A pilot Study. (Master's Thesis, Drexel University).	The study propose the use of DMT in order to reduce the three main symptoms of ADHD; hyperactivity, impulsivity and distractibility. The interventions proposed is based on a three-part structure: a warm-up exercise/greeting (5 min), the process portion of the session (20min) in which the researcher instructed the group members to decide on a game or activity together, and a closure (5min) which goal was to calm the children and prepare them for their return to the classroom. This structure was chosen in order to address social, emotional and behavioral goals outlined in the school's IEP goals for each child. Both students had goals related to increasing their frustration tolerance and increasing positive interaction with peers. The intervention was offered to a dyad-group during an eight-week 30min weekly sessions.	• Warm up: stretches, yoga, and breathing. • Process: fine and gross motor activities, such as puzzles, board games, puppets, a trampoline, a large foam donut, a log swing, etc. • Closure: consisted of relaxation on a mat on the floor with the lights dimmed and classical music.	Students in the treatment group improved or remained the same in terms of their behavior, therefore, DMT was associated with improved behaviors as recorded by classroom teachers
11.Tortora, S. (2006). *The Dancing dialogue*. Maryland: Paul H. Brookes Publishing Co.	Describes a non-verbal approach refer as 'ways of seeing" that combines principles of dance movement psychotherapy, the discipline of the Authentic Movement and Laban Movement Analysis to create a complete assessment, intervention, and educational approach for infants, children, and their families. The Therapeutic process occurs through a four-part procedure: • Match: feel the quality of the nonverbal cues through attunement and mirroring. • Dialogue: create a dialogue through the use of these movements. • Explore and expand: explore, expand, and develop these movements. • Nonverbal to verbal: move communication from nonverbal to verbal exchange.	The body becomes a primary tool to encourage and enable the child's self-expression. Specific body tools emphasized by these approach: • Eye contact • Responses to music • Rhythm, Sound and the body • Breath and muscular tension. • Touch and the body. • Use of space. • Improvisation • Drawing and dancing. • Mirroring and attunement.	
12. Van Wagnen, V. (1999). Group Dance/Movement Therapy for self-esteem in Latency	This study utilize Sharf-Razin's Model in order to increase self-esteem of children with ADHD symptoms. Sharf-Razin's model was proposed to enhance self-esteem in children with learning disabilities though DMT sessions based on a combination of Erikson's and Kestenberg's developmental		

Aged Children with Regards to ADHD: Three Case Studies. (Master's Thesis, Drexel University).	stages. During eight sessions, once a week, this model works on mastering body movements as they relate to the mastery of self and environment relating it to the first four psychosocial stages of development. The model is described in the study presenting movement parameters and activities for each developmental stage. DMTherapist can detect "output" problems during observation sessions, work on it and hopefully the input of multimodal information, auditory, visual, and kinesthetic will change the output over the curse of treatment (p.11).		
13. Wegrich, E. (1993). The Use of Dance/Movement Therapy with an Attention Deficit Hyperactive Disorder Child. (Master's Thesis, University of Califronia, Los Angeles).	The main goal of DMT with hyperactive children is to develop adequate self-regulatory methods.	• Progressive muscle relaxation: It is similar to Jacobson Relaxation technique in which the client is physically involved in a concrete way with the focus on one area of the body, tensing and relaxing the different muscle groups. • Body Focusing: is a technique used to promote relaxation and physical awareness. • Imagery Assisted Relaxation: during this type of relaxation the client does not concentrate on the body but in imagery. • Covert Rehearsal: "the person makes internal self-statements to assist them in focusing and centering themselves", the therapist provides emotional support, positive reinforcement, and a safe and accepting environment as key factors in the success of this experience. • Enactment of Scenes: It is the recreation of scenes of events through the world of fantasy	"This study did not obtain any significant linear correlations that were consistent though the classes" (p.110). However, while observing the child in different settings during different days of the study, the researcher found that, "as time went on, he retained the same hyperactive behaviors but to lesser degrees, in different contextual environments. (…) His behavioral change was not always consistent, but clinically speaking, his attention span and ability to focus did increase over the time" (p. 110). The researcher concludes that the techniques that worked best were; 1. to set strict behavioral limits for the subject, 2. to maintain safety by scribing a circle using tape, chalk, or ropes in

		and play, which can be done by improvisation, story dramatization and pantomime. A selection of props can be included in order to carry out the play scene and promote expression. Props suggested are: stuffed animals, puppets, dolls, masks, clothing, objects, and musical instruments.	a quiet setting, 3. to enhance the therapeutic dynamic by accompanying the client in his thematic material, 4. to be at ease versus controlling with discipline of the client 5. to consistently acknowledge the boy's accomplishments

CHAPTER 5: DISCUSSION

5.1 Important Findings from the Literature Review

It is possible to recognize from the literature review main symptoms that should be addressed when planning interventions for children with ADHD. Those symptoms can be summarized as follows:

- Inattention (Distractibility): This is seen in children as difficulties anticipating, diminished sense of time and limited self awareness (Brown, 2005; Barkley, 1997, 2006; Silver, 2004). This issue is perceived by parents of children of ADHD that are treated in the Clinica Clorito Picado as the major difficulty faced by their children (Clorito Picado, 2007b).
- Hyperactivity/Impulsivity: This relates to the ability to organize actions and impulse control (Brown, 2005; Barkley, 2006; Silver, 2004).
- Self regulation and regulations of emotions: also related with hyperactivity/impulsivity, but mainly it is showed as a difficulty managing frustration (Barkely, 2006; Brown, 2005; Silver, 2004; Sadock and Sadock, 2003).
- Self perceptions: having not insight of weaknesses and difficulties (Barkely, 2006; Barber,et.al., 2005; Hoza, et.al., 2004; Sadock & Sadock, 2003).
- Social difficulties (Hoza, 2007; Nijmeijer, Minderaa, Buitelaar, Mulligan, Hartman, & Hoekstra, 2007; Van der Oorda, Van der Meulenb, Prinsa, Oosterlaanc, Buitelaard, & Emmelkamp, 2005).
- Poorer motor development than peers without ADHD (Fliers, et.al., 2007; Kroes, et.al, 2002; Piek, et.al., 1999; Pitcher, et.al., 2003; Poeta and Rosa-Neto, 2007; Tseng, et.al, 2004)

- Cognitive/Academic achievement: recognized by caregivers in the Clinica Clorito Picado as the third major difficulty.

However, it is important to recognize that secondary symptoms: self regulation, social difficulties, poor motor control and low cognitive or academic achievement can be consequences of the main ones: inattention and hyperactivity/impulsivity. In fact, documents given by the ADHD Team show that caregivers recognize conduct problems and aggression as the second major problem of their children (Clinica Clorito Picado, 2007b). Behavioral difficulties and aggression can be related with social difficulties, impulsivity and self regulation. On the other hand cognitive and academic achievement could be related to distractibility, impulsivity or hyperactivity, or it could be a consequence of a comorbidity to ADHD such as a learning disability.

The literature review also suggests four important interventions to address symptoms that parallel pharmacological treatment:

- Parent Training: Psychoeducation (Barkley, 2006; Brown, 2006; Danforth, et.al., 2006; Edwards, 2002; Ghanizadeh, 2007; Johnston, et.al., 2007; Silver, 2004; Wells, 2005; Wolraich, 2006).
    - Manage the parent's own reactions to child's behavior
    - Parent's experiences of stress, anger, and irritability
    - Decreased sense of parenting self-competence
    - Understanding parents-child relations
    - Improving parental-attending skills
    - Increasing compliance (reinforcement system)

- School Interventions (Barkley, 2006; Bulut, 2005; Miranda, et.al., 2002; Habboushe, et.al., 2001; Silver, 2004)
    - Setting a clear structure, rules and boundaries.
- Social Skills (Barkley, 2006, de Boo, & Prins, 2007, Chronis, Jones, & Raggi, 2006; Gol, & Jarus, 2005; Henley, 1998; Hoza 2007; Sadock & Sadock, 2003):
    - Developing and reinforcing appropriate social, communicational and interpersonal skills
- Self Control (Barkley, 1997, 2006; Cavanagh, 2001; Redman, 2007; Rickson and Watkins, 2003; Wegrich, 1993):
    - Self-monitoring, self-reinforcement, self-instruction and problem solving.

5.2 DMT Treatment Model: description and rationale

Based on both, the symptoms and interventions proposed in the literature and the interview with the ADHD Team, the model created has a close/time-limited group structure. It is closed because it can be seen in the online consultation that most of the patients have been attending treatment for less than 6 months, therefore it can be hypothesized that there would be enough population for the group to be done twice a year with different a population (Clorito Picado, 2007b). It is time- limited because of the demographic characteristics of the population in scope, the children would need to miss classes when attending the group and many of their parents would need to ask permission at their work sites, which makes it hard to attend more than 10 weeks. In fact, results from the team consultation showed a preference of 4 to 8 sessions for children to attend treatment according to their caregivers (Clorito Picado, 2007b).

The decision of having group intervention instead of individuals comes from the needs of both, the clinic and the children. Due to the amount of patients and work that the Team has it is

impossible for them to intervene individually, that is why all parent training is made in groups and follow up sessions are fifteen minutes long. On the other hand, because of the social and interpersonal difficulties that the children experience, group therapy appears to be a good choice; as it allows children to practice their interpersonal and communicational skills in a safe place (Hansen, et.al., 2000) and, at the same time, the group resembles the structure in which most of the kids function, school and family.

Moreover, even though originally the treatment method was thought to be specifically for the children, the information given by the Clinic as well as the literature review demonstrates the need of involving the caregivers in the treatment (Barkley, 2006; Brown, 2006; Danforth, et.al., 2006; Edwards, 2002; Ghanizadeh, 2007; Johnston, et.al., 2007; Silver, 2004; Wells, 2005; Wolraich, 2006).

The ADHD Team in the Clinic already offers an educational parent training with specific themes (Carballo & Velazquez, 2006); therefore, this model will not address those themes, for example: definition of ADHD, pharmacological treatment, educational needs, etc. Working with parents will focus on their relationship with their children and increasing parenting skills competence. Children treated in the Clinic do not have individual interventions, even though this model is being created in a group structure, the main symptoms are addressed with each child individually and it incorporates sessions where parents can learn to manage his or her child's specific difficulties.

The overall goal of the treatment model is to contribute to improvement in insight, self control, verbal and non-verbal communication, interpersonal interactions and parenting skills of school age children with ADHD symptoms and their families. The model will specifically use DMT techniques and interventions to address the needs of this population and will fill on the

gaps of the interventions already designed by the ADHD Team, improving and learning self-control and social skills, increasing insight and improving parenting skills.

Symptoms previously named will be specifically addressed as the following movement objectives:

a) Inattention (distractibility): 1. Strengthen use and modulation of time, 2. Lengthen the duration of focused attention, 3. Introduce the parents to seeing and experiencing the efforts of time and space, 4. Increase parent's self awareness allowing them to recognize their own movement preferences and its impact on their interactions with their children, and 5. Help parents understand how to use movement games and interventions to support changes in use of time and space.

b) Hyperactivity/impulsivity: 1. Introduce swing phrases in a sport model like diving, 2. Help modulate time by going from high intensity quickness to low intensity sustainment, 3. Introduce parents to concept of range of time going from quickness to sustainment, and 4. Help parents understand how they can use these games as assistance to the child.

c) Self regulation related to emotions: 1. Explore emotions with child demonstrating standard emotions like angry and happy, 2. Make the connection between those emotions and the feeling in the body in awareness, 3. Let child demonstrate with you what the usual movement behavior is when he/she feels these, 4. Discuss some alternative behaviors that will bring him positive feedback, and 5. Discuss with parents (and teachers if possible) how you approached this symptom and ask for their cooperation.

d) Social difficulties: 1. Teach children how to understand groups through reflecting and attuning to movement the style of others in the group, 2. Insist that each style be accepted and mirrored, 3. Let children talk about how each style fits or does not fit them, 4. Let

children talk about using styles according to the context, and 5. Share the learning with children to parents and teachers.

The treatment model presented is a two hours weekly session meeting during 10 weeks. Except for the first session, which is the assessment session, there will be two different kind sessions; either parents only, or children with parents, will alternate in weekly basis. For both kinds of sessions the structure will be different. It has been demonstrated in the literature related with school interventions for children with ADHD symptoms that having a clear and strong structure is very important, because it provides a means for consistency, clear expectations and parameters to be better able to anticipate (Bulut, 2005; Erfer, 1995; Leventhal, 1980; Payne, 1992 Puder, & Marx, 1980). This is why the model created concretely illustrates a very clear structure that will be followed every session. Even when the themes or goals might change or adapt according to the participant's needs in a particular session, the structure and rules of the group will remain intact, and will serve as a model for caregivers of how to structure schedules and rules at home.

The sessions for the parents, starting with the second meeting, will be divided into 3 phases:

I. Introduction: involves a warm up, a review and discussion of homework and the introduction of the new theme for the session.

II. Development will be based on role playing or different structured activities proposed by the therapist addressing the specific themes of the session.

III. Closure: involves comments and insights from the activities during the session, application of the techniques learned at home and introduction of homework for the following week.

The session of the children, starting in the third meeting, are divided into two phases which at the same time will be following a structured sequence of activities. During the first half of the session only children will be participating and will last around 75 minutes. This period will also be divided into four phases:

I. Warm up: creates a secure and trustful environment, develops group cohesiveness and enable each child center his/her energy. The warm up will consist on yoga exercises, breathing and muscle relaxation movements, as well as body part movements lead by the therapist, aiming body integration and body awareness. During the early stages of the therapeutic process, warm ups will be held in the chairs to create concrete boundaries for themselves and for the group. It will focus on body parts, in non-threatening movements, exploratory gestures including reaching out, taking in toward the self, pushing away, and simple rhythms. While the children develop control and mastery, warm ups will become complex and will introduce full body movements.

II. Seat work: models techniques and strategies that resemble the work done in classroom. Table games will be used to elicit directness by paying attention to a specific task, help modulating time and increase sense of control and mastery. The therapist will help the group to become aware of their bodies during the activity, which involves the need of stillness, concentration and control to achieve mastery.

III. Movement Activity: allow participants to experience and practice the skills learned. Every action is undeniable and characteristic of real-life situations, children are confronted with the consequences of his or her actions by their own selves and by the group, and therefore they must take responsibility for the act (Schachter, 1986).

IV. Discussion: integration of insights during activity.

Parents and children will share the following 45 minutes left. This time will be used to create spaces of movement to foster positive interactions as well as to allow the families to get some feedback over their interactions (Harvey, 2006; Tortora, 2006). During this second half, the children will have the opportunity to share with the parents what they did in the beginning of the session, a movement activity will allow parent-child interactions to be practiced (the movement activity is different for each session, they will be described in the session by session description); finally comments about the experience from both parents and children will close the session.

Each session of the treatment model will address one specific theme. Each theme has been chosen accordingly with the literature, activities planned for each session match theme goals. However, the therapist need to be flexible in recognizing participants needs and interests and would be able to adapt any additional change in order to meet the patients where they are at.

5.3 Description and rationale of sessions

This section provides the reader with a description of the sessions, but more importantly with a rationale of the interventions and themes chosen in relation with the goals. The activities proposed in this treatment model are interventions that have already been developed by other therapists as well as original activities and techniques that have been developed based upon goals from the literature review or ideas of other authors but with significant modifications in order to meet the goals and needs of this clinical model. Every activity drawn from the literature has its specific reference. For a summary of the clinical model see Table 3 at the end of the discussion chapter.

5.3.1 Session #1: Assessment

Specific Goals:

- Introducing overall structure, goals and interventions of the treatment model to the parents.
- Assess movement and behavior aspects of patients,
- Get a sense of where they are at,
- Recognize interactional patterns of parenting among parents and children

Activities:

- Completing Conner's scales (CPRS-48 & CTRS-28).
- Simon says: the therapist will be Simon. The children must do what Simon tells them to do when asked with a phrase beginning with "Simon says". If Simon says "Simon says jump", the children must jump. However, if Simon says simply "jump", without first saying "Simon says", players do not jump.
- Free movement with balloons
- Verbal introduction, questions, comments and expectation about the program

This session is basically an assessment session. The structure of it is different from any other session and its goals are to assess movement and behavior aspects of patients, get a sense of where they are at, recognizing interactional patterns of parenting among parents and children. During this session, the therapist will work with the children while the parents complete the Conners' Parent Rating Scale (CPRS-48), in the waiting room. In addition, the therapist will give the teachers' scale (CTRS-28) to the parents, so that they can ask their children's teacher to complete it and bring it back the next session. Having both scales will confirm the ADHD diagnostic criteria for the two different environmental settings; in addition, they will allow for generalization of behaviors and clinical needs at the end of the treatment model. These four-point rating scales were developed as a mean of providing standardized objective behavioral assessment data for children with hyperactivity, attention problems and related behavioral concerns. They provide information in five basic subscales that include: conduct problem,

learning problem, psychosomatic, impulsive-hyperactive and anxiety. The scales were suggested by Cortés, who is the director of the clinical psychology unit in one of the third level, general, national hospitals in Costa Rica (personal communication, March 7th, 2008) because they are the most used scales in children's psychology units among the public health system in Costa Rica for ADHD. The children will follow a movement warm up, followed by improvisation/mirroring by each children. Then, they will play "Simon says…" the therapist will be Simon, he/she will make the children try different movement tasks in which different effort qualities can be seen in order to indentify use space, weight, time and flow in each child's repertoire (see Appendix B). It has been stated in the literature, that the use of effort qualities is related with developmental skills; depending on how the child uses space, weight and time different interpretations can be done about the individuals' coping style, ego strength, problem solving ability, and creative intelligence (Hastie, 2006; Kestenberg, et.al 1999). In addition, movement parameters and the game itself, can give information about social interactions, such as peer and adult relationships, impulse control, ability to follow instructions, attention span, emotional expression, critical thinking skills and problem solving (ADTA, 1999).

Later on, the parents will join the children in the session with free movement. The therapist will introduce balloons as a prop to provide abstract structure to the movement so that they can be used as a bridge to enable the relationship (Erfer, 1995). According to Harvey (1990) of observation of family members or dyads engaged in nondirective games and free play are used as assessments tools in which the therapist gain an understanding of the style of family interactions, definition and respect of boundaries, ability to enter into mutual activities, amount of sensitivity and reciprocity and mutual nonverbal rhythms. The activity with the balloons can give the therapist a broad idea of the family dynamics and interactive styles. Finally, at the end

of the session the therapist will verbally introduce the overall structure, goals and interventions of the treatment model to the participants and will answer any question or comments that anyone may have.

5.3.2 Session #2: (Parents) Empathy and Tolerance

Specific Goals:

- Introducing members of the group.
- Building group cohesiveness and trust among participants.
- Recognizing needs and knowing specific behavioral problems in their families.
- Encourage empathy and tolerance in interpersonal interactions.

Activities:

- Verbal introduction
- Name game: in a circle, every participant will pair their name with a movement that says something about them. They will show it to the group and the group will repeat it together. When all the participants have participated, the group can perform the dance build up with all the names together.
- Mirroring
- Picturing child's common responses: parents will write a picture of a scene they "repeatedly play" in their every day life with their child.
- Role-play parent child interaction: parents will share their scene and role play it for the rest of the group, in order to receive feedback from it.
- Homework: Assessing the child's nonverbal cues

This is actually the first session in terms of intervention; it is design to work with the parents introducing the members of the group in order to start developing group cohesiveness, trust and empathy among the participants and the therapist. During this session, the therapist will address some of the issues related to psychoeducation for parents such as becoming aware of parents' reactions to child's behavior, and parent's experiences of stress, anger and irritability.

The therapist will verbally explain goals, expectations and structure of the treatment model to the parents before any other movement activity. Consecutively movement action will begin with the name game will allow participants to build a sense of belonging to the group. Mirroring will also be used to get information about the participants and allow empathic reflection in order to build a sense of mutuality and trust (Cavanagh, 2001, Sandel, 2000a). The rest of the session will be devoted to recognizing interactional parent-child patterns, which according to Tortora, "bringing conscious awareness to the nonverbal aspects of a parent-child relationship requires parents to be sensitive to, reflect about, and act on their experiences with their child" (p. 337, 2006). Imagery and role play will be used to embody child-parent interactions, asking parents to create pictures of their child in their minds and then, helped by other participants enact them, allowing parents to contemplate their responses and learn more about their child and their own nonverbal reactions.

The homework for this session is to complete a worksheet of their children's nonverbal cues and personal responses to them (see Appendix C).

5.3.3 Session #3: (Children and Parents) Introduction

Specific Goals:

- Develop trust among children and therapist.
- Building cohesion and empathy among children.
- Introducing overall structure, goals and interventions of the treatment model to the children.
- Establish rules of the group.
- Increasing attention span through movement
- Modulating time
- Recognizing parent-child interactions.

Activities:

- Name game: in a circle, every participant will pair their name with a movement that says something about them. They will show it to the group and the group will repeat it together. When all the participants have participated, the group can perform the dance build up with all the names together.
- Developing rules
- Ball for attention span: everyone starts in a circle. The children start a pattern in which one of the children throws the ball to a person and then that person throws to someone new until everyone's had a turn. When they get the ball, they have to say their names. Eventually, the group should shout the names, the therapist can add more balls to make the task harder.
- Parents and Children activity: Lead & follow dyads: parents will play follow the leader with their child. Music will be as background and will exemplified different rhythms that they should follow while moving. The leader has to make sure to do movements that the follower can do. Switch roles.

It starts with a short introduction guided by the therapist. The warm up will follow this introduction and will finish with the name game which will be used to welcome and introduce participants, and build trust among the group members.

The seat work activity during this week will consist on developing the rules of the group and explaining the structure of the sessions. In this activity, children need to find some stillness in their bodies, be able to control their impulses as they need to take turns to talk, respect each other's turn, and use directness to pay attention to the task. The movement activity will use a ball as a prop. Props with children help unifying the group by giving them something fun to focus together (Kornblum, 2002). Throwing the ball to each other in a specific pattern will engage children in gross and fine motor skills (catching and throwing), it also allow children to practice direct movement qualities which help increase attention span, they will need to pay attention to the person to whom you are throwing and the person who is throwing to you so that they would

need to practice single focus attention by discriminating other stimuli (Cavanagh, 2001; Erfer, 1995; Gronlund & Weibull, 2005, Kornblum, 2002). In addition, in this cooperative game the children need to work as a team, problem solve different cognitive strategies to make the game faster and effective, and develop sense of control to stay in task for long periods of time; all these improvements will be addressing difficulties of inattention and distractibility of the children.

During the parent-child interaction, children will describe to the parents what they did during the first phase of the session, and then both, parents and children will engage on a dyad mirroring activity, parent-child dyads will switch for movement lead and follow roles, they will work with different rhythms; this activity is aiming to help parents to connect with their child and become aware of their movement patterns, build empathy and engage in positive interactions.

5.3.4 Session #4: (Parents) Assertive Communication

Specific Goals:

- Learning to read non-verbal cues.
- Awareness of self-synchrony.
- Preventing dual messages and negative interactions.
- Increasing positive interactions between parents and children.

Activities:

- Review homework
- Dancing phrases: in pairs, participants will make up two movements that can accompany a sentence given by the therapist. Those movements will be presented to the group while verbalizing the sentence, in order to reflect on how the meaning of a sentence can change depending on the non verbal cues that accompany it. Sentences could be:
    - I love you
    - No, you can't do that now
    - This is very exciting

    - I am happy to be here
    - I am listening (to you)
- Role play of the axis of communication: Situations that illustrate different parent-child interactions will be given to volunteers in the group. They will role play those situations so that the group can comment on the experience, guided by the therapist who would facilitate the discussion adding some theory about rules of communication.
    - Situation 1: caregiver and child are riding the bus to school, the child is telling dad/mom this really exiting story, mom does not respond to the child verbal cues.
    - Situation 2: child just came from school, caregiver is in a hurry to go to work. Child tells his/her mom all the exciting things that he/she did in school, caregiver respond verbally to him/her but non-verbally is not even paying attention (might be cooking, or getting things ready to leave)
    - Situation 3: caregiver is finishing an important task, child wants to play with him/her. Caregiver explains the child that as soon as he/she is done he/she will go and play with him/her. Whether caregiver does it or not, is also important in this situation.
    - Situation 4: child brings home a note from the teacher asking the caregiver to go an meet with her/him and the counselor. Caregiver get very upset thinking that is a bad thing, but the meeting is actually about all the improvements of the child.
    - Situation 5: Older sibling is taking care of child while caregiver comes, sibling asks him/her to start doing homework but the child refuses to do it, as soon as he/she hears the door, he/she runs to her/his desk and starts working.
- Homework: journaling miscommunication at home

The fourth session is again the parents only. It focuses on nonverbal communication and body language. It starts with a warm up, reviewing, commenting and reflecting on the homework experience. The development of this session will emphasize awareness of self-synchrony and role play of different situations where verbal messages contradict nonverbal cues.

The first activity consists on making up a movement while verbalizing different sentences given. In pairs, parents will work on different movements that can accompany a specific sentence; the group would reflect on how movement changes the meaning of the sentence. Later, different situations will be given for the parents to role play; these situations will resemble parent-child situations, and at the same time, illustrate the communication rules presented by Watslavick (see Appendix D). The situations enable parents to recognize mismatches between verbal and non verbal communications. Each situation creatively illustrates different rules, so the parents can not only learn about them, but experience them themselves. Parents will learn about communications rules, how to read and use body language in order to improve parental-attending skills and increase their parenting self competence.

The homework will consist in recognizing situations where members of the family miscommunicate, and identify reactions perceived. These situations might be similar to the ones were role played during the session (see Appendix E).

5.3.5 Session #5: (Children and Parents) Self Control

Specific Goals:

- Increase body boundaries and self control.
- Develop awareness own kinesphere and the use of space with others.
- Increase awareness to others
- Increase scanning and focusing ability
- Improve ability to modulate time
- Improve fine and gross motor coordination

Activities:

- Warm up: Relaxation
- Beat the clock: The object of this game is for the child to outlast the clock so that he or she is actively engaged in the task at the time the clock strikes (Swanson, 1986).

- Stop and go game: freeze dance. All the children dance while the music is on, and they freeze when the music stops. Therapist can add on that structure, for example isolating parts of the body when dancing, freezing in pairs, tryads, etc, using different levels when dancing, among others.
- Obstacle course: the therapist will build an obstacle course using different props such as: hula-hoops, balls, chairs or tables. The children will be divided in two groups and need to accomplish a set of different tasks, for example kicking the ball around the table, taking it with the hands and bounce it again around the table, then running and passing under the table and then throwing a hula-hoop over a cone. After each kid is done, they will pass the role to another member of the group until they have all had a turn.
- Parents & children activity: We all stop together: the children walk around the room. Anytime one person stops, the whole group stops. This requires focus on the ability to scan the whole group. When walking is mastered, other motor skills can be added. (Kornblum, 2002, p.169)

The fifth session is focused on increasing self control, which is addressing symptoms of hyperactivity and impulsivity, as well as self regulation and organization skills. According with Rachmany (2000), through simple concrete kinetic experiences with boundaries and simple rules, the child can create boundaries for his/her energy and develop self-control, therefore, goals for this sessions are increase body boundaries and self control (Cavanagh, 2001), develop awareness of their own kinesphere and the use of space with others (Rachmany, 2000), increase awareness to others, increase scanning and focusing ability (Kornblum, 2002), improve ability to modulate time (D. Dulicai, personal communication, March 15th, 2008).

The session starts with a directive movement warm up focused on helping the children to master impulse control, and getting them weighted or grounded (Stanon-Jones, 1992). Then, seat work will consist on playing “pick up sticks” while playing beat the clock, in which the children need to focus on the game during more than 5 minutes periods (Swanson, 1986). This

game allow children to stay in focus, practices fine motor coordination to get sticks without moving the rest of them, practices the use of sustained movement qualities, increase self of control by waiting for their turn and respecting each others' performances.

After the seat work is done, the movement activity will consist on freeze dance, allowing children to control them selves while dancing, and then an obstacle course will be played. Both activities, are planned to give the children tasks in which they need to modulate time, alternating the use quickness and sustainment while focusing in external stimuli in order to follow instructions. Both games also allow to practice the use of space, respecting other's kinespheres, modulating between directness and indirectness according with the task in order to better adapt to the environment and gain mastery on different task abilities (Cavanagh, 2001; D. Dulicai, personal communication, March, 15 2008).

Before the parents come in, the therapist will allow time for relaxation. It has been stated by Wegrich (1993) that relaxation training may help the hyperactive child to develop adequate self-regulatory methods. Relaxation involve teaching the children imagery techniques, body focusing, and progressive muscle relaxation; therapist can choose any technique depending on the level of the children (Gronlund & Weibull, 2005).

The last activity for this session is called "we all stop together" involves both children and parents. It aims to increase scanning, focusing ability and impulse control while building group cohesion (Kornblum, 2002). Group cohesion involving children and parents appears important as it allows both to have some fun together while working in the same goal, achieving a sense of mastery as a group.

5.3.6 Session #6: (Parents) Interaction Time

Specific Goals:

- Increasing positive interactions between parents and children.
- Encourage to develop boundaries and rules among the family members.
- Learning positive methods to discipline children.

Activities:

- Approaching each other: parents will work in pairs. Each pair will face each other allowing space in between to be able to walk towards each other. The therapist will ask them to approach them selves in different ways such as: pretending they are afraid of each other, being shy, being excited to see each other, pretending one is the kid and the other one is the caregiver and switching roles, etc.
- Moving with balloons: free movement using balloons.
- Homework: building a schedule with responsibilities & interactional time

This session, even though it is a session for the parents only, it is being design to learn and practice some interactional skills that might help them to better interact with their children. Finding ways to interact positively with their child might increase the child's compliance responses and will help the family to develop ground rules and clear boundaries at home.

Until certain extend, the whole program provides a specific structure that parents can use as model when working in everyday tasks at home, for instance: using always the same structure for the sessions, having the same rules in every session, being coherent with what it is said verbally and non verbally. This session is aiming to emphasize the role of this structure and the importance of positive parent-child interactions as well as recognizing changes (if any) accomplished since the program started.

The session will start as usual, with a warm up and reviewing the homework given two weeks ago. Then, the first activity will be "approaching each other", in which the movement metaphor will be used as it "portrays a specific attitude or expression, and so proper

interpretation of these metaphors can reveal significant information" (Tortora, 2006, p.183). Parents will be encouraged to record and increase their sensitivity to read the nonverbal cues of the other person, their ability to reciprocate during an interaction, their flexibility to approach the other, etc. Comments and discussion will be related to personal experiences with their own children in order to develop a better understanding of parent-child relations.

During the second activity, balloons will be used as props mainly to add the recreational aspect of movement but also because balloons have a light and free quality that can be use either with quickness or sustainment. The whole group will be asked to maintain the balloons high in the air, not letting them fell to the floor. Different rhythms, parts of the body, movement qualities will be added during the activity. This activity provide the parents with the experience of needing to focus in one task having multiple stimuli at the same time (multiple balloons), which will give them the idea of how their children might experience their lives. In addition, this activity is aiming to uncover the 'child inside" each of them, which will allow them to recognize different activities they can enjoy with their children, so that they can engage in joyful activities besides the responsibilities they already have.

Parents will be asked to think of different activities they could enjoy with their children. Therapist can also encourage them to make up a schedule in which they have to fulfill all the responsibilities at home and from school, but allowing some time for this recreational interaction.

The homework will be to write up a schedule for their kids and themselves. This schedule will describe responsibilities of both parents and children but also describe different ways in which they will engage in free-interaction time with their children. They will need to start following this schedule at home (see appendix F).

5.3.7 Session #7: (Children and Parents) Self-instructions

Specific Goals:

- Modeling the use of internal verbalizations.
- Practicing the use of self instructions in different tasks.
- Recognize the positive use of verbalization.

Activities:

- Warm up
- Sequencing cards: children will be asked to place different sequences shown in cards. Then, they have to present them to the group verbally and non-verbally, meaning role play the situation while explaining their actions verbally.
- Use of verbalization and imagery to facilitate movement: in pairs, children will be asked to think of an element from the nature and to make up a 2 minutes story about that element. They will role play that story while they tell it to the rest of the group.
- Stop and think: provides a vehicle by which a child can learn to use self-instructions to complete a task or to solve a problem. Through didactic instructions and exposure, the child is taught a series of self-directed statements: 1. what is the problem?, 2. What can I do about the problem?, 3. What is the "best" thing to do?, 4. How did I do?. The child is encouraged to use his own words to describe each step.
    - Inseat Volleyball: sitting in chairs, two groups face each other as if an imaginary volleyball net is between them. The goal is to have everyone touch the ball as if it's volleyball at least once as quickly as possible. The therapist acts as the person who can keep the ball in play if it touches the floor too far for anyone to pick it up, since they cannot get up out of their chairs. Everyone starts with their hands in the air, when a person touches the ball, their hands go down. When everyone has had a turn, time is called.
- Parents & children activity: Inseat Volleyball will be repeated but this time the parents will join the group. Children are encouraged to explain parents instructions and strategies that they have learned while playing it before.

This session is focus on self instructions. Self instructions will allow the children to work increasing their attention span, as they build up the capacity to talk to their own selves in order

to self direct their behavior (Barkley, 1997, Corkum, et.al. 2007). The session will begin with a regular warm up, in which the therapist will be verbally emphasizing every movement done, encouraging the children to label the movement activity as they do it.

During the seat work phase, the children will be asked to place in order sequencing cards that are misplaced. During this activity children will have to explain their rationale of the action that is occurring in the cards and then act it out, while they verbalize it aloud for the group. The movement activity is similar to these except that it challenges the attention span period, as children will need to focus in making up a story about something in nature, for example, a tree or the wind; they will have to remember it and tell it to the rest of the group while role playing it. Depending on the children's cognitive level, this activity could be simplified by giving them pictures of the element in nature, so that they can move as the element while explaining the group what they are doing. In these activities, verbalization will be used to foster communication and expression, assist the child in making the transition from a preverbal form of communication to a verbal one and to foster emotional connection in response to a specific behavior (Stark & Lohn, 1989). The movement activity accompanied with verbalization will then model and practice the use of internal verbalization (internal voice that talks to one's self), recognizing the positive use of it.

The next activity is called "stop and think". It provides a vehicle by which the children can learn to use self-instructions to complete a task. "In seat volleyball" will be used as exposure for the child to learn series of self-directed statements: 1. what is the problem? 2. What can I do about the problem? 3. What is the "best" thing to do? 4. How did I do? While playing the game, the therapist will stop it several times to allow children to reflect to themselves on each self-directed statements, guiding them on how to go through all of them using a specific

example. After, they have been able to reflect on the three first steps, they can play for a longer period of time (until the game is done) so that they can evaluate how they did. Children are encouraged to use their own words to describe each step. In addition to the self-instructions and problem solving skills that the children are practicing with stop and think, "in seat volleyball" allow participants to share a positive social experience sustaining a difficult task, they need self control to play the game (staying in seat), they would be practicing frustration tolerance and following directions.

Finally, during this session, the parents will join this activity. The children, who should have some mastery of the activity by this time, will explain to their parents the goal and strategies that they have learned in order to succeed in the game. Repeating the activity with the parents allows the practice of different dynamics between parents and children, giving the children a chance to experience sense of mastery and positive relationship and play with parents.

5.3.8 Session #8: (Parents) Parents as movement facilitators

Specific Goals:

- Teaching parents the application of movement activities with their children at home.
- Modeling activities that help their children to modulate quickness and stay focus.

Activities:

- The 4C's of control Time: parents stand in their own space trying to be aware of the ground and their body and are instructed to find one thing to focus on or to think about. Using self-talk they are then expected to stand perfectly still for one to five minutes. A simple set of phrases: Connect to the ground, Collect your thoughts & calm down, Concentrate on one thing and Create stillness; is used to help them master the steps involves in the process (Kornblum, 2002, p.55).
- Beat the clock: The object of this game is for the parents to outlast the clock so that he or she is actively engaged in the task at the time the clock strikes. Parents will be asked to mirror a partner's movement sited in chairs. Therapist will try to incorporate external stimuli such as sounds or visual props to try to distract parents.

- Follow the rhythm (clapping): the therapist make up different rhythms that parents need to follow together, then the leader role switches to the parents so that everyone has the opportunity to lead the rhythms.
- Stop and think: provides a vehicle by which a person can learn to use self-instructions to complete a task or to solve a problem. Through didactic instructions and exposure, the person is taught a series of self-directed statements: 1. what is the problem? 2. What can I do about the problem? 3. What is the "best" thing to do? 4. How did I do? Parents are encouraged to use their own words to describe each step. Once generated, the parent's self-statements are written on a note card which becomes a reference tool for use at home.

The eighth session is named "parents as movement facilitators". Its main goal is to integrate what has been done with them and their children during the sessions so that they can apply it at home. Basically modeling and teaching activities that help parents to assist their children to modulate time and stay focus is what will be emphasized during this session.

The warm up will be based on Kornblum's (2002) activity called the 4C's of control time which according to the author, is particularly helpful for attentional problems as it connect the individuals to the ground in order to maintain self-awareness when not moving, at the same time it increases the ability to resist temptation (to other stimuli) and serves to focus and calm down. Consecutively, the parents will practice beat the clock, which is an activity that has been done with the children in prior sessions while mirroring in pairs. This activity is aiming to teach parents techniques that can be helpful at home when focusing with the children in doing homework. During this activity the parents will be tempted to be distracted by different stimuli that the therapist will be doing (using sounds, intruding into the parent's space, giving different directions, etc), but they will need to try to stay focused in mirroring a partner.

Another activity that will be taught to parents is the use of rhythm as an organizer for the kid. Parents will be asked to follow certain rhythms that the therapist do by clapping (patting

different parts of the body can be a variation of this activity). This activity will help parents to bring the child to focus when doing homework. It will help to higher the levels of arousal if the child is tired and focus in the here and now.

Finally, the last activity of this session will be stop and think, which once again, is a repeated activity from the children's repertoire, but it was considered important for the parents to know it so that they can apply it at home.

Closure during this session will focus on how and when to apply the techniques learned. A weekly record of the application of these activities will be the homework for the next two weeks (see Appendix G).

5.3.9 Session #9: (Children and Parents) Social and Communication Skills

Specific Goals:

- Improve body awareness.
- Learn how to express and read verbal and non-verbal cues.
- Increase assertive expression of emotions.
- Respecting other's needs and space.

Activities:

- Group mirroring: dividing the group in triads, one person of each triad starts a movement that the rest of the group imitates. At any time, anyone may change the movement, and the group must change too. (Kornblum p.72)
- Self portrait:
- Dancing chairs with emotions: this is a different version of musical chairs in which there are the same numbers of chairs as participants are. Every chair has an emotion written down. Children dance with the music, when music stops, they all have to seat. Each children will act out the emotion they are sited on, so that the rest of the group will guess. They will think of a situation in their lives that they felt like that.
- Who is the mirror?: sitting in pairs facing each other, parent and child mirror each other, first with a designated leader and then with no set leader. When done right, it

shouldn't be possible to tell who is leading and who is following (Kornblum, 2002, p.71)

The session's theme for this week is social and emotional skills. Throughout the literature review difficulties with peers, social deficits, and emotional regulation problems would appear to be a common problem among children with ADHD; therefore, a whole session was planned to address these symptoms.

The goals for this week are to improve body awareness in order to recognize their emotions, be aware of their level of excitement or agitation and at the same time learn physical or non-verbal cues for recognizing feelings in others and how to express their own emotions or show empathy for others

A warm up will be the first activity as usual. The warm up should incorporate whole-body movements and might be standing up, as the children should be able to control themselves by this session. The warm up will be ended with group mirroring in which modulating time and being aware of others is needed in order to follow the task. The group will be divided in subgroups of three, one person of each subgroup starts a movement and the rest of them mirror him/her. At any time, anyone changes the movement, and the rest of the subgroup has to follow it. The activity allow children to learn how to understand groups through mirroring (following) everyone's style in the group, emphasizing that each style is accepted and letting children talk about how each style fits or does not fit them. Also, it increases awareness to others and attention span as everyone has to be attentive to everyone in the group in order to mirror the movement.

The seat work for this week will consist in art work in which participants do a self-portrait of the emotion that characterizes them, whom ever wants to share his/her picture with the group will be able to, at the same time short processing of the activity will be done (see

Appendix H). This activity introduces the concept of feelings and emotions and at the same time helps them explore how are those emotions manifest in the body.

For the movement activity, musical chairs with emotions is the activity planned. In this activity the children are suppose to embody different emotions and recognize how those emotions feel in their own bodies or how to be aware of them in other children's faces or bodies. They will also have the opportunity to talk about different situations in life in which they have felt like that; therapist will encourage discussion about problem solving and identifications among the group. During this activity the children will explore emotions and will make the connection between those emotions and the feeling in the body in awareness and they will have the chance to discuss some alternative behaviors that will bring them positive feedback.

The final activity, which involves parents and children is Who is the mirror?. Parent-child dyads will face each other and one of them will lead movement while the other one follows. After they both lead, there will be no designated leader. The activity is stimulating interactional synchrony, which promotes a sense of self and relatedness to others, and increase attunement and attachment.

During the first part of this session, while the therapist is working with the children, the parents will be offered to organize some snacks and drinks for the last session. In addition the therapist will redistribute the Conners Teacher Rating Scale (CTRS-28) to the parents to give to the teachers again, so that they can bring it back the last session.

5.3. 10 Session #10: (Children and Parents) Closure

Specific Goals:

- Evaluation of the treatment model, suggestions for improvement.
- Recognizing learning among the participants and suggestions for generalization in different settings.

Activities:

- Goodland –badland: a portion of the therapy room is defined as “Goodland”, in which the child is capable of producing self-control and more adaptive family functioning, and another part of the room is labeled “Badland”, in which difficult behaviors are acted out. Parents and children will identify goodland and badland with their own personal metaphors using movement and then they will map they journeys from badland to goodland (Harvey, 1990).
- Simon says… : assessing children’s movement improvements
- Evaluations of the treatment model.
- Celebration free time.
- Hand in certificates

This is the last session, is designed as a closure for the group. All participants, parents and children together, will celebrate their accomplishments and will set goals for the future. The therapist will evaluate improvements and changes in the children’s movements, behaviors and interactions and will ask participants for feedback and suggestions for future interventions.

The session will start with a movement warm up for the kids followed by the game “Simon says…”, which will be used, again, as an assessment tool to evaluate changes in movement qualities, improvements and difficulties of the children after participating in the DMT intervention. While children participate in the warm up and “Simon says…”, parents will complete the CPRS-48 as a post-test tool. They will also encourage to complete the evaluation form for the model. If they have extra time they can start arranging the room for celebration free time and handing in certificates.

Goodland-Badland is the main activity during this session, it addresses the children’s difficulty with self-control, as they need to have some insight of the differences in their own behaviors and interactions (Harvey, 1990). Children and their parents are prompted to think of their own personal experiences and classify them as having either positive or as negative

consequences. Dyads have to mark their way together from badland to goodland. They might reflect on where are they at the moment, and what they need to do to be able to move from one side of the room (badland) to the other (goodland). They can recognize what sort of situations made them move easily on their pathways and what has been hard about their journey. Therapist will encourage the recognition of accomplishments and future goals for the participants.

Some free time, snacks and drinks will follow Goodland-Badland as a time to celebrate the participants journey throughout this intervention. Parents will fill out the evaluation form, where they will be asked for feedback, comments or recommendations about the clinical model (see appendix I) and then, the group will be finished with the certificates ceremony. Every child that finishes the intervention will receive a certificate as a token of their hard work and motivation for his/her improvement (see appendix J).

Table 4

Week by Week view of the DMT Treatment Model

Session	Specific Goals for the session	Activities	Materials
Session #1 (Parents & children) Assessment	• Assess the children's movement qualities. • Find strengths and weaknesses for each individual. • Complete Conner's scales.	Verbal introduction Conner's scale Simon says… Free play with balloons Verbal introduction	• Conners scales
Session #2 (Parents only) Empathy and Tolerance	• Introducing overall structure, goals and interventions of the treatment model to the parents. • Introducing members of the group. • Building group cohesiveness and trust among participants. • Recognizing needs and knowing specific behavioral problems in their families. • Encourage empathy and tolerance in interpersonal interactions.	Name game Mirroring Picturing child's common responses Role-play parent child interaction. Homework: Assessing the child's nonverbal cues.	• Worksheet 1: Awareness of child non verbal cues.
Session #3 (Parents & children) Introduction	• Develop trust among children and therapist. • Building cohesion and empathy among children. • Introducing overall structure, goals and interventions of the treatment model to the children. • Establish rules of the group. • Increasing attention span through movement • Modulating time • Recognizing parent-child interactions.	Warm up Name game Developing rules Ball for attention span Lead & follow dyads	• Cd player • Music • Ball
Session #4 (Parents only) Learning to Communicate	• Learning to read non-verbal cues. • Awareness of self-synchrony. • Preventing dual messages and negative interactions. • Increasing positive interactions between parents and children.	Warm up & Review homework Dancing phrases Role playing the rules of communication Homework: journaling miscommunication at home	• Sentences to move • Hand out with rules of communication • Miscommunication handout
Session #5 (Parents & children) Self control	• Increase body boundaries and self control. • Develop awareness own kinesphere and the use of space with others. • Increase awareness to others • Increase scanning and focusing ability • Improve ability to modulate time • Improve fine and gross motor coordination	Warm up: relaxation Beat the clock: pick up sticks Stop and go game: freeze dance Obstacle course. We all stop together	• Timer /Pick up sticks • Music • Obstacle materials: Hula-hoops, balls, rope.

Session #6 (Parents only) Interaction Time	• Increasing positive interactions between parents and children. • Encouraging to develop boundaries and rules among the family members. • Learning positive methods to discipline children.	Warm up & review homework Approaching each other Moving with balloons Homework: building a schedule with responsibilities & interactional time.	• Balloons • Music
Session #7 (Parents & children) Self instructions	• Modeling the use of internal verbalizations. • Practicing the use of self instructions in different tasks. • Recognize the positive use of verbalization.	Sequencing cards Use of verbalization and imagery to facilitate movement Stop and think Inseat Volleyball	• Sequencing cards • Ball or balloons
Session #8 (Parents only) Parents as movement facilitators	• Teaching parents the application of movement activities with their children at home. • Modeling activities that help their children to modulate quickness and stay focus.	Warm up: the 4C's of Control Time Beat the clock Follow the rhythm (clapping) Stop and think Homework: weekly record of activities	• Timer • Blank cards to write stop & think steps. • Weekly record of activities handout
Session #9 (Parents & children) Social and communication Skills	• Improve body awareness. • Learn how to express and read verbal and non-verbal cues. • Increase assertive expression of emotions. • Respecting other's needs and space.	Group mirroring Self portrait. Dancing chairs with emotions Who is the mirror?	• Music • Self portrait handout
Session #10 (Parents & children) Closure	• Final assessment for evaluation (movement and Conner´s scales) • Evaluation of the treatment model, suggestions for improvement. • Integrating learning among the participants and suggestions for generalization in different settings.	Warm up Simon says: assessing children's movement improvements Goodland -badland Hand in certificates	• Conner's questionnaires • Evaluation Form • Certificates

CHAPTER 6: SUMMARY AND CONCLUSIONS

The objective of this research was to build a DMT model that can be utilized in the Clinica Clorito Picado and perhaps ultimately in other mental health settings in Costa Rica, as a model of intervention when treating school age children with ADHD symptoms. To accomplish this objective, this study was guided by two goals. The first one included identifying main symptoms, characteristics and treatments of ADHD, the characteristics and needs of the ADHD Team in the Clinica Clorito Picado and the population that is treated by them, and integrating them with DMT theories and practices in relation to school age children with ADHD symptoms. The second goal was to synthesize the information gathered in order to develop a DMT treatment method that could be used in the Clinica Clorito Picado.

The methodology was based on a systematic literature review and an online consultation/survey with the ADHD Team for specific psychosocial information about the population. Data collected from the literature was analyzed using Garrard's Matrix Method, which allowed organizing the information. Data collected from the online interview was presented in a narrative form. The DMT model represented the integration of those two.

The main symptoms and treatment of ADHD were identified by trends in the literature review. However, it was the online consultation that gave this study its essence. It was possible to recognize some of the difficulties that the Costa Rican health system is facing because of the high amount of treatment demand and little time that the professionals have to address the needs of their population. The ADHD Team in the Clinica Clorito Picado is not an exception. They have had to develop coping strategies to be able to facilitate treatment for everyone. These strategies did not appear to be sufficient, as they had to forgo quality for quantity. For example, they are unable to provide direct treatment intervention for individual students themselves.

The interventions currently offered by the ADHD team are based on the prescription of medication and educating parents about the general characteristics and related issues of the diagnosis and its treatment. Certainly, the intervention does not directly address important issues such as teaching children different skills to balance their limitations and strengths, which in fact might vary a lot because of different diagnostic needs, different subtypes, and the existence high levels of misdiagnosis and comorbidities. In addition, according with the literature and the consultation, the children treated by the ADHD team would benefit more if their treatment incorporated parenting skills training for caregivers and school management.

The DMT clinical model created offers a unique intervention for the Clinica Clorito Picado and potentially for other public health institutions in Costa Rica. It is significant because it attempts to accommodate and address specific cultural, socio-economic needs of the Costa Rican mental health system and its population; as well as symptoms and subtypes of ADHD, and other difficulties associated with it that were identified by the literature and the online consultation. The model allows the participants space and time to learn and practice social and communicational skills, increase self control, attention span and motor coordination. In addition, it emphasizes the importance of parent-child interactions during childhood. It provides parents with a mean to learn and practice parenting skills and assertive communication, to recognize specific interactional patterns that might be creating difficulties in their family dynamics, and it also provides a space to express feelings and emotions associated to their parenting experiences.

Based upon the needs of the ADHD children and the model created, it would seem that the dance/movement therapist, as part as the Clinica Clorito Picado, could effectively intervene with schools and teachers. Potential consultations in schools, including workshops to teachers,

may help them to better manage behavioral situations. It could provide the children with a clear structure to better adapt to the school environment and increase their sense of safety and confidence. Some of the activities and interventions proposed in this model could serve as the basis for this consultation.

Further recommendations for future development of this model, might be to directly survey the parents of these children. It would be important to determine their perspective on their concerns regarding parenting difficulties and the needs of their children. This survey would give the researcher the families' point of view, instead of recognizing their needs through the eyes of the professionals who are part of the ADHD team. Moreover, the development and evaluation of this model, in a quasi-experiment with pre-test-post-test design, would allow recognizing weaknesses and strengths and really assessing its effectiveness.

In conclusion this thesis has explored how a DMT model could be used within a Costa Rican clinical and cultural mental health institution as a therapeutic intervention for ADHD and perhaps a broad range of other different diagnosis. DMT is flexible and adaptable enough to meet developmental and individual needs as it is a physically integrative and an inclusive approach.

List of References

American Dance Therapy Association (2007). Retrieved April, 11th, 2007 from: http://www.adta.org.

American Dance Therapy Association (1999). Dance/Movement Therapy for Infants, Children, and Adolescents. ADTA Clinical Brochure

American Psychiatric Association (2000). *Diagnostic and Statistical Manual of Mental Disorders, Forth Edition, Text Revision*. Washington, DC: American Psychiatric Association.

Barber, S., Grubbs, L., & Cottrell, B. (2005).Self-Perception in Children with Attention Deficit/Hyperactivity Disorder. *Journal of Pediatric Nursing*, 20(4), 235-245.

Barkley, R.A. (2006). *Attention-deficit hyperactivity disorder: A handbook for diagnosis and treatment*. (3rd ed.). New York: Guilford Press.

Barkley, R. & Murphy, K. (2006). Attention-Deficit Hyperactivity Disorder, A clinical workbook. (3rd ed) New York: The Guilford Press.

Barkley, Russell A. (2003). Issues in the diagnosis of attention-deficit/hyperactivity disorder in children. *Brain & Development*. Vol 25(2), 77-83.

Barkley, R. (1997). *ADHD and the nature of self-control*. New York: The Guilford Press.

de Boo, G.M. & Prins, P. (2007). Social incompetence in children with ADHD: Possible moderators and mediators in social-skills training. *Clinical Psychology Review*, 27(1), 78-97.

Boylan, J. (2001). Exploring the use of two-dimensional and three-dimensional art media for increasing attentional abilities in the treatment of children diagnosed with attention deficit disorder. (Master's Thesis, Drexel University, 2001).

Brown, T. (2005). *Attention deficit disorder: The unfocused mind in children and adult.* USA: Yale University Press Health & Wellness.

Bulut, S. (2005). Classroom interventions for children with attention-deficit/hyperactivity disorder. *Studia Psychologica*, 47(1), 51-57.

Caja Costarricense del Seguro Social (2007). Retrieved on September 21st, 2007 from: http://www.info.ccss.sa.cr

Carballo, A.I. & Vásquez G. (2006). Experiencia práctica en atención primaria de la salud en la Clínica Clorito Picado, el caso de la atención integral a niños, niñas y adolescentes con trastorno de déficit atencional [Practical experience of primary health care in the Clinica Clorito Picado, the case of children with ADHD]. (Available in Clinica Dr. Clorito Picado T. Caja Costarricense del Seguro Social, San José, Costa Rica).

Cavanagh, C. (2001). Classroom behavior and social interaction among children with LD and ADHD: A Literature Review with Implications for DMT. Thesis presented to the faculty of College of Nursing and Health Professions, Drexel University in partial fulfillment of the

requirements for the Degree of Master of Arts in Dance/Movement Therapy, Creative Arts in Therapy Program.

Clinica Clorito Picado (2006). *Protocolo De Atención: Equipo Interdisciplinario para la Atención del Déficit Atencional* [Attention Protocol, Attention Deficit Disorder Interdisciplinary Team]. (Available in Clinica Dr. Clorito Picado T. Caja Costarricense del Seguro Social, San José, Costa Rica).

Clinica Clorito Picado (2007a). *Informe de Labores I Semestre 2006.* [Work report 1st Semester 2006]. (Available in Clinica Dr. Clorito Picado T. Caja Costarricense del Seguro Social, San José, Costa Rica).

Clinica Clorito Picado (2007b). *ADHD Questionnaire*. ADHD Team. Unpublished raw data.

Clinica Clorito Picado (2008). *Evaluacion general de Ejecucion*. [General Evaluation of Performance]. Trabajo Social. (Available in Clinica Dr. Clorito Picado T. Caja Costarricense del Seguro Social, San José, Costa Rica).

Capdevila-Brophy C.; Artigas-Pallarés J.; Ramírez-Mallafré A.; López-Rosendo, M.; Real, J.; & Obiols-Llandrich, J. (2005). Fenotipo neuropsicológico del trastorno de déficit atencional/hiperactividad: ¿existen diferencias entre los subtipos?[The Neuropsychological Phenotype Of Attention Deficit Hyperactivity Disorder: Are There Differences Among Subtypes?]. *Revista de Neurologia* 40 (Supl 1): S17-S23.

Chronis, A. M., Jones, H. A., & Raggi V. L. (2006). Evidence-based psychosocial treatments for children and adolescents with attention-deficit/hyperactivity disorder. *Clinical Psychology Review.* Vol. 26, pg 486–502.

Corkum, P., Humphries, K., Mullane J.C., & Theriault F. (*2007).* Private speech in children with ADHD and their typically developing peers during problem-solving and inhibition tasks. *Contemporary Educational Psychology*. Retrieved February 4, 2008, from the ScienceDirect database.

Danforth, J.S., Harvey, E., Ulaszek, W.R., & McKee, T.E. (2006). The outcome of group parent training for families of children with attention-deficit hyperactivity disorder and defiant/aggressive behavior. *Journal of Behavior Therapy and Experimental Psychiatry*, 37(3), 188-205.

Downes, J. (1980). Movoemnt therapy for the Special Child: Construcct for the emerging Self. In Leventhal, M. (ed) *Movement and Growth.* New York University Press: New York. p.13-17.

Dulicai, D. (1999). Special Report: The national institutes of health consensus development conference on diagnosis and treatment of attention deficit hyperactivity disorder, November 16-18, 1998. *American Journal of Dance Therapy* 21(1).

Edwards J. (2002). Evidenced-based treatment for child ADHD: "real-world" practice implications.(Counseling Adolescents)(Attention-deficit/hyperactivity disorder. *Journal of Mental Health Counseling* 24 (2): 126-140.

Erfer, T. (1995). Treating children with autism in a public school system. En: Dance and Other Expressive Art Therapies, Levy, F. Ed.; New York: Routledge.

Erfer, T., & Ziv, A. (2006) Moving toward cohesion: Group dance/movement therapy with

children in psychiatry. *Arts in Psychotherapy*. 33(3), 238-246.

Erwin-Grabner, T.; Goodill, S.; Hill, E.; and Von Neida, K. (1999). Effectiveness of dance/movement therapy on reducing test anxiety. In: *American Journal of Dance Therapy*. Vol 21(1), 19-34.

Fabiano G.A., Pelham, W.E.Jr., Manos, M.J., Gnagy, E.M., Chronis, A., Onyango, A.N., Lopez-Williams, A., Burrows-MacLean, L., Coles, E.K., Meichenbaum, D.L., Caserta, D.A., & Swain, S. (2004). An evaluation of three time-out procedures for children with attention-deficit/hyperactivity disorder. *Behavior Therapy*, 35(3), 449-469.

Fliers, E., Rommelse, N., Vermeulen, S. H., Altink, M., Buschgens, C. J., Faraone, S.V., Sergeant, J. A., Franke, B., & Buitelaar, J. K. (2007). Motor coordination problems in children and adolescents with ADHD rated by parents and teachers: effects of age and gender. *Journal of Neural Transmission*.

Fundacion DA (n.d.). Adecuaciones curriculares [Curricular adjustments][Brochure]. Fundacion DA 20: Melania Aragon.

Garrard, J. (1999). *Health sciences literature review made easy: The matrix method.* Maryland: Aspen Publishers.

Ghanizadeh A.(2007). Educating and counseling of parents of children with attention-deficit hyperactivity disorder. *Patient Education and Counseling*, 68 (1), 23-28.

Gillberg, C.; Harrington, R. & Stinhausen, H. (2006). *A Clinician's Handbook of Child and Adolescent Psychiatry.* New York: Cambridge University Press.

Gol, D., & Jarus, T. (2005). Effect of a social skills training group on everyday activities of children with attention-deficit–hyperactivity disorder. *Developmental Medicine & Child Neurology*. 47, (08), 539-545.Goodman, L. (1991). Movement behavior of hyperactive children: a qualitative analysis. *American Journal of Dance Therapy.* 13(1), 19-30.

Greydanus, E., Pratt, H.D., & Patel, D.R. (2007). Attention Deficit Hyperactivity Disorder Across the Lifespan: The Child, Adolescent, and Adult *Disease-a-Month*, 53 (2), 70-131. Habboushe, D.F., Daniel-Crotty, S., Karustis, J.L., Leff, S.S., Costigan, T., Goldstein, S.G., Eiraldi, R. & Power, T.J. (2001). A family-school homework intervention program for children with attention-deficit/hyperactivity disorder. *Cognitive and Behavioral Practice*, 8 (2), 123-136.

Gronlund, E.; Renck, B. & Weibull, J. (2005). Dance/Movement Therapy as an Alternative Treatment for Young Boys Diagnosed as ADHD: A Pilot Study. *American Journal of Dance Therapy.* 27(2), 63-85.

Hansen, S., Meissler, K., & Ovens, R.(2000). Kids Together: A group play therapy model for children with ADHD symptomology. *Journal of Child & Adolescent Group Therapy*. 10(4), 191-211.

Harvey, S. (1989). Creative arts therapies in the classroom: A study of cognitive, emotional, and motivational changes. *American Journal of Dance Therapy*. Vol 11(2): 85-100.

Harvey, S. (1990). Dynamic play therapy: An integrative expressive arts approach to the family therapy of young children. *The Arts in Psychotherapy* 17 (3). p. 239-246.

Harvey, S. (2006). Dynamic Play Therapy. In: Shaefer, C. & Kaduson, H.G. (Eds). *Contemporary Play Therapy: Theory*, Research, and Practice. NY: Guilford Press.

Cruz, R. (2006). Assessment in Dance/Movement Therapy. In: Brooke, S.L. (Ed.), *Creative Arts Therapies Manual : a guide to the history, theoretical approaches, assessment, and work with special populations of art, play, dance, music, drama, and poetry therapies*. (p. 133-142). Illinois: Charles C. Thomas Publisher.

Hastie, S. (2006). The Kestenberg Movement Profile. In: Brooke, S.L. (Ed.), *Creative Arts Therapies Manual : a guide to the history, theoretical approaches, assessment, and work with special populations of art, play, dance, music, drama, and poetry therapies*. (p. 121-132). Illinois: Charles C. Thomas Publisher.

Yale University Press, Summer;13(3), 402-21.

Hechtman, L.; Abikoff, H.; Klein, R. Weiss, G. Respitz, C.; Kouri, J.; Blum, C.; Greenfield, B. Etcovitch, J.; Fleiss, K.; & Pollack, S. (2004). Academic Achievement and Emotional Status of Children With ADHD Treated With Long-Term Methylphenidate and Multimodal Psychosocial Treatment. *Journal of the American Academy of Child & Adolescent Psychiatry*, 43(7): 812-819.

Henley, D. (1998). Art therapy in a socialization program for children with attention deficit Hyperactivity Disorder American. *Journal of Art Therapy*. 37 (1): 2-12.

Hernández, R., Fernández, C. & Baptista, P. (1991). *Metodología de la investigación* [Research Methodology]. (2nd ed). Mexico: McGraw-Hill Interamericana Editores.

Hervey, L.& Kornblum, R. (2006) An evaluation of Kornblum's body-based violence prevention curriculum for children. In *Arts in Psychotherapy*, 33, 113–129.

Hoza, B.; Gerdes, A.; Hinshaw, S.; Arnold, L.; Pelham, W.; Molina, B.; Abikoff, H.; Epstein, J.; Greenhill, L.; Hechtman, L.; Odbert, C.; Swanson, J.; Wigal, T. (2004) Self-Perceptions of Competence in Children with ADHD and Comparison Children. *Journal of Consulting and Clinical Psychology*. Vol 72:(3), 382-391.

Hoza B. (2007). Peer Functioning in Children With ADHD. *Ambulatory Pediatrics: Measuring Outcomes in Attention Deficit Hyperactivity,* 7(1), 101-6. Retrieved February 4, 2008, from Children's Module database.

Jackson, N. (2003). A survey of music therapy methods and their role in the treatment of early elementary school children with ADHD. *Journal of Music Therapy*. Vol 40(4) Win, 302-323.

Johnston, C., Hommersen, P., & Seipp, C. (2007). Acceptability of Behavioral and Pharmacological Treatments for Attention-Deficit/Hyperactivity Disorder: Relations to Child and Parent Characteristics. *Behavior Therapy*. Retrieved February 4, 2008, from the ScienceDirect database.

Kestenberg, J.S. (1975). In collaboration with Robbins, E., Berlowe, J., Beuelte, A., and Marcus, H. *Children and Parents*. New York: Jason Aronson.

Kestenberg, J.; Loman, S.; Lewis, P. & Sossin, K.M. (1999). *The Meaning of Movement: Developmental and Clinical Perspectives of the Kestenberg Movement Profile*. New York: Brunner-Routledge.

Koshland, L.; Wittaker, J. and Wilson, B. (2004). PEACE through Dance/Movement: Evaluating a Violence Prevention Program. *American Journal of Dance Therapy*, 26(2), 69-90.

Kroes, M., Kessels, A.K., Kalff, A.C., Feron, F.J., Vissers, Y.L., Jolles, J., & Vles, J.S. (2002). Quality of movement as predictor of ADHD: results from a prospective population study in 5- and 6-year-old children. *Developmental Medicine & Child Neurology*, 44(11), 753-760.

LaQuay, S. (1997). Attention-deficit hyperactivity disorder: diagnostic indicators in the kinetic-human-figure-drawing. (Master's Thesis, Drexel University, 1997).

Leventhal, M. (1980). Movement and Growth: Dance Therapy for the Special Child. In Leventhal, M. (ed) *Movement and Growth.* New York University Press: New York. p. 3-9.

Levy, F. (1988). *Dance-Movement Therapy: A Healing Art***,** USA: National Dance Association, American Alliance for Health, Physical Education, Recreation, and Dance.

Loe, I.M. & Feldman. H.M. (2007). Academic and Educational Outcomes of Children With ADHD. *Ambulatory Pediatrics: Measuring Outcomes in Attention Deficit Hyperactivity* 7(1), 82-90. Retrieved February 4, 2008, from Children's Module database.

McGovern, K. (1995). The role of the art therapist in the diagnosis of attention deficit hyperactivity disorder and child. (Master's Thesis, Drexel University, 1995).

Mertens, D. (2005). *Research and Evaluation in Education and Psychology: integrating diversity with quantitative, qualitative, and mixed methods.* 2nd Ed. CA: SAGE Publications.

Milliken, R. (2002). Dance/movement therapy as a creative arts therapy approach in prison to the treatment of violence. In *Arts in Pyschotherapy*, 29, 203-206.

Miranda, A., García, R., & Presentación M.J. (2002). Factores moduladores de la eficacia de tratamiento psicosocial de niños con déficit de atención con hiperactividad [Factors modulating the efficacy of psychosocial treatment in children with attention deficit hyperactivity disorder]. *Revista de Neurologia*; 34 (Suppl 1): S91-7.

Newman, B. and Newman, P. (2006). *Development Through Life; A Psychosocial Approach*. Ninth Edition. USA: Thomson Wadsworth.

NIH Consens Statement Online (1998). Diagnosis and Treatment of Attention Deficit Hyperactivity Disorder; [Retrieved on 2008, February, 05]; 16(2): 1-37.

Nijmeijer, J.S., Minderaa, R.B., Buitelaar, J.K., Mulligan, A., Hartman, C.A., & Hoekstra, P.J. (2007). Attention-deficit/hyperactivity disorder and social dysfunctioning. *Clinical Psychology Review*. Retrieved February 4, 2008, from the ScienceDirect database.

North, M. (1975). *Personality Assessment through Movement*. Boston: Plays Inc.

Organización Panamericana de la Salud, Ministerio de Salud (2004). Situación actual de la Salud en Costa Rica [Currently health situation in Costa Rica]. *Serie Análisis de Situación de Salud*, no. 10. Retrieved July, 2, 2007 from: www.netsalud.sa.cr.

Pan American Health Organization (2002). *Profile of the health services system of Costa Rica*. (2nd ed). Division of Health Systems and Services Development, Pan American Health Organization.

Payne, H. (1992). Shut in, shut out: Dance Movement Therapy with children and adolescents. In: *Dance Movement Therapy: Theory and Practice*, Payne, H. (Ed) New York: Brunner Routledge; p. 39-80.

Pena, M. (2003). Asi aprendo; Guia para educadores. [This is how I learn: Guide for teachers]. 2ed San Jose, Costa Rica: Fundacion DA.

Piek, J.P., Pitcher, T.M., & Hay, D.A. (1999). Motor coordination and kinesthesis in boys with attention deficit–hyperactivity disorder. *Developmental Medicine & Child Neurology*, 41(03), 159-165.Poeta, L.S. & Rosa-Neto, F. (2007).Evaluación motora en escolares con indicadores del trastorno por déficit de atención/hiperactividad.[Motor evaluation of school-age children with ADHD inticators] *Revista de Neurologia*. 44 (3): 146-149.

Pitcher, T.M., Piek, J.P., & Hay, D.A. (2003). Fine and gross motor ability in males with ADHD. *Developmental Medicine & Child Neurology*, 45(08), 525-535.Puder, M. & Marx, E. (1980). Practical Applications of Dance and Movement Therapy with learning Disable Children. In Leventhal, M. (ed) *Movement and Growth.* New York University Press: New York. p. 37-43

Quesada, N.C. (2007). Informe de Labores [Work Report].ADHD Team. (Available in Clinica Dr. Clorito Picado T. Caja Costarricense del Seguro Social, San José, Costa Rica).

Rachmany, G. (2000). Kinetic an Emotional Aspects in the Development of Body Boundaries in Children with ADHD. (Master's Thesis, Drexel University, 2000).

Ralph, N.B.Oman, D. & Forney, W. (2001). Treatment outcomes with low income children and adolescents with attention deficit. *Children and Youth Services Review*, 23 (2), 145-167.

Redman, D. (2007). The effectiveness of Dance/Movement Therapy as a Treatment for Students in a Public Alternative School Diagnosed with Attention Deficit Hyperactivity Disorder: A pilot Study. (Master's Thesis, Drexel University, 2007).

Rickel, A. & Brown, R. (2007). *Attention-Deficit/Hyperactivity Disorder in Children and Adults*. Massachusetts: Hogrefe Y Huber Publishers.

Rickson, D. & Watkins, W. (2003).Music Therapy to Promote Prosocial Behaviors in Aggressive Adolescent Boys-A Pilot Study. *Journal of Music Therapy*.40, (4): 283- 302.

Rickson D. (2006). Instructional and Improvisational Models of Music Therapy with Adolescents Who Have Attention Deficit Hyperactivity Disorder (ADHD): A Comparison of the Effects on Motor Impulsivity. *Journal of Music Therapy, 43*(1), 39-62.

Sadock, B. & Sadock, V. (2003). *Synopsis of psychiatry*. (9th ed.). Philadelphia: Lippincott Williams & Williams.

Safran, D. (n.d.). An art therapy approach to Attention Deficit/Hyperactivity Disorder. In Clinical Approaches with Children and Adolescence.

Safran, D. (2002). Art therapy and AD /HD: diagnostic and therapeutic approaches. London: Jessica Kingsley Publishers.

Sandel, S.; Chaiklin, S. & Lohn, A. (1993). Foundations of Dance/Movement Therapy: The life and work of Marian Chace. The Marian Chace Memorial Fund of the American Dance Therapy Association: Maryland.

Sandel, S. (2000a). The process of empathic reflection in Dance Therapy. In *Foundations of Dance/Movement therapy: the life and work of Marian Chace.* Maryland: published by the Marian Chace Foundation of the ADTA.

Sandel, S. (2000b). Imagery in Dance Therapy Groups: A Developmental Approach. In *Foundations of Dance/Movement therapy: the life and work of Marian Chace.* Maryland: published by the Marian Chace Foundation of the ADTA.

Schachter, R. (1986) Techniques of Kinetic Psychoterapy. In: Schaefer, C. & Reid, S. (Ed.) Game play: therapeutic use of childhood games. NY: John Wiley & Sons Inc.

Schmais, C. (1974). Dance/movement therapy in perspective. In Mason (Ed). *Focus on dance VII: dance therapy.* Reston, VA: American Alliance for Health, Physical Education, Recreation and Dance.

Silver, L. (2004). *Attention-Deficit/Hyperactivity Disorder: A Clinical Guide to Diagnosis and Treatment for Health and Mental Health Professionals* (3rd Ed.). Washington DC: American Psychiatric Publishing, Inc.

Solis, M.I. (2006). *País necesita hacer cambios radicales en manejo de salud mental infantil* [The country needs to do radical changes in children's mental health]. Retrieved June 5, 2007 from www.ccss.sa.cr/html/noticias/2006/10/noticia90.html.

Spencer, T.J., Biederman, J., & Mick. E. (2007). Attention-Deficit/Hyperactivity Disorder: Diagnosis, Lifespan, Comorbidities, and Neurobiology. *Ambulatory Pediatrics: Measuring Outcomes in Attention Deficit Hyperactivity,* 7(1), 73-81. Retrieved February 4, 2008, from Children's Module database.

Stanon-Jones, K. (1992). *An introduction to Dance/Movement Therapy in psychiatry.* London: Routledge.

Stark, A. and Lohn, A. (1989). The Use of Verbalization in Dance/Movement Therapy. In *The Arts in Therapy*, 16, 105-113.

Stern, D. (1974). Goal and Structure of Mother-Infant Play. In*: Journal of the American Academy of Child Psychiatry*.Kornblum, R. (2002) *Violence prevention through movement and pro-social skills.* Oklahoma: Wood and Barnes Publishing.

Tortora, S. (2006). *The Dancing dialogue*. Maryland: Paul H. Brookes Publishing Co.

Treacy, L.; Tripp, G.; & Baird, A. (2005). Parent Stress Management Training for Attention-Deficit/Hyperactivity Disorder. *Behavior Therapy* 36: 223-233.

Tseng, M.H., Henderson, A., MK Chow, S., & Yao, G. (2004). Relationship between motor proficiency, attention, impulse, and activity in children with ADHD. *Developmental Medicine & Child Neurology*, 46 (06), 381-388.

VanDer Oord, S.; Prins, P.; Oosterlaan, J.; & Emmelkamp P. (2007). Does brief, clinically based, intensive multimodal behavior therapy enhance the effects of methylphenidate in children with ADHD? *European Child & Adolescent Psychiatry*. 16 (1): 820-829.

Van der Oorda, S., Van der Meulenb, E.M., Prinsa, P.J.M., Oosterlaanc, J., Buitelaard, J.K., & Emmelkamp, P.M.G. (2005). A psychometric evaluation of the social skills rating system

in children with attention deficit hyperactivity disorder. *Behavior Research and Therapy*, 43 (6), 733-746.

Van Wagnen, V. (1999). Group Dance/Movement Therapy for self-esteem in Latency Aged Children ith Regards to ADHD: Three Case Studies. (Master's Thesis, Drexel University, 1999).

Wegrich, E. (1993). The Use of Dance/Movement Therapy with an Attention Deficit Hyperactive Disorder Child. (Master's Thesis, University of Califronia, Los Angeles, 1993).

Wells, K. (2005). Family therapy for Attention-Deficit Hyperactivity Disorder. In: Lebow, J. (Ed.) Handbook of Clinical family Therapy. New jersey: John Wiley 7 Sons, Inc.

Wolraich, M.L. (2006). Attention-deficit hyperactivity disorder. *Seminars in Pediatric Neurology*, 13 (4), 279-285.

Appendix A: Online Consultation, Interview format

Caja Costarricense del Seguro Social
Clinica Clorito Picado
Attention Deficit Disorder Team

The goal of the present interview is to identify the needs of the ADHD Team and the psychosocial characteristics of the population that is treated. The data provided will be synthesized with the information gathered in a literature review of the research, which is aiming to create a DMT treatment method that might act as a beneficial therapeutic tool for your institution, and perhaps for other mental health settings in Costa Rica, to aid children suffering from ADHD symptoms.

The information that you, as a Team, can offer is essential to these research, and will form the basis of new therapeutic improvements and alternative interventions. Therefore, I will truly appreciate if you could exhaustively answer the following questions regarding the labor of the Team for the last 5 years.

I. In relationship to the **symptoms** presented in the population referred to the ADHD Team:
   a. Could you describe the major problems of the children that assist this Team?
      Academic achievement:
      Social development:
      Cognitive development:
      Emotional issues:
      Behavioral problems:
   b. What are the major impairments or consequences of these symptoms?

II. In terms of **treatment**:
   a. What are the therapeutic strategies used, once they attend to their first appointment?
   b. How is the follow up of the treatment?
   c. How would you describe the adherence to treatment is?
   d. Do they attend to the appointments issued by the Team?
      i. Appointments for children
      ii. Educational Groups for parents

e. Do they have economical, educational and social support needed to fulfill their treatment requirements?

f. What have you found is the most effective intervention?/ Which results have you observed when using the different therapeutic strategies?

g. Could you think of a gap in the current intervention that would be beneficial for your patients?

III. **Population's demographics** that is treated by this Team:

a. In terms of nationality, age, and gender how could you describe the population?

b. What do you think are the most predominant problems for the patients to follow up the treatment requirements?

c. According with your experience, do you think the patients would be willing to participate in other groups, different from what you already offer? How often and how many sessions do you think they could attend to those groups?

Please feel free to add any other comments you may think significant to the present research.

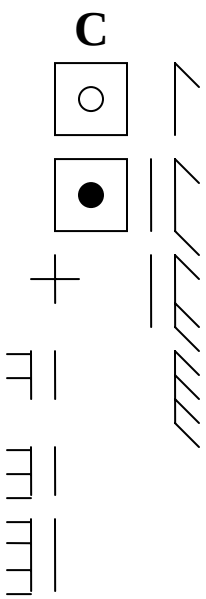
Appendix B: Movement Data Record

Name of Child:
Age

Name of Caregiver
Date

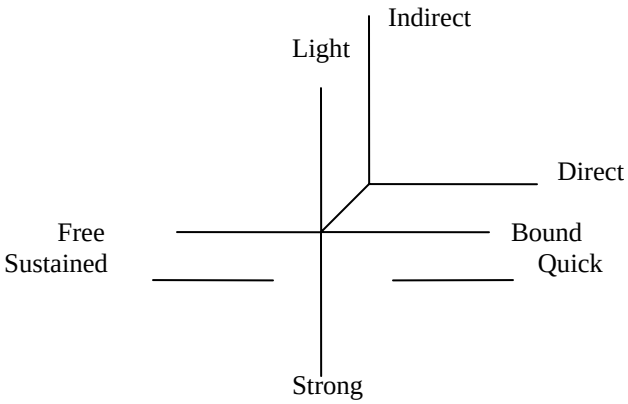
BODY LEVEL

1. Use of postures (P)
2. Use of gestures
3. Body parts held (tension spot) or inert (dead spot)
4. Body parts initiating movement
5. Body parts move simultaneously vs. sequentially



USE OF EFFORT

Preferences used:



SPACE

Preferences used:

Kinesphere: Far / Intermediate / Near

Level: High / Middle / Low

Planes: Vertical / Horizontal / Sagittal

OTHER COMMENTS

Appendix C: Worksheet of Children's Non Verbal Cues

1. Spend some time watching your child in three different settings or activities. For each setting or activity, answer the following questions:
    a. What meaning do you "read" in your child's body expressions, and what message is your child "reading" in your nonverbal behaviors?
    b. How does your child show his or her emotions? What gesture or movements are used?

2. What are your physical and emotional reactions to these body expressions and gestures? For instance, you could smile, retreat, you could feel your heart beating faster, etc.

3. While your child is in a specific activity, mirror the movement by trying it on.
    a. What does it feel like to you? What is your reaction?

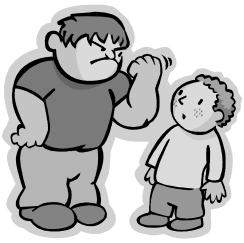
4. Do you feel like you attune to your child's style as reflected in the child's cues, gibing room for his or her expression before intervening? Or do you respond an internal impulse to help or control without attending to your child's style first?

Rules of Communication

(as presented by Paul Watslavick)

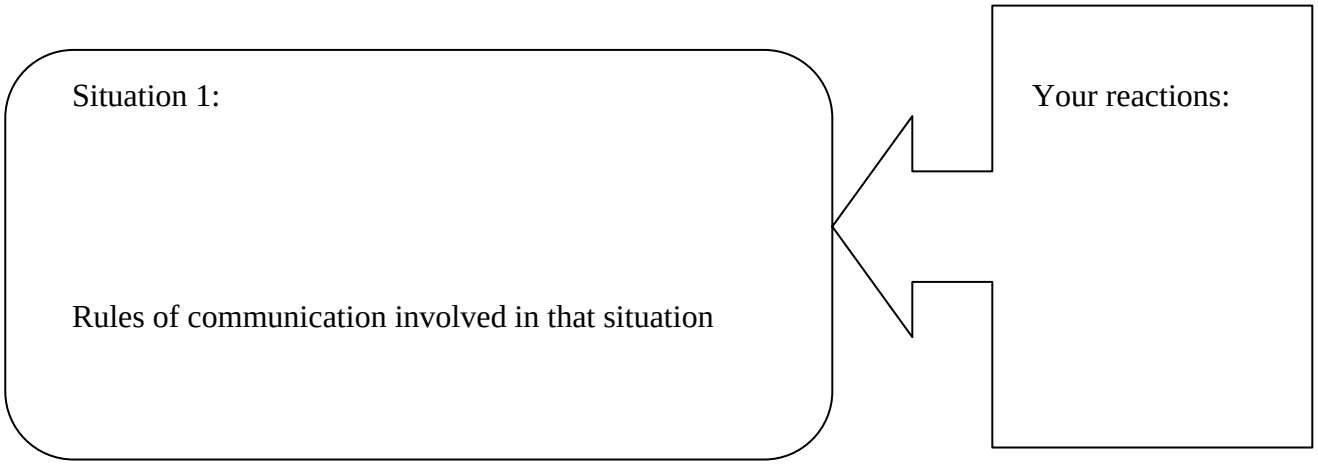
1. **You cannot not communicate:** Every behavior is a kind of communication. Because behavior does not have a counterpart (there is no anti-behavior), it is not possible not to communicate.
2. ***Human communication involves both digital and analog modalities***: Communication does not involve the merely spoken words (digital communication), but non-verbal and analog-verbal communication as well.
3. ***Every communication has a content and relationship aspect such that the latter classifies the former and is therefore a metacommunication.***: This means that all communication includes, apart from the plain meaning of words, more information - information on how the talker wants to be understood and how he himself sees his relation to the receiver of information

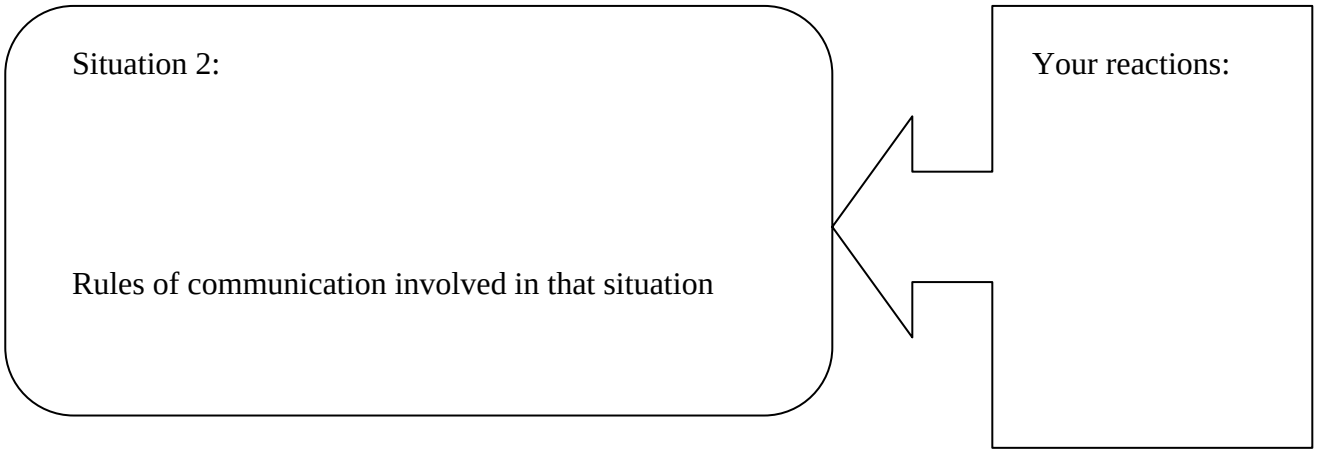
4. ***The nature of a relationship is dependent on the punctuation of the partners communication procedures***: Both the talker and the receiver of information structure the communication flow differently and therefore interpret their own behavior during communicating as merely a reaction on the other's behavior (i.e. every partner thinks the other one is the cause of a specific behavior). Human communication cannot be devolved into plain causation and reaction strings, communication rather appears to be cyclic.
5. ***Inter-human communication procedures are either symmetric or complementary***, depending on whether the relationship of the partners is based on differences or parity.

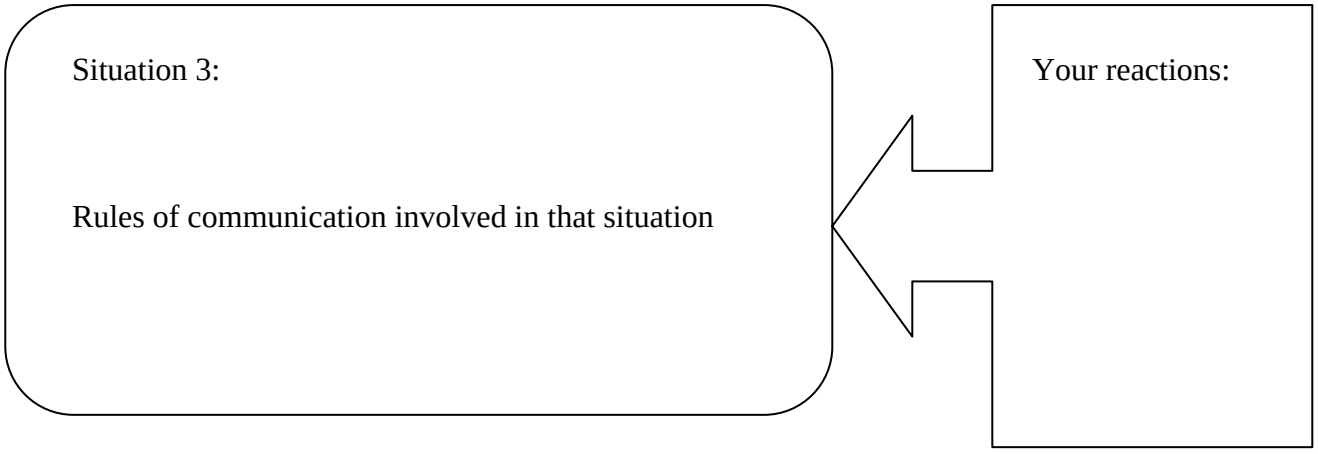


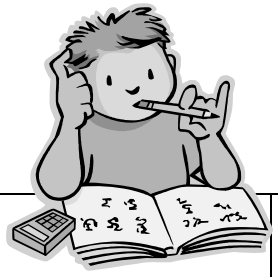
Appendix E: Miscommunication at home

During the next week, try to be especially aware of how the rules of communication are used in your family. Register situations in which you recognized how the family members were miscommunicating, identify rules of communication in these situations, and write some of your reactions to it







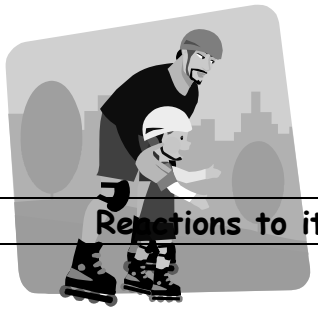


Appendix F: Activities Schedule at Home

	Mon	Tue	Wend	Thu	Fri	Sat
1. 						
2.						
3.						
4.						
5.						
6.						
7.						
8. 						

If I earn_____ points for the week, I can_____

Appendix G: Weekly Activity Record



Day and time	Interactional Activity	Reactions to it

Appendix H: Self Portrait

Draw a picture of your self
expressing the emotion that best characterizes you

Appendix I: Evaluation Form

DMT Model Evaluation

Date:_____

1. Do you think that the DMT intervention was beneficial for you and your family? In what way?

_____
_____
_____

2. What did you learn during the DMT treatment model that allowed you and your family to increase positive family interactions? Explain

_____
_____
_____

3. Have you being able to apply techniques that you learned during the 10 sessions in your everyday life? How?

_____
_____
_____

4. Would you recommend other caregivers to participate in this intervention, even when their children need to miss school in order to attend it?

_____
_____
_____

5. In your opinion, what are some of the limitations of the DMT intervention?, Could you give us feedback for future groups?

_____
_____
_____
_____
_____

Appendix J: Certificates for children

Caja Costarricense de Seguro Social

Clínica Clorito Picado

Attention Deficit Disorder Team

Gives this certificate to

Name of Participant

Who, in company of his family, has attended the DMT treatment model, accomplishing it by following rules and doing the homework assigned.

_____

Name of therapist.
Dance/Movement Therapist

_____

Name of Co-therapist.
Position